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GRADUATE BULLETIN



Mission and Vision

Mission and Vision

The University of Akron, a publicly assisted metropolitan institution, strives to develop enlightened members of society. It offers comprehensive programs of instruction from associate through doctoral levels; pursues a vigorous agenda of research in the arts, sciences, and professions; and provides service to the community. The university pursues excellence in undergraduate education and distinction in selected areas of graduate instruction, inquiry, and creative activity.

Commitments and vision:

The University of Akron maintains a commitment to:

- Provide learning opportunities for the full spectrum of students;
- Create and discover knowledge through basic and applied research and creative activity;
- Create a learning environment with emphasis on a full collegiate experience for each student, leading to opportunities for cognitive, social, and personal development;

- Provide a forum for the examination of ideas and concepts and the generation of scholarly dialogue within the established principles of academic freedom;
- Encourage opportunities for interdisciplinary study and research;
- Strive for continued improvement of the teaching and learning environment;
- Prepare career oriented people for professional leadership roles in regional, national, and international organizations and institutions; and

Offer appropriate educational and professional services to its various constituencies within available resources and established continuing education and outreach philosophies.

The University of Akron maintains a vision of:

- Being a leading public urban research university with an unsurpassed commitment to community engagement with a great American legacy city, Akron;
- Being an opportunity university for all types of learners;
- Being known as a willing and constructive partner of business, government and the non-profit sector;
- Being an institution of innovation willing to invest in unique approaches that increase opportunity for students and reduce costs;
- Being a diverse and inclusive university. We will sponsor an array of superb academic programs relevant to the future;
- Making and keeping promises to our students, ourselves and this community.

About the Bulletin

Inquiries

Address inquiries concerning

Graduate study:

Graduate School (<https://www.uakron.edu/graduate/>)
The University of Akron
Akron, OH 44325-2101
(330) 972-7663 / Fax (330) 972-6475

Financial aid, scholarships, loans, and student employment:

Office of Student Financial Aid (<https://www.uakron.edu/finaid/>)
The University of Akron
Akron, OH 44325-6211
(330) 972-7032 / Toll free (800) 621-3847 / Fax (330) 972-7139

Athletics:

Director of Athletics (<https://gozips.com/>)
The University of Akron
Akron, OH 44325-5201
(330) 972-7080

Registration, records, graduation, DPR, scheduling, and Ohio Residency requirements:

Office of the University Registrar (<https://www.uakron.edu/registrar/>)
The University of Akron
Akron, OH 44325-6208
(330) 972-8300

Undergraduate admissions information:

Office of Admissions (<https://www.uakron.edu/admissions/undergraduate/>)
The University of Akron
Akron, OH 44325-2001
(330) 972-7100 or toll-free, (800) 655-4884

Accredited By

Higher Learning Commission
Dr. Barbara Gellman-Danley, President
230 S. LaSalle Street, Suite 7-500
Chicago, IL 60604
800-621-7440

<https://www.hlcommission.org/>

For information on accreditation or to review copies of the accreditation documents, contact the Office of Academic Affairs.

Office of Academic Affairs
Buchtel Hall 102
Akron, OH 44325-4703
(330) 972-7593

Disclaimer

While every effort is made to provide accurate and up-to-date information, the University reserves the right to change, without notice, statements in the Bulletin series which include, but are not limited to rules, policies, procedures, fees, curricula, courses, programs, activities, services, schedules, course availability, or other matters. For example, programs may be modified due to limited resources or facilities, unavailability of faculty, insufficient enrollment, or such other reasons as the University deems necessary.

Equal Education and Employment Institution

The University of Akron is an equal education and employment institution operating under nondiscrimination provisions of Title 41, Ohio Revised Code; Titles VI, VII of the Civil Rights Act of 1964, as amended; and Title IX of the Educational Amendments of 1972, as amended; Executive Order 11246, as amended; Vocational Rehabilitation Act section 504; Vietnam Era Veterans' Readjustment Act, as amended; Age Discrimination in Employment Act of 1967, as amended; Title II of the Genetic Information Nondiscrimination Act of 2008; and Americans with Disabilities Act, as amended as related to admissions, treatment of students, programs and activities, and employment practices.

It is the policy of this institution that there shall be no unlawful discrimination against any individual in employment or in its programs or activities at the University of Akron because of race, color, religion, sex, sexual orientation, gender identity, age, national or ethnic origin, disability, military status, genetic information, or status as a veteran. The University of Akron prohibits sexual harassment of any form in all aspects of employment and in its programs and activities and prohibits discrimination on the basis of sexual and racial or ethnic orientation in employment and admissions.

Complaints of possible sex and other forms of discrimination should be referred to:

EEO/AA Office

Tami Zupkow Hannon, Director EEO/AA
ASB, Room 138
(330) 972-7300

<https://www.uakron.edu/hr/eeoaa/>

Title IX - Policy Information and Inquiries Concerning the Application of Title IX

Michael Strong, Interim Title IX Coordinator and Dean of Students
Student Union, Room 152
(330) 972-6048

<https://www.uakron.edu/title-ix/at-uakron/>

Title IX - Issues for Students

Michael Strong, Deputy Title IX Coordinator for Students
Student Union, Room 152
(330) 972-6048

Jacklin Wallgren, Deputy Title IX Coordinator for Athletics
InfoCision Stadium 269
(330) 972-5512

Title IX - Issues for Employees

Emily Lenke, Deputy Title IX Coordinator for Employees and Director,
Employee and Labor Relations
ASB 125E
(330) 972-6195

or

The United States Department of Education, Office of Civil Rights

Policy Information on the Americans with Disabilities Act may be obtained from

Tami Zupkow Hannon, Director EEO/AA and A
ASB, Room 138
Akron, OH 44325-4709
(330) 972-7300

Jessica DeFago, Director, Office of Accessibility
Simmons Hall, Room 105
(330) 972-7928

Important Policies

Academic Misconduct

It is each student's responsibility to know what constitutes academic misconduct. The University of Akron's Code of Student Conduct (<https://www.uakron.edu/ogc/UniversityRules/pdf/41-01.pdf>) is a University rule that provides the framework for the student conduct process at The University of Akron and defines student misconduct and the process by which the University will use to address student misconduct reported to the Department of Student Conduct and Community Standards.

Academic Misconduct is defined as engaging in any intentional or unintentional activity, individually or in concert with others, which would constitute a breach of academic integrity, or otherwise subverts the educational process. This includes the submission of any student work or assignment wherein an evaluation, grade, or academic credit is expected,

whether in a face-to-face setting or by any electronic means. Acts of academic misconduct include, but are not limited to, the following:

- **Cheating:** the use, attempt to use, or possession of any aid, information, resources, or other means in the completion of any academic assignment, where use of such material is not specifically permitted or authorized by the instructor, or providing such material to another student. This includes, but is not limited to: possessing, referring to, or otherwise using unauthorized books, notes, crib/cheat sheets, etc. in any format; possessing, using, or referring to any unauthorized electronic devices or other materials during completion of any academic assignment; looking at or using information from another student during the completion of any academic assignment; receiving assistance from another individual in completing any academic assignment without express authorization from the instructor; utilizing or soliciting another individual to complete any portion of an academic assignment in place of oneself or submitting the work of another individual as one's own; submitting the same, or substantially the same, materials for academic credit in more than one course without the express permission of the instructor making the academic assignment; completing or participating in the completion of any portion of an academic assignment for another student to submit as their own work; providing assistance, information, or other materials to another student in any manner not authorized by the instructor.
- **Plagiarism:** presenting as one's own work the ideas, representations, or words of another individual/source without proper attribution. Examples include, but are not limited to, submitting material that in whole or in part is not entirely one's own work, without accurate and appropriate citation and/or attribution (including the use of quotation marks); using the words, ideas, or structure/sequence of another individual or source without proper and appropriate citation and attribution (including the use of quotation marks).
- **Fabrication:** falsification, invention, or manipulation of any information, citation, data, or method. Examples include, but are not limited to, changing materials submitted on a graded academic assignment and requesting re-grading of that assignment; presenting false or invented information in any academic assignment; presenting false claims regarding how information or data was collected, generated or obtained; inventing or inaccurately presenting citations or sources.
- **Unauthorized Collaboration:** unauthorized collaboration with another in any phase of, or in the completion of, an individual academic assignment, without the express permission of the instructor to complete any assignment in that manner.
- **Misrepresentation:** falsely representing oneself or one's efforts or abilities in an academic assignment. Examples include, but are not limited to, utilizing another individual or individuals to complete any portion of an academic assignment in place of one's self; having another individual appear in or participate in any fashion in any class.
- **Gaining an Unfair Advantage:** completing an academic assignment through use of information or means not available to other students or engaging in any activity that interferes with another student's ability to complete their academic work. Examples include, but are not limited to: retaining, possessing, using, or distributing previous or current academic assignment materials when the instructor has indicated that those materials are not to be retained or shared or are to be returned to the instructor at the conclusion of the academic assignment or course (including originals, copies, reproductions, or pictures and electronic or hard-copy formats); making copies, pictures or reproductions in any form of any academic

assignment when the instructor has not allowed such reproduction; obstructing or interfering with another student's work, or ability to get access to information to be used in the completion of any academic assignment; taking another student's work without his or her knowledge or permission; removing academic assignment materials from an instructor's office, classroom, computer, or any other University space (physical or virtual/electronic); violating the procedures described to maintain the integrity of an academic assignment.

- **Engaging in behavior specifically prohibited by an instructor** in the course syllabus or during any academic assignments.
- Attempts to engage in any of the described acts shall be treated the same as a completed act.

This rule shall not be interpreted as permitting a faculty member to limit a student's right to responsibly engage in free inquiry and expression, when relevant to the subject under study or discussion, or to be treated fairly in the academic setting and to have the student's performance evaluated solely on an academic basis.

Violation of any prohibition of academic misconduct may result in the imposition of sanctions beyond any imposed, or suggested, by the faculty member involved, and may result in the University revoking any degree awarded. Any act of academic misconduct must be reported to the Department of Student Conduct and Community Standards by any faculty, or other individuals who become aware of such acts and will be adjudicated as outlined in the Code of Student Conduct and explained below.

An incident of academic misconduct may be resolved and a sanction assessed in a meeting between the faculty member and student. The faculty member should confer with the Department of Student Conduct and Community Standards to determine whether any prior academic misconduct has occurred. If there is no history of prior academic misconduct and the student and faculty member agree on the facts of the incident and the proposed sanction, the matter can be resolved informally through the use of the Academic Misconduct Notification Form located on the Department of Student Conduct and Community Standards webpage. If agreement has been reached and the Academic Misconduct Notification Form has been signed by both the student and faculty member a copy should be retained by the faculty member and student, and the original should be sent to the Department of Student Conduct and Community Standards.

If the student and faculty member disagree about the facts of the incident or the proposed sanction, or the student chooses not to sign the form, or the faculty member chooses not to resolve the matter informally, then the matter should be referred to the Department of Student Conduct and Community Standards for adjudication as provided in the Code of Student Conduct (<https://www.uakron.edu/ogc/UniversityRules/pdf/41-01.pdf>).

For additional information or resources concerning academic misconduct or the Code of Student Conduct please contact the Department of Student Conduct and Community Standards by phone at (330) 972-6380, by email at studentconduct@uakron.edu, online at www.uakron.edu/studentconduct (<https://www.uakron.edu/studentconduct/>), or by visiting us in Simmons Hall room 302.

Academic Reassessment

A student who meets all the criteria described below may petition the Dean of the Graduate School to remove from his or her graduate

cumulative grade point average all those grades earned under the student's prior enrollment at The University of Akron.

- Degree-seeking graduate student
- Previous graduate enrollment at The University of Akron
- Not enrolled at The University of Akron for at least five years prior to current enrollment, and
- Maintain a current graduate grade point average of at least 3.00 or better for the first fifteen hours of re-enrollment credit.

If the student's petition is granted, the following will apply to the reassessment policy:

- This policy only applies to the student's graduate grade point average.
- All University of Akron grades will remain on the student's official, permanent academic record (transcript); this process will affect the cumulative grade point average only. It will not remove evidence/documentation of the student's overall academic history at the university.
- No grades/credits from the student's prior graduate enrollment at the university may be counted toward the subsequent degree program requirements. Degree requirements may only be met by courses included in the calculation of the student's cumulative graduate grade point average at The University of Akron. Thus, the student who successfully petitions for cumulative graduate grade point average recalculation under this policy automatically forfeits the right to use any of the excluded course work toward the current degree requirements.

A student may exercise this graduate reassessment option only once, regardless of the number of times the student enters/attends a graduate degree program at The University of Akron.

Discipline. Continuation as a student of the university is dependent on the maintenance of satisfactory grades and conformity to the rules of the institution.

Auditing Courses

A student choosing to audit a course must elect to do so at the time of registration. The student pays the enrollment fee and may be expected to do the work prescribed for students taking the course for credit, except that of taking the examination. Any faculty member may initiate withdrawal for a student not meeting these expectations.

Commencement

Students must file an online application for graduation with the Office of the University Registrar after completion of one-half of the credits required for their degree program or by the following dates:

- April 1 for Spring Commencement
- July 1 for Summer Commencement
- November 1 for Fall Commencement

Students wanting to attend the commencement ceremony must visit the Office of the University Registrar website to respond to the ceremony.

Grades

A student admitted to graduate study under any status at The University of Akron is expected to maintain a minimum 3.00 average (4.00 = "A") at all times. A grade-point average of 3.00 or better is required for

graduation. Any student whose average falls below 3.00 is no longer in good standing in the Graduate School and considered on probation. No more than six semester credits of "C" grades may be counted toward the degree. In computing cumulative averages, "D" grades are treated as "F" grades. The Dean of the Graduate School, with the approval of the department head, may dismiss anyone who fails to make satisfactory progress toward declared goals or who accumulates six semester credits of "C+" or below. The accumulation of six semester credits of "F" will result in mandatory dismissal. A student dismissed from the Graduate School for academic reasons may not be readmitted for one calendar year, and then only if evidence for expecting improved performance is submitted and found acceptable.

Official academic records are maintained with a grade-point system as follows:

Grade	Quality Points	Key
A	4.0	
A-	3.7	
B+	3.3	
B	3.0	
B-	2.7	
C+	2.3	
C	2.0	
C-	1.7	
D+	0.0	Failure
D	0.0	Failure
D-	0.0	Failure
F	0.0	Failure
CR	0.0	Credit
NCR	0.0	No Credit
AUD	0.0	Audit

The following grades may also appear on the term grade reports or on the official academic record. There are no grade points associated with these grades.

"I" - Incomplete: Indicates that the student has done passing work in the course but that some part of the work is, for good and acceptable reason, not complete at the end of the term. Failure to make up the omitted work satisfactorily by the end of the following term, not including summer sessions, converts the "I" to an "F". When the work is satisfactorily completed within the allotted time, the "I" is converted to whatever grade the student has earned. (Note: If instructors wish to extend the "I" grade beyond the following term for which the student is registered, prior to the end of the term they must notify the Office of the Registrar in writing of the extension and indicate the date of its termination. It is the responsibility of the student to make arrangements to make up the incomplete work. The faculty member should submit the new grade to the office of the registrar in writing.)

"IP" - In progress: Indicates that the student has not completed the scheduled coursework during the term because the nature of the course does not permit completion within a single term, such as work toward a thesis.

"PI" - Permanent incomplete: Indicates that the student's instructor and the instructor's dean have for special reason authorized the change of an incomplete ("I") to a permanent incomplete ("PI").

"WD" - Withdraw: Indicates that the student registered for the course but withdrew officially sometime after the second week of the term.

"NGR" - No grade reported: Indicates that, at the time grades were processed for the present issue of the record, no grade had been reported by the instructor.

"INV" - Invalid: Indicates the grade reported by the instructor for the course was improperly noted and thus unacceptable for proper processing.

Special Credit/No Credit grading basis for Spring 2020 only:

The Graduate School will support programs which better understand their needs with respect to accreditation, licensure, etc. The Graduate School will not make any decisions regarding course grading and will support the decisions of the programs with the content expertise.

Changing Grades

A student who wishes to appeal a final grade must initiate the procedure by the end of the fifth week of the spring semester for grades received during the preceding fall semester, and by the fifth week of the fall semester for grades received during the preceding spring or summer semesters. For grades earned during the semester in which a student graduates, grade appeals must be initiated and completed before the degree is posted to the student's permanent record. Students must first review the matter with the instructor. If the matter is not resolved, or if the instructor is not available, the student must submit a written appeal to the department chair or school director.

Re-examination for the purpose of raising a grade is not permitted.

Thesis and Dissertation Credits

Course number 699 will only be used for courses which indicate credit is being given for a master's thesis. 899 will only be used for courses which indicate credit is being given for a doctoral dissertation. No credit for 699 or 899 will be given unless the thesis or dissertation is completed.

Grievance Procedure for Graduate Students

Purpose

The procedures set forth in this document are intended to provide graduate students with a formal channel of appeal and redress of grievances arising out of their academic and/or employment relationship with the University.

Procedures

Any graduate student who believes that he or she has valid grounds for a complaint shall attempt to resolve the problem through a conference with the faculty member involved, the department head, and/or the graduate adviser. Following that, the student may attempt to resolve the problem with the assistance of the academic dean. A graduate student presenting a case to the academic dean must provide a full written statement of the grievance, together with all appropriate supporting material. When or if the problem has not been adequately solved at that level or the student wishes to appeal that decision, the student shall prepare a written statement of the complaint setting forth clearly and specifically the allegations and shall hand deliver the written complaint to the Dean of the Graduate School. The Dean of the Graduate School shall notify the complainant confirming the receipt of the complaint and shall request all materials from the dean of the complainant's college.

Within one week of receipt of the complaint, the Dean of the Graduate School shall communicate with all parties in an attempt to informally resolve the problem. The result of this process will be a recommendation by the Dean of the Graduate School which will be communicated in writing to all parties, including the Senior Vice President and Provost.

The complaint shall become a grievance to be filed with the Senior Vice President and Provost if:

1. the Dean of the Graduate School wishes to have a hearing committee render a recommendation on the grievance; or
2. the student wishes to appeal the recommendation of the Dean of the Graduate School.

The student must notify the Senior Vice President and Provost in writing within one week of notification of the Dean of the Graduate School's decision on the complaint.

Upon receipt of the grievance, the Senior Vice President and Provost shall notify in writing the President of Graduate Student Government that a hearing committee should be constituted. The hearing committee shall be organized in no more than two weeks.

When the grievance has been filed with the chairperson of the hearing committee, it shall be the responsibility of that chairperson to notify in writing all parties involved in the grievance within two working days. This notification shall include the following information: that a grievance has been filed; the nature of the grievance; and the parties involved.

If the charged party in that grievance admits the validity of the grievance, the chairperson of the hearing committee shall waive the hearing and shall direct an appropriate resolution in consultation with the hearing committee.

If the party charged in the grievance denies the validity of the grievance, the hearing committee shall conduct the hearing.

Hearing Committee

A hearing committee shall be established as follows:

- Chairperson. The chairperson shall be a member of the graduate faculty with full membership, but not from a department involved in the proceedings. This chairperson shall be selected by the Senior Vice President and Provost and shall serve for only one grievance proceeding. The chairperson shall conduct the hearing and shall vote only in the case of a tie.
- Members: four members shall be selected as follows:
 - From the complainant's department - Graduate student not directly involved, selected jointly by the department chair and the President of the Graduate Student Government. If the grievance is filed against the department chair, the academic dean shall substitute for the department chair. If the grievance is filed against the department, the Senior Vice President and Provost shall substitute for the department chair.
 - From the complainant's department - A faculty member not directly involved, selected jointly by the department chair and the President of the Graduate Student Government. If the grievance is filed against the department chair, the academic dean shall substitute for the department chair. If the grievance is filed against the department, the Senior Vice President and Provost shall substitute for the department chair.

- A graduate student not involved with the complainant and not from the complainant's department, selected by the Vice Chairperson of the Graduate Council.
- A member of the graduate faculty with full membership not involved in the complaint nor from the complainant's department, selected by the Senior Vice President and Provost.

A hearing committee shall be organized anew each and every time a grievance is brought forth. A hearing committee shall serve through the adjudication and resolution of the complaint.

Hearing Procedure

The hearing must take place within two weeks of the hearing committee's formation.

At least three working days prior to the hearing, the hearing committee chairperson shall provide the hearing committee and the parties involved with the students's written statement of the grievance, written notification of when and where the hearing committee shall meet, and a copy of the Grievance Procedure for Graduate Students and all relevant documents.

Each party shall be required to appear in person before the hearing committee to present his or her case. Each party may have an advisory/colleague present to protect his or her rights if so desired. However, the parties shall speak and act on their own behalf. Witnesses may be called to present evidence on behalf of the complainant or the charged person. The use of tape recorders is prohibited, except as may be required to accommodate persons with disabilities.

All parties shall be entitled to an expeditious hearing. In urgent cases in which it is alleged that a regulation, administration decision, or action threatens immediate and irreparable harm to any of the parties involved, the hearing committee shall expedite the hearing and disposition of the case. The hearing committee is empowered to recommend to the Dean of the Graduate School that an individual, department, or college discontinue or postpone any action which threatens to cause irreparable harm, pending the final disposition of the case.

The burden of proof shall be on the complainant and the standards of justice and fair play shall prevail in the adjudication of violations and grievances.

If necessary, the hearing committee may consult with the university's Office of General Counsel for advice at any time throughout this process.

Decisions and Actions

The hearing committee shall decide as follows: there has been a violation of the complainant's rights, or there has been no violation of the complainant's rights.

Should the hearing committee determine that a violation of the complainant's rights occurred, the committee shall, if practical, recommend a resolution to the Senior Vice President and Provost.

The Senior Vice President and Provost, exercising his or her judgment, shall act on the implementation of the resolution recommended by the hearing committee.

Record Keeping

The chairperson of the hearing committee shall be responsible for keeping a summarized, written record of all the proceedings.

Records of all proceedings shall be prepared by the secretarial personnel of the Graduate School. Copies of all proceedings shall be distributed as follows:

- To all parties involved in the proceedings.
- To all hearing committee members.
- To the President of Graduate Student Government.
- To the Dean of the Graduate School.
- To the Senior Vice President and Provost.

A copy of all proceedings shall be kept in the office of the Dean of the Graduate School pursuant to the University's record retention proposal.

Appeal

An appeal may be made to the President of the University after all of the above procedures have been followed. The President of the University shall assess each case on an individual basis and his/her decision shall be considered final.

Probation and Dismissal

Any student whose grade-point average falls below 3.00 is no longer in good standing in the Graduate School and will be placed on probation. In consultation with the college or department, as appropriate, the Dean of the Graduate School will dismiss full-time students who do not return to good academic standing within two consecutive semesters (excluding summers) and part-time students who do not return to good academic standing within the attempting of fifteen additional credits.

For the purpose of administration of the full-time and part-time provisions of this policy, full-time and part-time status are determined by the semester in which the student goes on probation. Full-time enrollment constitutes nine or more graduate hours; part-time is less than nine graduate hours.

The Dean of the Graduate School, with the approval of the relevant department chair may also dismiss anyone who fails to make satisfactory progress toward declared goals or who accumulates six semester credits of "C+" or below. The accumulation of six semester credits of "F" will result in mandatory dismissal.

A student dismissed from the Graduate School for academic reasons may not be readmitted for one calendar year, and then only if evidence for expecting satisfactory performance is submitted and found acceptable.

Repeating Courses

Any graduate course may be repeated once for credit. However, the degree requirements shall be increased by the credit hour value of each course repeated. The hours and grades of both the original and the repeated section shall be used in computing the grade-point average. Required courses in which a "D" or "F" was received must be repeated.

General Information

Admission

Every person who desires to enroll in or audit any graduate credit course must be first admitted or approved by the Graduate School.

Online applications for admission to the Graduate School should be submitted electronically at least six weeks (domestic) and six months (international) before the start of the term for which admission is sought in order to allow adequate time for complete processing. Some programs

have earlier deadlines. Applicants should contact the departments for more detailed application information. Information on graduate programs, including application deadlines, is available on the Graduate School website.

First-time applications to the Graduate School must be accompanied by an application fee. The fee for **domestic** students is **\$45**. The fee for **international** students is **\$70**. A fee of \$45 must accompany all domestic and international reapplications. Applications fees are not refundable under any circumstance.

An official transcript from each college or university attended must also be received by the Graduate School before the application will be processed. This applies to the complete academic record, both undergraduate and graduate. Transcripts should be sent from the institutions attended directly to the Graduate School. The applicant is responsible for seeing that the above conditions are met by the deadlines for filing applications.

All records, including academic records from other institutions, become part of the official file and cannot be returned for any purpose.

An offer of admission may only be made to an applicant who meets all admission requirements. It must be recognized that staff, facilities, and other resources are limited, so the number of students accepted will vary among departments and from term to term. An accepted applicant may begin graduate work in the fall, spring or summer semester. The offer of admission is void, however, if the applicant does not register for and attend courses within one year from the semester for which admission was granted. An individual whose offer of admission has lapsed must submit a new application along with the reapplication fee to be reconsidered.

The student is admitted only for the purpose or objective stated on the application for admission. A new request for admission must be filed when the original objective has been attained or when the student wishes to change objectives. The admitted status terminates when the time limits have been exceeded or other conditions for continued admitted status have not been met.

No student will be admitted without approval and acceptance by an academic department within the University, but admission to a department does not necessarily imply candidacy for any graduate degree program in that department. Admission for graduate study in any program can only be granted by the Dean of the Graduate School and the staff of that office.

Admission Classifications

All students are identified by the Graduate School as being in one of the following categories. Any change must be arranged through the Graduate School.

Full Admission may be given to any applicant who desires to pursue a graduate degree and has a baccalaureate degree from an accredited college or university with an overall grade-point average of 2.75 or better or 3.00 for the last two years (64 semester credits or equivalent); or holds an advanced degree from an accredited college or university in or appropriate to the intended field; or holds a baccalaureate or master's degree from a foreign college or university with first-class standing or its equivalent, plus satisfactory evidence of competence in English.

Provisional Admission may be granted to a person who has not met all of the requirements for full admission (2.74-2.5 overall GPA or 2.75 over the

last two years). This admission status permits a student to take up to 15 semester credits of graduate coursework. Graduate courses taken under this admission status may be applied to a graduate degree program, but only when all requirements for full admission have been met.

Deferred Admission may be granted if the applicant's record does not meet provisional admission standards. After completion of a postbaccalaureate program of study, with an appropriate GPA, as prescribed by the department (usually two to five courses), the student may be reconsidered for provisional admission to the Graduate School. No graduate-level coursework can be taken by a student under the deferred admission status.

Conditional Admission may be granted to a person who has not yet provided evidence of the meeting the required proficiency in English. This proficiency can be demonstrated by the submission of official TOEFL or IELTS scores. A minimum score of 79 is required on the internet-based TOEFL. A minimum score of 6.5 is required on the IELTS test. Students may not enroll in graduate courses until the English proficiency requirement has been satisfied. Note: Some academic departments may require higher TOEFL or IELTS scores.

Non-Degree Admission may be granted to a person who wishes to take particular courses but who is not working toward a graduate degree. This admission status permits a student to take unlimited credits of graduate coursework. Graduate courses taken under this admission status may be applied later to a graduate degree program, but only when all requirements for full admission have been met.

Transient status may be given to a person who is a regularly enrolled graduate student in good standing in a degree program at another accredited university and has written permission to enroll at The University of Akron. Such permission is valid only for the courses and semester specified, with a maximum of ten semester credits allowable, and is subject to the approval of the instructor, department chair and Graduate School. A transient student is subject to the same rules and regulations as a regularly enrolled student of the University.

Workshop status is for a person permitted to take workshops for graduate credit without being admitted to Graduate School. Such permission is granted by the workshop director upon receipt of a signed statement of possession of a baccalaureate degree by the applicant, and terminates upon completion of this workshop. A student admitted to workshop status must apply through regular channels for any other category. A maximum of six workshop credits may be applied to degree work at a later date if the applicant is given full admission to the Graduate School.

Undergraduate status is for an undergraduate student at the University who may be granted permission to take one or more graduate-level courses if all the following conditions are met:

- senior standing;
- overall grade-point average of 2.75 or better through preceding term (if a student does not have a 3.00 or better in the major field, special justification will be required from the department);
- written approval is given by the instructor of the course and the student's adviser.

These courses may later be applied to a degree program if not used to satisfy baccalaureate degree requirements. The maximum number of graduate credits that may be taken by an undergraduate and applied later toward a graduate degree is 12.

Postdoctoral status is divided into three categories:

- a *Fellow* is a person holding an earned doctorate who is engaged in advanced research. A fellow shall be considered a guest of the University and provided space and use of facilities within limits of practical need of the undergraduate and graduate programs. Tuition and fees shall be collected if allowed under sponsoring contract for any courses the fellow may choose to take;
- a *Special* is a person holding an earned doctorate who desires an additional graduate degree. A special may be admitted to any program upon submission of application forms, application fee (if new student) and an official transcript from the institution awarding the doctorate. This student will be treated as a regular student subject to registration fees and program degree requirements;
- a *Guest* is a person holding an earned doctorate who desires to attend courses and seminars relevant to individual work or interest without registering or receiving grades. A written application should be submitted to the dean of the Graduate School for each course to be taken, and approval of the instructor, department chair and college dean shall be obtained. A guest is welcome to register for any course or seminar provided space is available. Normally, space and facilities for research cannot be provided for a postdoctoral guest but special requests will be considered. Requests should be submitted, in writing, to the Dean of the Graduate School who will review such requests with the appropriate college dean and department chair.

Admission Validity

An offer of admission is void if an applicant does not register for and attend courses within one year from the semester for which admission was granted. An individual whose offer of admission has lapsed must submit a new application along with the reapplication fee to be reconsidered.

Course Load

A full load of coursework at the graduate level is normally 9-15 semester credits including audit. For doctoral students who are in their final semester of study and have completed all degree requirements except the dissertation, and for international students participating in curricular practical training (CPT) and/or academic training (AT) opportunities of 30 or more hours per week with approval from the International Center, one or more graduate hours constitute full-time enrollment.

Cross-Registration

Under specific circumstances a graduate student may take one or more graduate courses at Cleveland State University, Kent State University, The University of Akron, Northeast Ohio Medical University, or Youngstown State University without registering as a transient student. The course for which a student wishes to register should contribute to the student's program of study and be unavailable when needed to complete the student's program at the home institution. The student must be in good standing (GPA>3.0) and within the time limits for degree completion. The graduate program unit at the student's home institution will establish a graduate special topics or independent study course identification capable of being "tagged" by the home university with a title that will correspond to the course title at the host university and with the initials of that university; i.e. CSU, KSU, NEOMED or YSU. Registration for such a course is controlled by the home department and will be permitted only upon receipt of an approved Cross Registration form. Cross Registration forms can be obtained on the Graduate School website.

Entrance Qualifying Examinations

The use of examinations to determine admissibility to enter a graduate program or eligibility to continue in one is the prerogative of the departments offering graduate programs. The department has the right to select the examination and minimum acceptable level of performance. Information and procedure may be obtained from the chair of the appropriate department.

Graduate Assistantships

The Graduate School awards a number of graduate assistantships to qualified students. Graduate School funded assistantships are awarded for up to two years of master's study, up to five years of doctoral degree study, and up to five years of master's/doctoral degree study. No student will receive an assistantship for more than five years. A graduate assistant renders service to the university through teaching, research and other duties. For information and/or applications, the student should contact the chair of the department. Tuition scholarships are also available on a limited basis in some departments.

A number of fellowships sponsored by industry and government agencies are available in some departments. For information, the student should contact the chair of the department.

Additional information and policies pertaining to graduate assistantships is available in the Graduate Assistant Handbook which can be obtained on the Graduate School website (<https://www.uakron.edu/gradsch/>).

Nonaccredited American School Graduates

A student holding a baccalaureate degree from a non-accredited American college or university, is required to complete at least ten semester credits of postbaccalaureate work at a 3.00 level before being considered for admission to the Graduate School. The accreditation status of the school at the time of the student's graduation shall apply. A student should consult with the department chair in the major field to develop a postbaccalaureate program.

Registration

The responsibility for being properly registered lies with the student, who should consult with the assigned adviser in preparing a program of courses and/or research. A schedule of courses, hours, class location, and registration procedures is obtainable online through the Office of the Registrar (<https://www.uakron.edu/registrar/>).

Sixty Plus Program

The University of Akron Sixty-Plus Program has been designed to allow persons over 60 years of age to attend University courses on a non-credit (audit) basis without having to pay tuition, general service fees, or other fees not charged to all students taking the same classes under conditions described below:

- To qualify for the Sixty-Plus Program, the prospective student must be 60 years of age or older and have resided in the State of Ohio for at least one year.
- Sixty-Plus students are permitted to enroll in a class on a space available basis. Sixty-Plus students will be allowed in classes only after degree-seeking students have registered.

- Sixty-Plus students are listed as audit students. Audit students do not generate state subsidy, therefore, audit students should not be considered in making courses reach minimum size.
- Students 60 years or older who choose to take classes for credit must pay full tuition and fees.
- A Sixty-Plus student must either satisfy prerequisite class requirements or obtain the instructor's permission.
- Sixty-Plus students' admittance into a course is subject to instructor's approval.
- A Sixty-Plus student may register for no more than three courses (11 or fewer credits) per semester.
- Sixty-Plus students are responsible for payment of approved fees, which are assessed to all students taking the same course. Tuition, general service fees, and any other fee not assessed to all students taking the same class will be waived. Sixty-Plus students are responsible for any other expenses such as parking permits or books.
- The Sixty-Plus program is intended to comply with section 3345.27 of the Revised Code.

Persons over the age of 60 may attend University of Akron courses and receive credit for courses taken under the conditions outlined above if the person's family income is less than 200% of the federal poverty guideline, as revised annually by the United States Secretary of Health and Human Services in accordance with Section 673 of the Community Services Block Grant Act, 95 stat. 511 (1981) 42 U.S.C.A. 9902, as amended for a family size equal to the size of the family of the person whose income is being determined. However, a person receiving credit for attending courses under this division will be charged a tuition or matriculation fee in an amount no greater than the amount of any part-time student instructional grant awarded to that person by the state university or college in its discretion. The following shall also apply:

- Eligible Sixty-Plus participants may enroll for no more than three courses (11 or fewer credits) unless request to enroll in a greater number is approved by the Senior Vice President and Provost and Chief Operating Officer.
- Participants in this program may be prohibited from enrolling in certain courses for which special course or training prerequisites apply, in which physical demands upon students are inappropriate for imposition upon persons 60 years of age or older, or in which the number of participating regular students is insufficient to cover the University's course-related expenses.
- Sixty-Plus students are subject to the same disciplinary and/or governance rules affecting all students.
- This policy is subject to and provided by Ohio law and The University of Akron Board of Trustees regulations, either of which may be amended from time-to-time.

Transfer Students

A graduate student matriculated in the Graduate School of another college or university who wishes to transfer to The University of Akron to continue graduate education must be in good standing at the other school.

International Students

The University of Akron welcomes international students and seeks to provide a meaningful, positive experience throughout their studies. Approximately 850 international students and visiting scholars

from around the world pursue studies and research at The University of Akron.

Admission

International students may apply to begin their graduate studies for the Fall, Spring, or Summer Sessions. Students should submit their applications at least six months in advance of the date they wish to begin studying. Graduate students applying for assistantships should submit applications nine months before the term begins for best consideration. The following procedures should be followed:

- Access the online graduate application through the Graduate School website and submit along with a nonrefundable application fee of \$70.
- Submit official transcripts from all institutions attended. Original records in languages other than English must be accompanied by exact English translations and certified by the institution, U.S. consulate, or other legal certifying authority.
- Submit proof of English Language Proficiency.

Costs, Financial Aid, and Medical Insurance

Information on estimated expenses for international graduate students on F-1/J-1 visas can be found on the form "Declaration and Certification of Finances" (DCF), which can be downloaded at <http://www.uakron.edu/international/forms> (<https://www.uakron.edu/international/forms/>). Annual tuition and living expenses for the 2022-2023 academic year will be approximately \$27,000. Tuition, fees, books, medical insurance, and estimated living expenses are subject to change.

Graduate students may request financial aid through fellowships and graduate assistantships. More detailed information can be found on the Graduate School website.

The University of Akron requires that all international students and visiting scholars and researchers who are taking classes purchase major medical health insurance. J visa holders are also required to purchase insurance for themselves and each child and/or spouse living with them in the United States, and the insurance policy must meet the minimum benefit levels as stated in federal regulations. Students are required to purchase The University of Akron Student Health Plan unless they have an alternate health plan that meets the requirement for a waiver. For more information about waiver requirements or to request a waiver send your request to oip-insurance@uakron.edu.

Information about The University of Akron insurance plan can be found at <https://www.uakron.edu/international/after-you-apply/insurance> (<https://www.uakron.edu/international/after-you-apply/insurance/>)

English Language Proficiency

International applicants, U.S. citizens, and U.S. permanent residents whose native language is not English must submit evidence that they have a sufficient level of English proficiency to undertake graduate studies at The University of Akron.

Applicants to graduate programs can demonstrate English proficiency in one of the following ways:

- Minimum score of 79 on the internet-based TOEFL. (The following departments require a higher standard of proficiency: English requires an internet-based TOEFL score of 92 and Biomedical Engineering

requires an internet-based TOEFL score of 96). Scores more than two years old will not be accepted. See <http://www.ets.org/toefl> (<http://www.ets.org/toefl/>) for more information about the TOEFL.

- A minimum score of 6.5 on the IELTS, which is managed by University of Cambridge ESOL Examinations, British Council, and IDP Education Australia. Scores more than two years old will not be accepted. See <http://www.ielts.org> for more information about the IELTS.
- Successful completion of 24 credit hours of upper-level undergraduate or 18 credit hours of graduate course work at a U.S. college or university in which English is the primary language of instruction. Successful completion is defined as maintaining a 3.0 GPA in full-time, continuous studies. Applicants must submit original transcripts of their coursework.
- Successful completion of an undergraduate or graduate program at a university outside the United States in which English is the language of administration and instruction. English must be used for all administrative functions and for all areas of instruction (with the exception of foreign language courses) including course lectures, materials, discussions, readings, and writing assignments. Applicants must submit an original official document from the undergraduate or graduate institution certifying that all of the administrative functions and instruction are conducted in English. The document must be signed by an officer of the institution and carry an official seal. The Associate Dean of the Graduate School at The University of Akron will review the submitted documentation and inform the applicant if he or she has satisfied the English requirement. The decision will be final.

Immigration Information for Graduate Students

Prospective international students who are outside the U.S. must apply for an F-1 or J-1 student visa to attend The University of Akron. To obtain the Certificate of Eligibility (Form I-20 or DS-2019) needed to obtain a student visa an international student must submit the following documents to the International Center, The University of Akron, Simmons Hall, Room 205, Akron, OH 44325-4724, or immigration@uakron.edu: the completed Declaration and Certification of Finances form (available at <https://www.uakron.edu/international/forms> (<https://www.uakron.edu/international/forms/>)), supporting financial documents, and a copy of the biographic page of the student's passport. The International Center will prepare the Certificate of Eligibility upon receipt of proof of adequate financial support, the copy of the passport biographic page, and admission to the University.

A student in F-1 or J-1 status transferring to The University of Akron from another U.S. college or university, without leaving the U.S., must request transfer of his or her SEVIS record to The University of Akron. The I-20 or DS-2019 will be issued upon submission of the documents proving valid status, meeting the requirements mentioned above, and the release of the SEVIS record to The University of Akron. A new I-20 or DS-2019 must be obtained before the student begins his or her program at The University of Akron.

A prospective international student in the U.S. in any other visa status should consult the International Center if he or she intends to begin the program and does not plan to leave the U.S. to obtain an F-1 or J-1 visa. The prospective student may need to submit an application to the U.S. Citizenship and Immigration Services for a change of visa status.

International Student Orientation

The required International Student Orientation has two parts. Both parts are mandatory. First is an online orientation that can be completed from home. The online orientation contains much of the logistical information you need to know before you arrive in Akron as well as information that will facilitate your transition to the University. The second part is an on-campus orientation which takes place just prior to the start of classes in the Fall and Spring semesters. Students beginning academic studies during the Summer semesters must attend Fall orientation.

The international student services fee (\$145 in 2022-2023) is mandatory and will automatically be assessed to the student's account during the first semester of enrollment.

In addition, useful information about your arrival in Akron can be found online at <https://www.uakron.edu/international/plan/index.dot> (<https://www.uakron.edu/international/plan/>)

International Transfer Credits

Transfer credit from foreign institutions is awarded at the discretion of the academic department with the final approval from the Graduate School. Transfer coursework is only accepted from institutions that are recognized by the institution's governing academic body (e.g. Ministry of Education). The student must have earned a minimum of a "B" (or its equivalent) to be eligible for transfer credit.

Teaching Assistants

Assessment of oral English proficiency is required by Ohio law and must be certified before teaching assistant duties can be performed. Teaching assistants for whom English is a second language must have a minimum score of "Pass" on the U-ADEPT, a 23 or greater on the speaking component of the internet based TOEFL, or a 7 or greater on the speaking portion of the IELTS. A copy of the test score must be submitted to the Graduate School.

Note: International students are encouraged to contact the International Center directly at international@uakron.edu with questions about housing, cultural adjustment, climate, insurance, or immigration regulations. Questions concerning degree programs should be directed to the appropriate academic department.

Fees and Expenses

Fees subject to change without notice.

Student Expenses

It is the responsibility of the student to know the correct amount of all fees, including the non-Ohio resident surcharge. In any question concerning fees, surcharges or residence, it is the responsibility of the student, parents or court-appointed guardian to furnish such proof as may be required by The University of Akron. A student who is in doubt about residency status should consult with the Office of the University Registrar (<https://www.uakron.edu/registrar/>).

It is the responsibility of the registrar to assess fees and surcharges at the time of registration; information given by the student at that time is used in the assessment. Each registration is later audited by the University auditor, and appropriate additional charges or refunds will be made.

All fees and surcharges are due at the time of registration or on the specified fee payment deadline. The status of the student as of the opening day of the semester or session will determine the final, correct amount of fees and surcharges.

An Installment Payment Plan (https://www.uakron.edu/student-accounts/payments_and_billing/payment-options.dot) for tuition and fees is available to all students.

Tuition and Fees

Tuition and fee information for graduate students is available on the Office of Student Accounts (<https://www.uakron.edu/student-accounts/>) website.

Refunds

Information regarding issuance of refunds is available on the Office of Students Accounts (<https://www.uakron.edu/student-accounts/refunds/new-policy/>) website.

Veterans Policy

The Military Services Center acts as a liaison between you and the U.S. Department of Veterans Affairs. You may apply for education benefits after being admitted to The University of Akron.

Eligibility criteria vary for programs supported by the State of Ohio and the U.S. Department of Veterans Affairs. Specific benefits and benefit payments are based of the number of credits for which you are enrolled and the length of the classes.

Detailed information is available on the Military Services Center (<https://www.uakron.edu/veterans/>) website.

Financial Aid

Financial aid programs were developed by federal and state governments, as well as by institutions of postsecondary learning to assist students from families with limited resources in meeting their educational expenses. The primary purpose of financial aid is to ensure that no person is denied the opportunity of attending college because of financial need.

To apply for all types of state and federal aid and programs, complete the Free Application for Federal Student Aid (FAFSA).

Mission Statement

The Mission of The University of Akron's Office of Student Financial Aid is to help students achieve their educational potential. This office accomplishes this by:

- Adhering to state and federal regulations as well as University policies regarding the awarding of aid funds
- Being committed to removing financial barriers for those who wish to pursue postsecondary learning
- Making every effort to assist students with financial need
- Having an awareness of the issues affecting our students and advocating for our students' interests at the institutional, state and federal levels
- Educating our students and their families by providing quality consumer information

- Respecting the dignity and diversity of each one of our students by providing services that do not discriminate on the basis of race, gender, ethnicity, sexual orientation, religion, disability, age or economic status
- Ensuring the confidentiality of our students' information
- Assuring the uniform application of all needs analysis formulas consistently across The University of Akron's full population of financial aid applicants
- Committing to the highest level of ethical behavior by avoiding conflict of interest or the appearance of such a conflict

Maintaining the highest level of professionalism reflects the Student Financial Aid office's commitment to the goals and mission of The University of Akron.

The Financial Aid website (<https://www.uakron.edu/finaid/>) will serve as your guide. It has all the information needed to get started with financial aid applications and learn about the process of using aid to pay for college.

Student Support Services

Career Services and Student Employment

<http://www.uakron.edu/career> (<http://www.uakron.edu/career/>)
Phone - (330) 972-7747
Email - career@uakron.edu

Career Services and Student Employment assists students with career planning by offering virtual and in-person programming, events, individual career advising and opportunities to network with employers for experiential learning and employment. In addition, our Zips@Work on-campus student employment and Federal Work Study job opportunities are coordinated through this office.

The Career Services staff is knowledgeable regarding current employment trends, in-demand jobs in Ohio, and internship and job search strategies. Career Advisors actively assist students at every stage of their career development. This includes exploring career paths, building resume and cover letter writing skills, preparing for interviews/graduate school, creating a job search strategy, and finding experiential learning opportunities, such as internships or co-ops and on-campus student employment.

Handshake, UA's online job board, is where students and alumni can apply for internships/co-ops, part-time and full-time jobs, on-campus student employment positions. Students and alumni can also connect with employers, register for virtual and in-person events, download resources guides, schedule virtual and in-person appointments and more on Handshake! Log in at <http://uakron.joinhandshake.com> (<https://nam03.safelinks.protection.outlook.com/?url=http%3A%2F%2Fuakron.joinhandshake.com%2F&data=02%7C01%7Chblake%40uakron.edu%7C4bea2a1d03a54c665f4008d7e6234f24%7Ce8575dedd7f94ecea4aa0b32991ae%7C0%7C0%7C637230911635564252&sdata=mzHQopr1pv6h2PVYbUwugt5cjKcs%2BPg5eW%2BqtLWBmmY%3D&reserved=0>) with your UAnet ID and password.

Counseling and Testing Center

<http://www.uakron.edu/counseling> (<http://www.uakron.edu/counseling/>)
Phone - (330) 972-7082 (Counseling Services); (330) 972-7084 (Testing Services)

The Counseling and Testing Center provides psychological counseling, career counseling, educational counseling, testing, outreach, and consulting services to the University community. The Center is staffed by a culturally diverse group of licensed psychologists and doctoral trainees. Counseling services are free and confidential to enrolled students. Testing services includes CTC Testing in Simmons 304 and Computer Based Assessment and Evaluation (CBAE) in Schrank Hall North 152. For more information about campus-wide testing services, visit [www.uakron.edu/testing](https://nam11.safelinks.protection.outlook.com/?url=http%3A%2F%2Fwww.uakron.edu%2Ftesting&data=05%7C01%7Chlake%40uakron.edu%7C6d0956004eea454c41b408da77184d69%7Ce8575dedd7f94ecea4aa0b32991aedd%7C1%7C0%7C637953243497940948%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzliLCJBTiI6IkhawWUlCjYVCi6M0%3D%7C3000%7C%7C%7C&sdata=ToLYTbJBaayVuYqA8f0S8pjzKsDuJUzIDShYwaq4BQl%3D&reserved=0) (https://nam11.safelinks.protection.outlook.com/?url=http%3A%2F%2Fwww.uakron.edu%2Ftesting&data=05%7C01%7Chlake%40uakron.edu%7C6d0956004eea454c41b408da77184d69%7Ce8575dedd7f94ecea4aa0b32991aedd%7C1%7C0%7C637953243497940948%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzliLCJBTiI6IkhawWUlCjYVCi6M0%3D%7C3000%7C%7C%7C&sdata=ToLYTbJBaayVuYqA8f0S8pjzKsDuJUzIDShYwaq4BQl%3D&reserved=0).

Office of Accessibility

<http://www.uakron.edu/access/>
Phone - (330) 972-7928
Email - access@uakron.edu

The goal of the Office of Accessibility is to provide reasonable accommodations and a supportive, well-resourced environment to students with disabilities in order to promote student success in the university environment. The mission of the Office of Accessibility is to provide students with full access to and the opportunity for full participation in the academic environment. We are advocates of social justice for students with disabilities and work to end oppression by examining social, cultural and institutional barriers to inclusion of all students. We embrace the diversity of our student body and celebrate a culturally sensitive and accessible campus through outreach, partnership, and advocacy with all university departments. Student's seeking accommodations should start the Office of Accessibility Registration Process, at minimum, three months prior to their University enrollment.

Student Health Services

<http://www.uakron.edu/healthservices/>
Phone - (330) 972-7808
Email - healthservices@uakron.edu

Student Health Services, located in Suite 260 of the Student Recreation and Wellness Center, assists students in achieving their educational and personal goals by addressing their health care concerns while they are enrolled at The University of Akron. Student Health Services is available by appointment with same day appointments frequently available. Hours of operation are Monday through Friday from 8:30 a.m. to 4:30 p.m. and closed on weekends and campus holidays.

Master's Degree Requirements

Admission

When a student is admitted to graduate study, an adviser is appointed by the chair of the major department. A student who is academically qualified in general but deficient in course preparation may be required to make up the deficiencies at the postbaccalaureate level. This may be recommended prior to beginning graduate work, or in some cases, can be done simultaneously.

Continuous Enrollment Requirement

There is no formal Graduate School continuous enrollment requirement for the master's degree. Individual master's programs, however, may require continuous enrollment. A student should consult with his or her academic department.

Credits

A minimum of 30 semester credits of graduate work is required in all master's degree programs. This includes thesis credit. Some departments require more (see departmental requirements). A minimum of two-thirds of the total graduate credits required in any master's program must be completed at the University. A maximum of six workshop credits may be applied to a master's degree. Such credits must be relevant to the degree program, recommended by the student's adviser and approved by the Dean of the Graduate School.

Graduation

Students must file an online application for graduation with the Office of the University Registrar after completion of one-half of the credits required for their degree program or by the following dates:

- April 1 for Spring Commencement
- July 1 for Summer Commencement
- November 1 for Fall Commencement

Students wanting to attend the commencement ceremony must visit the Office of the University Registrar website to respond to the ceremony.

To be cleared for graduation, a candidate must have completed coursework with a minimum cumulative graduate grade-point average of at least 3.00; submitted an online application for graduation with the University Registrar; paid all applicable fees; and met any other applicable department and University requirements.

If a thesis is required, a final online submission, properly prepared, is due in the Graduate School at least three weeks prior to commencement. This copy must be signed by the adviser, faculty reader, department chair, and college dean prior to submission to the Graduate School. A manual titled *Guidelines for Preparing a Thesis or Dissertation* is available online and all copies of the thesis must conform to these instructions.

Optional Department Requirements

Each department may set special requirements with regard to entrance examinations, qualifying examinations, foreign language, required courses and thesis. Details are available from the chair of the major department.

Residency Requirements

There are no formal residency requirements for the master's degree. A student may meet the degree requirements of the Graduate School and the department through either full- or part-time study.

Time Limit

All requirements must be completed within six years after beginning graduate-level coursework at The University of Akron or elsewhere. Extension of up to one year may be granted in unusual circumstances by the Dean of the Graduate School upon written request by the student and recommendation by the adviser, department chair, and college dean.

It should be noted that the requirements listed by department elsewhere in this rule refer to the minimum necessary for a degree. It is entirely within the prerogative of the department to assign additional credits of coursework or other requirements in the interest of graduating a fully qualified student.

No graduate credit may be received for courses taken by examination or for 500-numbered courses previously taken at the 400-number course level as an undergraduate without advance approval from the dean of the Graduate School. "Repeat for change of grade" is not available at the graduate level.

Transfer Credits

Up to one-third of the total credits required for a master's degree may be transferred from an accredited college or university, including The University of Akron. Departments and colleges may set more restrictive limits. All transfer credit must be at the "A" or "B" level (4.00 to 3.00) in graduate courses. The credits must be relevant to the student's program as determined by the student's academic department and fall within the six-year time limit. A University of Akron student must receive prior approval from his or her academic department for transfer courses taken elsewhere. A block transfer of credit may be requested if the student holds a prior graduate degree from an accredited college or university, including The University of Akron. A block transfer of credit does not apply to the student's six-year time limit for degree completion.

A student seeking to transfer credit must have full admission and be in good standing at The University of Akron. Transfer credit shall not be recorded until a student has completed 12 semester credits at The University of Akron with a grade-point average of 3.00 or better. Transfer credits from other institutions shall not be computed as part of the student's University of Akron grade point average.

Doctoral Degree Requirements

Admission

Usually, a student is not officially considered as a doctoral student until completion of a master's program or its equivalent and approval for further study.

Continuous Enrollment Requirement

The Graduate School requires that a doctoral student register for a minimum of one graduate credit as approved by his or her adviser during each fall and spring semester. Individual departments may exceed this minimum requirement. A doctoral student should consult with his or her academic department.

Credits

A doctorate is conferred in recognition, of high attainment and productive scholarship in some special field of learning as evidenced by the satisfactory completion of prescribed program of study and research; the preparation of a dissertation based on independent research; and the successful passing of examinations covering the special field of study and the general field of which this subject is a part. Consequently, the emphasis is on mastery of the subject rather than a set number of credits. Doctoral programs generally encompass the equivalent of at least three years of full-time study at the graduate level. A minimum of fifty per cent of the total credits above the baccalaureate required in each student's doctoral program must be completed at The University of Akron. A maximum of six workshop credits may be applied to a

doctoral degree. Such credits must be relevant to the degree program, recommended by the student's adviser and approved by the Dean of the Graduate School.

No graduate credit may be received for courses taken by examination or for 500-numbered courses previously taken at the 400-number course level as an undergraduate without advance approval from the Dean of the Graduate School. "Repeat for change of grade" is not available at the graduate level.

Dissertation and Oral Defense

The ability to do independent research and demonstrate competence in scholarly exposition must be demonstrated by the preparation of a dissertation on some topic related to the major subject. It should represent a significant contribution to knowledge, be presented in a scholarly manner, reveal the candidate's ability to do independent research and indicate experience in research techniques.

A doctoral dissertation committee supervises and approves the dissertation and administers an oral examination upon the dissertation and related areas of study. This examination is open to the graduate faculty. The dissertation and oral examination must be approved by the committee before the dissertation is submitted to the Graduate School. A final online submission of the dissertation is due in the Graduate School at least three weeks prior to commencement. This copy must be signed by the adviser, faculty reader, department chair, and college dean prior to submission to the Dean of Graduate School. A manual titled *Guidelines for Preparing a Thesis or Dissertation* is available online and all copies of the dissertation must conform to these instructions.

Graduation

Students must file an online application for graduation with the Office of the University Registrar after completion of one-half of the credits required for their degree program or by the following dates:

- April 1 for Spring Commencement
- July 1 for Summer Commencement
- November 1 for Fall Commencement

Students wanting to attend the commencement ceremony must visit the Office of the University Registrar website to respond to the ceremony.

To be cleared for graduation, a candidate must have completed coursework with a minimum cumulative graduate grade-point average of at least 3.00; submitted an approved dissertation and passed an oral examination; submitted an online application for graduation with the University Registrar; paid all applicable fees; and met any other applicable department and University requirements.

Language Requirements

There is no University-wide foreign language requirement for the doctoral degree. The student is required to demonstrate one of the following skills depending upon the particular program.

Plan A: Reading knowledge, with the aid of a dictionary, of two approved foreign languages. At the discretion of the major department an average of "B" in the second year of a college-level course in a language will be accepted as evidence of proficiency in reading knowledge for that language. English may be considered as one of the approved foreign languages for a student whose first language is not English; and

demonstrated competence in a research technique (e.g., statistics and/or computers) may be substituted for one of the two foreign languages.

Plan B: Comprehensive knowledge of one approved foreign language, including reading without the aid of a dictionary and such additional requirements as the department may impose.

Plan C: In certain doctoral programs the demonstration of competence in appropriate research skills may serve as a substitute for the foreign language requirements.

Plan D: In certain doctoral programs there is no foreign language requirement.

Optional Department Requirements

Each department may determine requirements for a doctoral student with regard to entrance examinations, qualifying examinations, preliminary or comprehensive examinations and course sequences.

Residency Requirements

A doctoral student may meet the degree requirements of the Graduate School and department by full-time study or a combination of full- and part-time study.

The minimum residency requirement for a doctoral candidate in all programs is at least two consecutive semesters of full-time study and involvement in departmental activities. Full-time study is defined as 9-15 semester credits, except for graduate teaching and research assistants for whom full-time study is specified by the assistantship agreements. For doctoral students who are in their final semester of study and have completed all degree requirements except the dissertation, and for international students participating in curricular practical training (CPT) and/or academic training (AT) opportunities of 30 or more hours per week with approval from the International Center one or more graduate hours constitute full-time enrollment. The summer sessions may count as one semester, provided that the candidate is enrolled for a minimum total of six semester credit hours per combined summer terms. Programs vary in their requirements beyond the minimum, e.g., credits or courses to be completed, proper time to fulfill the residency requirement, and acceptability of part-time employment.

Before a doctoral student begins residency, the student's adviser and the student shall prepare a statement indicating the manner in which the residency requirement will be met. Any special conditions must be detailed and will require the approval of the student's committee, the department faculty members approved to direct doctoral dissertations, the collegiate dean, and the Dean of the Graduate School.

Time Limit

All doctoral requirements must be completed within ten years of starting coursework at The University of Akron or elsewhere. This refers to graduate work after receipt of a master's degree or the completion of 30 semester credits. Extension of up to one year may be granted in unusual circumstances by the Dean of the Graduate School upon written request by the student and recommendation by the adviser, department chair, and college dean.

Transfer Credits

Up to fifty per cent of the total graduate credits above the baccalaureate required in a doctoral program may be transferred from an accredited college or university, including The University of Akron. All transfer credit

must be at the "A" or "B" level in graduate courses. The courses must be relevant to the student's program as determined by the student's academic department and fall within the ten-year limit if beyond the master's level. A student already admitted to The University of Akron must receive prior approval from his or her academic department for transfer courses taken elsewhere.

A student admitted with a master's degree or equivalent will have work evaluated in relation to the student's program to determine transfer credit. Thirty semester credits are transferable from a master's degree. A block transfer of credit does not apply toward the student's ten-year time limit for degree completion.

A student seeking to transfer credit must have full admission and be in good standing at The University of Akron. Transfer credit shall not be recorded until a student has completed 12 semester credits at The University of Akron with a grade-point average of 3.00 or better. Transfer credits from other institutions shall not be computed as part of a student's University of Akron grade point average.

Graduate Certificate Requirements

Admission

A student interested in pursuing a graduate certificate program must possess at least a baccalaureate degree from an accredited college or university. Some certificate programs may require that a student already be enrolled in a specific graduate degree program. Students should consult with the academic department.

Award of Graduate Certificate

To be cleared for award of a graduate certificate, a candidate must have completed coursework with a minimum cumulative graduate grade-point average of at least 3.00; submitted an online application for graduation with the University Registrar; paid all applicable fees; and met any other applicable department and University requirements.

Students enrolled in a certificate program without concurrent enrollment in a graduate degree program will not be permitted to participate in the commencement ceremony.

Credits

The number of credits required to earn a graduate certificate varies by certificate program. A minimum of two-thirds of the total number of graduate credits required in any certificate program must be completed at The University of Akron. Unless otherwise specified, no substitute courses will be permitted to meet certificate program requirements.

No graduate credit may be received for courses taken by examination or for 500-numbered courses previously taken at the 400-number course level as an undergraduate without advance approval from the Dean of the Graduate School.

Residency Requirements

There are no formal residency requirements for graduate certificate programs. A student may meet the program requirements of the Graduate School and the department through full- or part-time study.

Time Limit

All requirements must be completed within three years after beginning graduate-level coursework at The University of Akron or elsewhere unless

concurrently pursuing a master's or doctoral degree. When this is the case the graduate degree program time limits apply for completion of the certificate requirements. Extension of up to one year may be granted in unusual circumstances by the Graduate School upon written request by the student and recommendation by the adviser, department head, and college dean.

Transfer Credits

Up to one-third of the total graduate credits required for a certificate program may be transferred from an accredited college or university, including The University of Akron. However, the total number of credits that may be transferred may not exceed the total allowable transfer credits for a concurrent graduate degree program. All transfer credit must be at the "A" or "B" level in graduate courses. The credits must be relevant to the student's program. A University of Akron student must receive prior approval from his or her academic department for transfer courses taken elsewhere.

A student seeking to transfer credit must have full admission and be in good standing at The University of Akron. Transfer credit shall not be recorded until a student has completed nine semester credits at The University of Akron with a grade-point average of 3.00 or better. This applies to students who are not concurrently enrolled in a graduate degree program. Twelve semester credits must be completed at The University of Akron with a grade-point average of 3.00 or better for those students concurrently pursuing a graduate degree.

Individual course transfer of credit must fall within the three-year time limit for those students pursuing only a graduate certificate. The six-year time limit applies to those students concurrently pursuing a master's degree, and the ten-year time limit applies to those students concurrently pursuing a doctoral degree. No block transfer of credit is permitted for students pursuing only a graduate certificate.

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Buchtel College of Arts & Sciences

Buchtel College of Arts and Sciences is the largest and oldest degree-granting college at The University of Akron.

The College has five administrative divisions: Arts, Education, Humanities, Natural Sciences, and Social Sciences.

The Arts Division includes the Myers School of Art, the School of Dance, Theatre, and Arts Administration, and the School of Music. The Arts Division places a premium on learning by doing. Students study side-by-side with talented and caring faculty members who are committed to helping them turn their aspirations into accomplishments.

The LeBron James Family Foundation School of Education is a learning and teaching community that prepares educational professionals who are committed to diversity, equity, and innovation, and who engage in research through scholarship, leadership, and inclusive education. The aim of the LeBron James Family Foundation School of Education is to fulfill its mission through initial and advanced teacher education programs as well as programs in administration, higher education, and several teacher affiliated education programs across campus. Programs include a balanced offering of a foundation in general education, intensive study in the content area, and those professional courses and other learning experiences which combine theory and practice.

The Humanities Division includes the departments of English, Modern Languages, and Philosophy. In these disciplines students learn about the evolution of diverse civilizations, their languages, literatures, cultures, and their contributions to our accumulated wisdom.

The Natural Sciences Division includes the departments of Biology, Chemistry, Geosciences, Mathematics, Physics, and Statistics. Students explore physical and biological processes and learn to use mathematics,

the language of science. Students learn how our physical world works and use this knowledge to create the technologies of the future.

The Social Sciences Division includes the School of Communication, the departments of Anthropology, Criminal Justice Studies, History, Political Science, Psychology, and Sociology. In these disciplines students observe and research individuals, families, closely knit organizations, whole cultures developing over the centuries, the economic and geographical realities affecting populations, and how societies understand and manage citizens' normative and non-normative behavior.

College Website (<https://www.uakron.edu/bcas/>)

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Biology

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Biology (BIOL)

BIOL:504 Digital Skills for Biologists (3 Credits)

This course teaches students with no prior experience the fundamentals of programming, electronics, 3D printing, actuation and robotics for application to biological experiments. (Formerly 3100:504)

BIOL:506 Principles of Systematics (3 Credits)

The science of identifying, naming, and classifying the diversity of life. Topics include: nomenclature, types, techniques of data collection, and methods of phylogenetic reconstruction. (Formerly 3100:506)

BIOL:512 Advanced Ecology (3 Credits)

Advanced study of the ecology of individuals, populations, communities, and conservation/applied ecology. Active participation/discussion of primary literature in ecology is required. (Formerly 3100:512)

BIOL:518 Field Ecology (4 Credits)

Introduction to sampling methods, design of experiments and observations, and computer analysis; some local natural history. Laboratory. (Formerly 3100:518)

BIOL:521 Tropical Field Biology (4 Credits)

Ecology of coral reefs, tide pools, mangroves, intertidal zones, terrestrial flora and fauna, island biogeography. Taught at a field station in the tropics. (Formerly 3100:521)

BIOL:522 Conservation Biology (3 Credits)

Explores the factors affecting survival of biodiversity, and how to develop practical approaches to resolve complicated conservation issues. (Formerly 3100:522)

BIOL:523 Population Biology (3 Credits)

Discussion of animal and plant ecology and evolutionary biology from a species and population level perspective. Includes topics in population ecology and population genetics. (Formerly 3100:523)

BIOL:526 Wetland Ecology (4 Credits)

Wetland ecology; principles and conservation. Field studies will be conducted at Bath Nature Preserve. Laboratory. *Field trips involved; minor transportation costs. (Formerly 3100:526)

BIOL:527 Limnology (4 Credits)

This course explores the diversity of aquatic life and key biotic characteristics of freshwater ecosystems with emphasis on the Great Lakes. Includes field trips. (Formerly 3100:527)

BIOL:528 Biology of Behavior (3 Credits)

May be taken without 429/529. Biological basis of behavior, ethological theory; function, causation, evolution, and adaptiveness of behavior. (Formerly 3100:528)

BIOL:529 Biology of Behavior Laboratory (1 Credit)

Prerequisites or corequisite: BIOL 528. Individualized, directed study to provide the student with first-hand experience in observing, describing and interpreting animal behavior. (Formerly 3100:529)

BIOL:530 Community/Ecosystem Ecology (3 Credits)

History of the ecosystem concept; components, processes and dynamics of communities and ecosystems; analysis and design of ecosystem experiments. Laboratory. (Formerly 3100:530)

BIOL:533 Pathogenic Bacteriology (4 Credits)

Study of major groups of bacteria which produce infections in humans. Biochemical properties of microorganisms which engender virulence and nature of host resistance. Laboratory. (Formerly 3100:533)

BIOL:537 Immunology (4 Credits)

Nature of antigens, antibody response, and antigen-antibody reactions. Site and mechanism of antibody formations, hypersensitivity, immunologic tolerance and immune diseases considered. Laboratory. (Formerly 3100:537)

BIOL:539 Advanced Immunology (3 Credits)

Immunology is studied from a historical and current perspective. Topics include T cells, B cells, antigen presentation, HIV, and transplantation. (Formerly 3100:539)

BIOL:540 Mycology (4 Credits)

Structure, life history, classification of representative fungi with emphasis on the importance of fungi to humans. Laboratory. (Formerly 3100:540)

BIOL:543 Phycology (4 Credits)

Examination of the major groups of algae with emphasis on life histories and their relationship to algal form and structure. Laboratory. (Formerly 3100:543)

BIOL:544 Field Marine Phycology (3 Credits)

Collection and identification of tropical marine algae on San Salvador Island, The Bahamas. Discussion of characteristics and ecology of major groups of Caribbean algae. Laboratory. (Formerly 3100:544)

BIOL:551 General Entomology (4 Credits)

Structure, physiology, life cycles, economic importance characteristics of orders and major families of insects. Laboratories parallel lectures. (Formerly 3100:551)

BIOL:553 Invertebrate Zoology (4 Credits)

Invertebrate groups, their classification, functional morphology, adaptive radiation and life history. A phylogenetic approach is used. Laboratories parallel lectures. (Formerly 3100:553)

BIOL:554 Parasitology (4 Credits)

Principles of parasitism; host parasite interactions; important human and veterinary parasitic diseases; and control measures. Laboratories parallel lectures. (Formerly 3100:554)

BIOL:555 Ichthyology (4 Credits)

Study of fishes; incorporates aspects of evolution, anatomy, physiology, natural history, and commercial exploitation of fishes. Laboratory incorporates field-based exercises and fish taxonomy. (Formerly 3100:555)

BIOL:556 Ornithology (4 Credits)

Introduction to biology of birds: classification, anatomy, physiology, behavior, ecology, evolution, natural history and field identification. Laboratory. *Field trips involved; minor transportation costs. (Formerly 3100:556)

BIOL:557 Herpetology (4 Credits)

Survey of the diversity, ecology and evolution of amphibians and reptiles. Special emphasis is given to Ohio species. Laboratory. (Formerly 3100:557)

BIOL:558 Vertebrate Zoology (4 Credits)

Prerequisite: Permission. Biology of vertebrates, except birds; evolution, ecology, behavior, systematics and anatomy. Laboratory with field trips. (Formerly 3100:558)

BIOL:565 Advanced Cardiovascular Physiology (3 Credits)

Prerequisite: BIOL 573. Study of biological mechanisms involved in heart attack, strokes, fluid balance, hypertension and heart disease. Controversial issues in each area will be examined and current research presented. (Formerly 3100:565)

BIOL:566 Vertebrate Embryology (3 Credits)

Lectures focus on development of model vertebrate organisms and humans, and cellular and molecular mechanisms underlying animal development. (Formerly 3100:566)

BIOL:567 Comparative Vertebrate Morphology (4 Credits)

An introduction to the comparative morphology of major vertebrates. The laboratory consists of dissections of representative vertebrates. (Formerly 3100:567)

BIOL:568 The Physiology of Reproduction (3 Credits)

Study of the physiological mechanisms of reproduction throughout the animal kingdom with special emphasis upon mammalian endocrinological control. Controversial issues in the field will be examined and current research presented. (Formerly 3100:568)

BIOL:569 Respiratory Physiology (3 Credits)

Prerequisite: BIOL 573. Study of mechanisms determining gas exchange including mechanics, ventilation, blood flow, diffusion, and control systems. Emphasis is given to normal human lung function. (Clinical aspects are not considered in detail.) (Formerly 3100:569)

BIOL:570 Lab Animal Regulations (1 Credit)

Required of anyone working with animals, and covers government regulations, care of animals and a lab to teach basic animal handling and measurement techniques. (Formerly 3100:570)

BIOL:571 Physiological Genetics (4 Credits)

Prerequisite: BIOL 573. The integrative study of how genetics and physiology influence complex systems from molecular to behavioral in plants and animals. Laboratory. (Formerly 3100:571)

BIOL:572 Biological Mechanisms of Stress (3 Credits)

Prerequisite: BIOL 573. Study of mechanisms from molecular to behavioral of how stress influences body systems and signals. The latest research and experimental issues are discussed. (Formerly 3100:572)

BIOL:573 Comparative Animal Physiology (3 Credits)

Study of respiration, circulation, digestion, metabolism, osmoregulation, and excretion in a variety of invertebrate and vertebrate animals. Adaptation to the environment is emphasized. (Formerly 3100:573)

BIOL:574 Comparative Animal Physiology Laboratory (1 Credit)

Corequisite: BIOL 573. Laboratory experiments in animal physiology (respiration, circulation, metabolism, osmoregulation). Presentation of results in scientific format and as oral reports. (Formerly 3100:574)

BIOL:575 Comparative Biomechanics (3 Credits)

Investigation of how physical constraints on biological materials, structural mechanics and locomotion relate to the survival and evolution of living organisms. (Formerly 3100:575)

BIOL:580 Molecular Biology (3 Credits)

Fundamentals of molecular biology, including recombinant DNA technology, applications in biotechnology, medicine, and genetic engineering. Mechanisms of gene regulation. (Formerly 3100:580)

BIOL:581 Advanced Genetics (3 Credits)

Nature of the gene; genetic codes; hereditary determinants; mutagenesis and genes in population. Lecture and seminar. (Formerly 3100:581)

BIOL:582 Neurobiology (3 Credits)

History of Neuroscience; organization, function and development of the central nervous system; electrophysiological properties of nerve cells; learning and memory; molecular basis for mental diseases. (Formerly 3100:582)

BIOL:585 Cell Physiology (4 Credits)

Explores molecular and biochemical aspects of energy metabolism, inter and intracellular signaling, growth and death of cells. Emphasizes up-to-date scientific literature and techniques. Laboratory. (Formerly 3100:585)

BIOL:594 Workshop in Biology (1-3 Credits)

(May be repeated) Prerequisite: Permission of instructor. Group studies of special topics in biology. May not be used to meet undergraduate or graduate major requirements in biology. May be used for elective credit only. (Formerly 3100:594)

BIOL:597 Biological Problems (1-2 Credits)

Prerequisite: Permission. Honors-level work, usually consisting of laboratory investigations. A maximum of 4 credits may apply toward the major degree requirements. (Formerly 3100:597)

BIOL:598 Biological Problems (1-2 Credits)

Prerequisite: Permission. Honors-level work, usually consisting of laboratory investigations. A maximum of 4 credits may apply toward the major degree requirements. (Formerly 3100:598)

BIOL:601 Evolutionary Ecology (3 Credits)

Advanced studies of topics in ecology and evolution, including population genetics, coevolution, metapopulations, and conservation genetics. Lecture/discussion format. (Formerly 3100:601)

BIOL:604 Topics in Integrative Biology (2 Credits)

Reading, critical analysis, presentation, discussion and debate of cutting edge biological research with an emphasis on understanding the integrative approach to biological investigation. (Formerly 3100:604)

BIOL:616 Graduate Evolutionary Biology (4 Credits)

A survey of theory and methods in evolutionary biology including: evolutionary genetics, natural selection, drift, mating systems, trait integration, plasticity, phylogenetics, and paleontology. (Formerly 3100:616)

BIOL:617 Graduate Ecology (3 Credits)

Advanced training for students pursuing a professional/academic career in ecology or associated disciplines. Exploration of interactions at the organismal, population, community, and ecosystem levels. (Formerly 3100:617)

BIOL:618 Experimental Approaches in Field Ecology (4 Credits)

Prerequisite: Graduate status. Field oriented course intended to help students learn to formulate questions and hypotheses, design field studies, analyze and interpret data, and present conclusions. Laboratory. (Formerly 3100:618)

BIOL:624 Advanced Aquatic Ecology (4 Credits)

Prerequisite: Permission. This course examines interactions between aquatic organisms and their environment across freshwater and marine systems. It includes primary literature, field trips, and student-designed experiments. (Formerly 3100:624)

BIOL:625 Basic DNA Techniques (3 Credits)

Basic DNA techniques including extraction of DNA, cleavage of DNA and cloning. Laboratory. (Formerly 3100:625)

BIOL:626 Techniques in Molecular Biology (3 Credits)

Discussion of current techniques in molecular biology such as microscopy, cell culture, gene expression and protein analysis. Laboratory. (Formerly 3100:626)

BIOL:628 Advanced Topics in Behavior (3 Credits)

Prerequisite: BIOL 528 or equivalent. Advanced studies of topics in behavior, emphasizing current scientific literature. (Formerly 3100:628)

BIOL:651 Entomology (4 Credits)

Prerequisite: graduate standing in Biology. Exploration of the diversity and biology of insects and their relatives. Laboratories emphasize field exercises and a collection. (Formerly 3100:651)

BIOL:660 Environmental Physiology (3 Credits)

Prerequisites: 3100:561 and 3100:562. Study of physiological reactions of healthy mammals to natural changes or extremes of physical environment. (Formerly 3100:660)

BIOL:663 Advanced Exercise Physiology (3 Credits)

Through lecture, reading and critical analysis of current literature, physiologic mechanisms of exercise in animals will be explored. (Formerly 3100:663)

BIOL:665 Histology, Cell Biology, and Introductory Pathology (4 Credits)

This course integrates cell biology and histology to show how organs are structured and function, and how they are altered during sample pathologies. Laboratory. (Formerly 3100:665)

BIOL:671 Developmental Biology (4 Credits)

The study of cellular and molecular mechanisms underlying animal development. Laboratory. (Formerly 3100:671)

BIOL:673 Integrative Stress Physiology (3 Credits)

Prerequisite: B.S. in Biology or equivalent. This course is designed to examine the behavioral, physiological, genomic and molecular mechanisms of how various types of stressors affect the organism. (Formerly 3100:673)

BIOL:674 Integrated Cardiovascular Physiology (3 Credits)

Prerequisite: B. S. in Biology or equivalent. Integration of epidemiological, behavioral, physiological, molecular and genetic mechanisms of cardiovascular function in health and disease. Emphasis on critical thinking and class discussions. (Formerly 3100:674)

BIOL:675 Integrative Physiological Genomics (4 Credits)

Prerequisite: B.S. degree in science discipline. This course uses methodologies from genetics and physiology as an integrated approach to studying whole body systems. (Formerly 3100:675)

BIOL:676 Integrative Physiology (3 Credits)

Exploration of the integrative nature of physiology through lecture, reading, and critical analysis of current literature. (Formerly 3100:676)

BIOL:677 Systems Physiology (3 Credits)

Study of the complex nature of specific physiological systems both as separate entities and interacting units. (Formerly 3100:677)

BIOL:681 Cytology (3 Credits)

The study of how a cell's structure, biochemistry, metabolism, and molecular biology integrate to produce cell function. Laboratory. (Formerly 3100:681)

BIOL:683 Selected Topics: Neurobiology (3 Credits)

The study of organization, function, and development of the vertebrate nervous system. (Formerly 3100:683)

BIOL:685 Advanced Cell Physiology (4 Credits)

The study of how a cell's structure, biochemistry, metabolism and molecular biology integrate to produce cell function. Laboratory. (Formerly 3100:685)

BIOL:688 Principles of Transmission Electron Microscopy (3 Credits)

Modern cytological methods using transmission electron microscope. Portfolio required to demonstrate proficiency in fixation techniques, use of ultramicrotome, light and electron microscopes and darkroom techniques. (Formerly 3100:688)

BIOL:689 Principles of Scanning Electron Microscopy (3 Credits)

Prerequisite: BIOL 681 or equivalent. An introduction of modern cytological methods using the scanning electron microscope. A portfolio is required to demonstrate proficiency in fixation techniques, the use of supplemental equipment such as the critical point drying apparatus and the sputter-coating apparatus and the efficient use of the scanning electron microscope. (Formerly 3100:689)

BIOL:695 Special Topics in Biology (1-3 Credits)

(May be repeated) Prerequisite: Permission. Special courses offered once or only occasionally in areas where no formal course exists. (Formerly 3100:695)

BIOL:697 Biology Colloquium (1 Credit)

(May be repeated) Prerequisite: Permission. Attendance at all departmental seminars and presentation of seminar based on original research. Required of all thesis option students who shall present their thesis research. (Formerly 3100:697)

BIOL:698 Biology Colloquium (1 Credit)

(May be repeated) Prerequisite: Permission. Attendance at all departmental seminars and presentation of seminar based on original research. Required of all thesis option students who shall present their thesis research. (Formerly 3100:698)

BIOL:699 Master's Thesis (1-6 Credits)

(May be repeated) A minimum of six credits is required for thesis option student. (Formerly 3100:699)

BIOL:701 Research Techniques in Integrated Bioscience (4 Credits)

Students will learn standard, common techniques that are applicable across broad areas of research in integrated bioscience. (Formerly 3100:701)

BIOL:702 Communicating in Integrated Bioscience (2 Credits)

Communication of bioscience topics to professionals of a broad audience. Students present topics in their area of expertise to other (non-discipline) students in the course. (Formerly 3100:702)

BIOL:703 Problem Solving in Integrated Bioscience (3 Credits)

Prerequisite: BIOL 702. Students will learn how to study complex systems and get hands-on experience working in interdisciplinary teams. (Formerly 3100:703)

BIOL:797 Integrated Bioscience Colloquium (1 Credit)

Prerequisite: Permission. Seminars of original research from a broad range of bioscience-related disciplines. (Formerly 3100:797)

BIOL:798 Integrated Bioscience Colloquium (1 Credit)

Prerequisite: Permission. Seminars of original research from a broad range of bioscience-related disciplines. (Formerly 3100:798)

BIOL:899 Doctoral Dissertation (1-12 Credits)

Original research by the doctoral student. (Formerly 3100:899)

Biology, MS

Admission Requirements

- Baccalaureate degree in Biology or have equivalent training.
- A minimum cumulative grade point average of 3.00 (4.00=A) and 3.00 average in Biology (minimum 32 semester hours or equivalent).
- Competence in Chemistry and Mathematics is expected.
- Applicants must provide scores from any one or more of the following standardized tests: General GRE, Biology-specific GRE, or MCAT. Students are expected to score above the 25th percentile to be competitive for admission. Full admission is required for a teaching assistantship or tuition waiver.
- Statement of purpose.
- A letter of interest indicating proposed area of specialization and possible advisers in the Department of Biology.
- International students - In addition to the above requirements must have a minimum score of 79 on the internet-based TOEFL and one of the following:
 - minimum score of 23 on the speaking portion of the TOEFL, or
 - a passing score on the U-Adept test.

Applications are accepted on a rolling basis. Review begins in January/February for fall enrollment.

Thesis Option

The program is primarily for the student who will pursue a research career, including the student who intends to enter a doctoral program in the biological sciences.

Course work in addition to the master's research and seminars (must be approved by the student's advisory committee) – 24 credits.

Research and thesis – minimum of 12 credits.

Participation in seminars – minimum of four credits.

Summer study at a biological station is available.

Nonthesis Option

This program is designed for secondary school teachers for whom the M.S. probably will be a terminal degree and who do not need research experience. The program is open to applicants possessing a teaching certificate or those coregistering with the College of Education and showing normal progress towards qualifying for a certificate.

The requirements are the same as the research option except that no thesis and research is undertaken, but a total of 40 credits of approved coursework (including a maximum of four credits for seminar participation) is required.

For additional details concerning admission standards, degree requirements and selection of options, refer to the Department of Biology Graduate Student Guide.

Integrated Bioscience, PhD

The University of Akron Departments of Biology, Mathematics, Biomedical Engineering, Chemical and Biomolecular Engineering, Chemistry, Civil Engineering, Computer Science, Geosciences, Physics, and Polymer Science and Polymer Engineering in collaboration with the Cleveland Clinic offer an interdisciplinary Ph.D. program in Integrated Bioscience. Students are required to incorporate an integrative aspect to their biologically-based research project that will incorporate approaches from multiple disciplines, and all students will have advisers on their committees that include faculty from at least two of the participating units. This program is designed to train students to understand modern biology in the context of integrated biological systems. This program will combine modern biology, bioengineering, bioinformatics, biochemistry, and biopolymers with the central unifying theme of connection across levels of biological organization. The program is composed of nine areas of excellence:

1. molecular cell biology and genetics;
2. physiology and organismal biology;
3. ecology and evolutionary biology;
4. biochemistry and biopolymers;
5. bioinformatics and computational biology;
6. bioengineering;
7. medically-related fields through a partnership with the Cleveland Clinic;
8. biomimicry; and
9. geomicrobiology.

Integrating information drawn from these areas of excellence will provide students with high-demand, specific skills as well as allow them to develop integrative thinking and problem-solving expertise that will be critical for progressing in the ever expanding realm of biosciences.

Admission Requirements

The applicant must meet the University admission requirements and have an undergraduate degree from an accredited institution. Applicants must submit GRE scores, although not required it is highly recommended that applicants also submit subject GRE in the field of undergraduate degree, three letters of recommendation, a statement of career goals and research interests, and note up to five faculty (rank-ordered) which they would be interested in having as their faculty adviser(s). Applicants are encouraged to contact their prospective Ph.D. advisers prior to submitting their formal applications. International students should

contact The University of Akron Graduate School for specific admission requirements. Applications will be ranked according to:

- Academic background as evidenced by grade point average of at least 3.0
- GRE scores
- Letters of recommendation (three preferred)
- Willingness of one or more potential advisors to take student on as an advisee

In addition to the above requirements international students must have a:

- First or Second Class Degree (a four-year degree if from a foreign institution)
- minimum score of 79 on the internet-based TOEFL
- minimum score of 23 on the spoken section of the internet-based TOEFL to qualify for a teaching assistantship

Applications are accepted on a rolling basis.

Requirements

Code	Title	Hours
Core Courses		
BIOL:701	Research Techniques in Integrated Bioscience	4
BIOL:702	Communicating in Integrated Bioscience	2
BIOL:703	Problem Solving in Integrated Bioscience	3
PHIL:665	Ethics of Science	3
Students are required to complete four credits of Integrated Bioscience Colloquium		4
BIOL:797 or BIOL:798	Integrated Bioscience Colloquium	
Select a minimum of nine credits of elective courses determined by student advisory committee		9
Complete dissertation credits (minimum of 55 credits)		55
Total Hours		80

- Complete written and oral qualifying exam
- Complete research proposal defense
- Complete seminar requirement
- Defend dissertation in an oral examination
- Complete all general requirements for the doctor of philosophy degree
- Complete a minimum of 80 credits for the degree

Chemistry

- Chemistry, MS (p. 26)
- Chemistry, PhD (p. 26)

Chemistry (CHEM)

CHEM:501 Biochemistry Lecture I (3 Credits)

Biochemistry of amino acids, carbohydrates, lipids, and nucleic acids: structure/function relations. Enzymes as catalysts: kinetics and regulation. Cofactors. (Formerly 3150:501)

CHEM:502 Biochemistry Lecture II (3 Credits)

Prerequisite: CHEM 501. Overview of metabolism; thermodynamics; carbohydrate, fatty acid, amino acid, and nucleoside anabolism and catabolism; hormonal control of metabolism. Photosynthesis. (Formerly 3150:502)

CHEM:506 Biochemistry of Gene Expression (3 Credits)

Prerequisites: CHEM 501, or permission of the department. DNA, RNA, and protein synthesis, translation and transcription. Gene function and expression, cell cycle and cancer, genetic engineering, gene silencing, gain of function studies. (Formerly 3150:506)

CHEM:510 Special Readings in Analytical Chemistry (1-3 Credits)

Selected topics in advanced analytical chemistry for which no course exists. (May be repeated) (Formerly 3150:510)

CHEM:511 Special Readings in Inorganic Chemistry (1-3 Credits)

Selected topics in advanced inorganic chemistry for which no course exists. (May be repeated) (Formerly 3150:511)

CHEM:512 Special Readings in Organic Chemistry (1-3 Credits)

Selected topics in advanced organic chemistry for which no course exists. (May be repeated) (Formerly 3150:512)

CHEM:513 Special Readings in Physical Chemistry (1-3 Credits)

Selected topics in advanced physical chemistry for which no course exists. (May be repeated) (Formerly 3150:513)

CHEM:515 Special Readings in Biochemistry (1-3 Credits)

Selected topics in advanced biochemistry for which no course exists. (May be repeated) (Formerly 3150:515)

CHEM:572 Advanced Inorganic Chemistry (3 Credits)

Concepts of atomic structure integrated in systematic classification of elements. Periodic table. Chemistry of the representative elements. Transition elements including coordination compounds, organometallics and metal carbonyls. (Formerly 3150:572)

CHEM:590 Workshop in Chemistry (1-3 Credits)

(May be repeated) Group studies of special topics in chemistry. May not be used to meet undergraduate or graduate major requirements in chemistry. (Formerly 3150:590)

CHEM:592 Special Topics: Chemical Education (1-3 Credits)

(May be repeated up to 6 credits) Consideration of topics in chemical education. (Formerly 3150:592)

CHEM:599 Master's Degree Research (1-6 Credits)

For properly qualified candidates for master's degree. Supervised original research in analytical, inorganic, organic, physical or biochemistry. (Formerly 3150:599)

CHEM:603 Biochemistry Lecture III (3 Credits)

Prerequisites: CHEM 501 and CHEM 502. DNA, RNA and protein metabolism. Translation and transcription. Gene function and expression. (Formerly 3150:603)

CHEM:610 Basic Quantum Chemistry (3 Credits)

Quantum mechanics with applications to molecular systems. Includes angular momentum, molecular hamiltonians, variation and perturbation methods and molecular orbital theories. (Formerly 3150:610)

CHEM:611 Spectroscopy (3 Credits)

Prerequisite: CHEM 610. Interaction of light with matter, linear and nonlinear spectroscopies. Rotational, vibrational and electronic spectroscopy. Radiationless transitions and photochemistry. (Formerly 3150:611)

CHEM:619 Transition-Metal Organometallics (3 Credits)

The organometallic chemistry of the transition metal elements. Topics covered include synthesis, characterization methods, structure, bonding, reactivity, and application. (Formerly 3150:619)

CHEM:620 Main Group Organometallics (3 Credits)

The organometallic chemistry of main group elements. Topics covered include synthesis, characterization methods, structure, bonding, reactivity, and applications. (Formerly 3150:620)

CHEM:625 Chemistry Seminar (1 Credit)

Lectures on current research topics in chemistry by invited speakers. (Formerly 3150:625)

CHEM:629 Physical Inorganic Chemistry (3 Credits)

Detailed treatment of chemistry of transition elements. Group theoretical applications, ligand field theory, kinetics and mechanism magnetism, electronic spectra, molecular orbital theory. (Formerly 3150:629)

CHEM:630 Theoretical Inorganic Chemistry II (2 Credits)

Prerequisite: CHEM 629. Detailed treatment of chemistry of transition elements. Group theoretical applications, ligand field theory, kinetics and mechanism, electronic spectra, molecular orbital theory. (Formerly 3150:630)

CHEM:631 Metals in Medicine (3 Credits)

Prerequisite: CHEM 572. This course will cover the synthesis and development of metal based medicines including the tumor drug cisplatin, technetium 99m based imaging agents, and silver antimicrobials. (Formerly 3150:631)

CHEM:635 Thermodynamics & Statistical Thermodynamics (3 Credits)

Rigorous treatment of laws of thermodynamics and their applications to selected chemical systems. Fundamentals of statistical thermodynamics and applications to systems in chemical equilibrium. (Formerly 3150:635)

CHEM:636 Chemical Kinetics (3 Credits)

Phenomenological kinetics, experimental methods of investigation and analysis of reaction systems. Theoretical treatments of reaction rates. (Formerly 3150:636)

CHEM:640 Chemical Separations (3 Credits)

General theory, instrumentation and application of methods of separation. Emphasis on modern chromatographic techniques and recent advances. (Formerly 3150:640)

CHEM:641 Spectral Methods (3 Credits)

Theory and application of instrumental measurements. Interpretation of data. (Formerly 3150:641)

CHEM:645 X-Ray Crystallography (3 Credits)

The theoretical and practical aspects of single crystal x-ray crystallography are discussed. Topics covered include diffraction, space groups, structure solution and refinement. (Formerly 3150:645)

CHEM:670 Spectroscopic Identification of Organic Compounds (3 Credits)

Determination of the structures of organic compounds by spectroscopic analysis: ORD/CD, UV-VIS spectroscopy, IR spectroscopy, mass spectrometry, FT-NMR spectroscopy, 2D-NMR. (Formerly 3150:670)

CHEM:679 Inorganic Polymers (3 Credits)

Prerequisite: CHEM 572 or permission of instructor. Synthesis, structure, bonding, characterization, and applications of polysiloxanes, polyphosphazenes, polysilanes, polycarbosilanes, poly(ferroceneophanes), sol-gel materials, coordination polymers and related materials. (Formerly 3150:679)

CHEM:683 Mechanistic & Synthetic Organic Chemistry I (3 Credits)

Introduction to the structural and mechanistic aspects of organic reactions: HMO calculations, acids and bases, equilibrium, kinetics, linear free energy relationships, reactive intermediates, reaction mechanisms. (Formerly 3150:683)

CHEM:684 Mechanistic & Synthetic Organic Chemistry II (3 Credits)

Prerequisite: CHEM 683. Synthetic organic chemistry from a mechanistic perspective: nucleophilic and electrophilic substitution and addition reactions, carbonyl chemistry, functional group manipulations, oxidations, reductions, cycloaddition reactions. (Formerly 3150:684)

CHEM:699 Master's Thesis (1-6 Credits)

For properly qualified candidates for master's degree. Supervised original research in analytical, inorganic, organic, physical or biochemistry. (Formerly 3150:699)

CHEM:710 Special Topics in Analytical Chemistry (1-3 Credits)

(May be repeated) Topics in advanced analytical chemistry. Electroanalysis, activation analysis, atomic absorption spectrometry, mass spectrometry, liquid-liquid, liquid-solid and gas chromatography, ion exchange, thermoanalytical methods, separations, standards, sampling, recent developments. (Formerly 3150:710)

CHEM:711 Special Topics in Inorganic Chemistry (1-3 Credits)

(May be repeated) Consideration of topics in modern inorganic chemistry such as coordination compounds, chemistry of the solid state, representative elements, nonaqueous solvents, organometallic compounds, homogeneous catalysis. (Formerly 3150:711)

CHEM:712 Special Topics in Organic Chemistry (1-3 Credits)

(May be repeated) Topics in advanced organic chemistry such as natural products, heterocyclic compounds, photochemistry. (Formerly 3150:712)

CHEM:713 Special Topics in Physical Chemistry (1-3 Credits)

(May be repeated) Subjects from modern physical chemistry. (Formerly 3150:713)

CHEM:715 Special Topics: Biochemistry (1-3 Credits)

(May be repeated) Recent developments in areas of biochemistry. (Formerly 3150:715)

CHEM:720 Advanced Biochemical Techniques (3 Credits)

Prerequisite: CHEM 502. An advanced lecture course on physical techniques in biochemistry. Includes optical and hydrodynamic methods; radioanalytical techniques, scattering and magnetic resonance spectroscopy. (Formerly 3150:720)

CHEM:722 Enzymatic Reactions (3 Credits)

Prerequisites: CHEM 501 and CHEM 502. Mechanisms of enzyme catalyzed reactions, general aspects and specific examples for phosphoryl, acyl, glycosyl transfers, eliminations, oxidation/reduction, isomerization and rearrangements. Chemistry of cofactors. (Formerly 3150:722)

CHEM:724 Bioinorganic Chemistry (3 Credits)

Prerequisites: CHEM 501 and CHEM 502. Survey of the structure and properties of metal ion complexes with amino acids, nucleotides, metabolites and macromolecules; metal ion metabolism; metals in medicine. (Formerly 3150:724)

CHEM:726 Advanced Metabolism (3 Credits)

Prerequisites: CHEM 501 and CHEM 502. Study of advanced pathways in carbohydrate, lipid and protein metabolism with emphasis placed on metabolic dysfunction. (Formerly 3150:726)

CHEM:740 Physical Organic Chemistry (3 Credits)

Prerequisites: CHEM 683 and CHEM 684. An advanced treatment of the theory and mechanisms of organic chemistry: FMO theory, molecular mechanics, molecular strain, kinetics, thermodynamics, acidity functions, linear free energy relationships. (Formerly 3150:740)

CHEM:750 Advanced Synthetic Organic Chemistry (3 Credits)

Prerequisites: CHEM 683 and CHEM 684. An advanced treatment of organic functional group manipulations in the context of the total synthesis of natural products. (Formerly 3150:750)

CHEM:899 Doctoral Dissertation (1-16 Credits)

Open to qualified student accepted as a candidate for Doctor of Philosophy in Chemistry. Supervised original research undertaken in organic, inorganic, physical, analytical or biochemistry. (Formerly 3150:899)

Chemistry, MS

Admission Requirements

In addition to submission of the graduate application and official transcripts applicants must submit three letters of recommendation, statement of purpose, and resume.

Application materials should be submitted by June 1 for fall enrollment and by November 15 for spring enrollment.

Degree Requirements

Option A

Code	Title	Hours
	Chemistry coursework - with the approval of the advisor, up to 12 credits may be taken in related areas	24
	Research and thesis	6
	Total Hours	30

- Participation in departmental seminars.

Option B

Code	Title	Hours
	Chemistry coursework – with the approval of the advisor, up to 12 credits may be taken in related areas	30
	Total Hours	30

Option C

Code	Title	Hours
	Chemistry coursework – with the approval of the advisor, up to 12 credits may be taken in related areas	24
	Research and oral exam	6
	Total Hours	30

Chemistry, PhD

The Doctor of Philosophy in Chemistry is granted for high scholarly achievement in analytical, inorganic, organic, physical or biochemistry. Students with either a baccalaureate or master's degree may be admitted to the program. They must satisfy the following requirements to receive the degree:

- Complete a course of study designed in consultation with an advisor or advisory committee. This consists of the completion of at least

90 credits beyond the baccalaureate degree, including 24 credits of appropriate coursework.

- Complete monthly cumulative exam requirement.
- Complete oral exam requirement.
- Complete seminar requirement.
- Defend dissertation in an oral examination.
- Complete all general requirements for the doctor of philosophy degree.

Admission Requirements

In addition to submission of the graduate application and official transcripts applicants must submit official GRE score report, three letters of recommendation, statement of purpose, and resume.

Review of applicants for fall enrollment begins February 1 and October 1 for spring enrollment. The application package must be complete for review to occur.

Degree Requirements

The applicable degree requirements for the Chemical Physics option are those of the Doctor of Philosophy in Chemistry, as stated in the Graduate Bulletin. These degree requirements consist of the following:

- Complete a course of study designed in consultation with an advisor or advisory committee, consisting of at least 90 credits beyond the baccalaureate degree, including 24 credits of appropriate chemistry coursework and approved physics electives;
- Complete the requirements of the monthly cumulative exams, the oral exam, and the seminar;
- Defend the dissertation in an oral examination;
- Complete all general requirements for the Doctor of Philosophy degree.

Students entering with the endorsement of the Department of Physics must choose an advisor in the Department of Physics holding a joint appointment in Chemistry. Other students must select as research advisor a participating faculty member in the Department of Chemistry. Students entering the program with principle preparation in physics may be required to audit certain undergraduate prerequisites for chemistry graduate courses, and visa versa for students whose principle preparation is in chemistry.

Communication

- Communication, MA (p. 28)
- Health and Crisis Communication, Certificate (p. 29)
- Instructional Communication for Educators, Certificate (p. 29)
- Strategic Communication, MA (p. 29)
- Strategic Social Media, Certificate (p. 30)

Interdisciplinary Programs

- Applied Political Communication, Certificate (p. 65)

School of Communication (COMM)

COMM:500 History of Journalism in America (3 Credits)

A review and analysis of the historical evolution of journalism in America, focusing primarily on newspapers, magazines, radio, television. (Formerly 7600:500)

COMM:501 Orientation to Communication Online Study (1 Credit)

An orientation for graduate students in the Strategic Communication MA program to understand graduate work, the field, and advising specifically for the 100% online program. (Formerly 7600:501)

COMM:502 Informatics & Data Analysis in Communication (1 Credit)

An examination of the influence that information has on communication across different contexts. Includes strategic information seeking, gathering, processing and understanding data. (Formerly 7600:502)

COMM:506 Contemporary Public Relations (3 Credits)

Study and practical application of communication concepts, theories and skills relevant to public relations programs in businesses and nonprofit organizations. (Formerly 7600:506)

COMM:508 Women, Minorities & News (3 Credits)

Study of images of women and minorities in U.S. news, along with the power women and minorities have as decision-makers in the news industry. (Formerly 7600:508)

COMM:510 Crisis Communication (3 Credits)

This course focuses on crisis communication, crisis communication theory, and research of events that require the use of crisis communication messages. (Formerly 7600:510)

COMM:516 Social Media Content Creation (3 Credits)

This course covers writing for social media and incorporates best practices for online content creation. (Formerly 7600:516)

COMM:517 Social Media Platforms (3 Credits)

This course emphasizes content production in professional settings based on key social media platform characteristics, audiences, and social contexts. (Formerly 7600:517)

COMM:520 Magazine Writing (3 Credits)

An advanced writing class designed to develop the specialized reporting, researching, and writing skills needed in consumer and specialized business magazines today. (Formerly 7600:520)

COMM:525 Commercial Electronic Publishing (3 Credits)

This advanced class allows an in depth investigation of the business and production principles of electronic publishing of magazines. (Formerly 7600:525)

COMM:531 Risk Communication (3 Credits)

This course explains and defines the applied nature of risk communication. Students will analyze risk situations, develop and execute messaging strategies, and assess message effectiveness. (Formerly 7600:531)

COMM:538 Health Communication (3 Credits)

This course presents an overview of health communication theory and research issues in interpersonal, small group, organizational, public relations, and mass media contexts. (Formerly 7600:538)

COMM:539 Health Informatics (3 Credits)

Prerequisites: COMM 501 and COMM 538. This course focuses on the influence that health-related information has on communication. Topics include health information seeking, gathering, and processing, and impacts of health informatics. (Formerly 7600:539)

COMM:540 Strategic Social Media (3 Credits)

This course provides an overview of the current social media landscape, and explores theories, research, business models and strategies of social media marketing and communication. (Formerly 7600:540)

COMM:541 Media Entrepreneurship (3 Credits)

This course provides an overview of how business is conducted in media industries and helps students identify business and entrepreneurship opportunities in a convergent environment. (Formerly 7600:541)

COMM:542 Social Media Metrics and Analytics (3 Credits)

Prerequisite: COMM 540. This course gives students the knowledge and tools to measure social media effectively. Students will learn how to measure, monitor, and evaluate social media communication. (Formerly 7600:542)

COMM:546 Women, Minorities & Media (3 Credits)

Examination of the media's portrayal of white women and people of color and the roles of media decision-makers as powerful counterparts to these images. (Formerly 7600:546)

COMM:550 Sport Communication (3 Credits)

This course provides an intensive overview of the field of sport communication, and explores opportunities and challenges of sport communication. (Formerly 7600:550)

COMM:554 Theory of Group Processes (3 Credits)

Group communication theory and conference leadership as applied to individual projects and seminar reports. (Formerly 7600:554)

COMM:557 Public Speaking in America (3 Credits)

Survey and critical analysis of major speakers, speeches and speech movements in American history. Examines how style and content of American speaking influenced events and reflected their times. (Formerly 7600:557)

COMM:559 Leadership and Communication (3 Credits)

Theories of leadership and communication across public, organizational, small group, interpersonal, and political contexts. Assessments tools provided. Guest speakers. (Formerly 7600:559)

COMM:560 Science Communication (3 Credits)

Provides an overview of popular communication approaches in science, the role of communication in science, and how to communicate science to non-technical audience. (Formerly 7600:560)

COMM:561 Ethics in Science Communication (3 Credits)

Prerequisites: COMM 560. This course will explore professional approaches to ethical decision making and apply them to science communication. (Formerly 7600:561)

COMM:562 Advanced Media Writing (3 Credits)

Practical applications of script writing principles and techniques, focusing on the skills and discipline required to finish an entire script. (Formerly 7600:562)

COMM:568 Advanced Audio and Video Editing (3 Credits)

Prerequisite: Permission of instructor. A study of film and video editing. It provides practical experience and exposure to the various creative approaches and techniques of film / video editing. (Formerly 7600:568)

COMM:571 Theories of Rhetoric (3 Credits)

Study of key figures in history of rhetorical theory, stressing interrelationships among theories of rhetoric, intellectual climates and social climates. (Formerly 7600:571)

COMM:575 Political Communication (3 Credits)

Students explore the relationship between politicians, citizens, and media. Topics include media coverage, campaign technologies, advertising, debates, engagement, rhetoric, and attitudes. Theories and methodologies analyzed. (Formerly 7600:575)

COMM:581 Film As Art: An Introduction to the Film Form (3 Credits)

A study of the role and function of Cinematography, Editing, Sound, and Mise-en-scene as they shape the meaning of the film, within the context of the traditional / non-traditional narratives and the documentary structure. (Formerly 7600:581)

COMM:590 Workshop in Communication (1-3 Credits)

(May be repeated for a total of six credits) Group study or group projects investigating a particular phase of media not covered by other courses in curriculum. (Formerly 7600:590)

COMM:599 Capstone (1 Credit)

Prerequisite: Completion of 21 credits in the Strategic Communication curriculum. Required capstone project for eligibility for graduation in the online MA in Strategic Communication. (Formerly 7600:599)

COMM:600 Introduction to Graduate Study in Communication (3 Credits)

Introduction to the ideas and scholarship that constitute the various research interests in the department. (Formerly 7600:600)

COMM:601 Mixed Methods of Communication Research (3 Credits)

This course focuses on the basic concepts of how to conduct and analyze communication research using various methodologies. Students will learn quantitative and qualitative methods. (Formerly 7600:601)

COMM:602 Qualitative Methods in Communication (3 Credits)

Prerequisite: COMM 600. The course covers paradigms underlying qualitative inquiry, major methods of inquiry, and techniques utilized in the communication discipline. The course fosters students' ability to conduct qualitative research through gathering and analyzing data. (Formerly 7600:602)

COMM:603 Quantitative Methods in Communication (3 Credits)

An introduction to elementary concepts of empirical and quantitative research and their application in studies of mass media research topics. (Formerly 7600:603)

COMM:606 Communication Problems in the Basic Speech Course (1 Credit)

Designed to train a graduate student in methods and materials of introductory speech course. Required of all teaching graduate assistants. (Formerly 7600:606)

COMM:608 Communication Pedagogy (3 Credits)

Overview of the foundational principles for teaching communication courses including philosophical and theoretical perspectives, strategies and tools. (Formerly 7600:608)

COMM:623 Applied Communication Theory (3 Credits)

This course is designed to merge critical thinking and research skills in order to facilitate explorations of communication phenomena through a number of theoretical perspectives. (Formerly 7600:623)

COMM:624 Survey of Communication Theory (3 Credits)

Study of dimensions of field of communication: information analysis, social interaction and semantic analysis. (Formerly 7600:624)

COMM:625 Theories of Mass Communication (3 Credits)

Prerequisite: COMM 600 or permission of instructor. A review of theories of mass media and studies exploring the effect of media. (Formerly 7600:625)

COMM:630 Communication in Organizations (3 Credits)

Overview of theories and approaches for understanding communication flow and practices in organizations; including interdepartmental, networks, superior-subordinate, formal and informal communication. (Formerly 7600:630)

COMM:631 Analyzing Organizational Communication (3 Credits)

Prerequisite: COMM 630 or permission. Methodology for in-depth analysis and application of communication in organizations; team building, conflict management, communication flow. Individual and group projects; simulations. (Formerly 7600:536)

COMM:637 Training Methods in Communication (3 Credits)

Prerequisite: COMM 600. Principles and concepts in the design and delivery of communication training programs; integration of theory and methodology; presentation skills; matching methods and learner needs. (Formerly 7600:637)

COMM:645 Intercultural Communication Theory (3 Credits)

Analysis of the impact on the communication process of cultural difference between communicators; examination of existing literature in intercultural communication. (Formerly 7600:645)

COMM:670 Communication Criticism (3 Credits)

Introduces the basic elements, approaches and types of critical discourse as it is relevant to communication and mass media studies. (Formerly 7600:670)

COMM:680 Graduate Communication Internship (1-6 Credits)

(May be repeated for a total of six credits.) Prerequisites: must have attained the category of full admission and be in good standing in the School's graduate program; must receive permission and approval of internship placement and research proposal. Provides communication graduate students with opportunity to obtain experience and to apply knowledge of academic concepts in a supervised work setting in the communication field. (Formerly 7600:680)

COMM:691 Advanced Communication Studies (3 Credits)

(May be repeated for a total of six credits.) Special topics in communication in areas of particular faculty expertise. Consult department for particular topic each semester. (Formerly 7600:691)

COMM:697 Graduate Research in Communication (1-6 Credits)

(May be repeated for a total of six credits.) Prerequisites: THEA 600 and approval of project prospectus one term prior to undertaking the project. Performance of research on problems found in mass media-communication. (Formerly 7600:697)

COMM:698 Masters Project/Production (1-6 Credits)

(May be repeated for a total of six credits.) Prerequisite: Permission of the school director. (Formerly 7600:698)

COMM:699 Masters Thesis (1-6 Credits)

(May be repeated for a total of six credits.) Prerequisite: Permission of the school director. (Formerly 7600:699)

Communication, MA

Admission Requirements

- Meet the general requirements for admission to the Graduate School.
- Possess an undergraduate major in communication, journalism or a related field; or, complete at least 15 semester credits of undergraduate communication coursework approved by the department.
- Three letters of recommendation.
- Statement of purpose.
- Resume

Note: Even though an applicant is eligible for consideration, an offer of admission is not guaranteed.

Program Requirements

Code	Title	Hours
School Core Course		3
COMM:600	Introduction to Graduate Study in Communication	
Theory (select three credits from the following)		3

COMM:623	Applied Communication Theory	
COMM:624	Survey of Communication Theory	
COMM:625	Theories of Mass Communication	
Methods (select six credits from the following)		6
COMM:542	Social Media Metrics and Analytics	
COMM:601	Mixed Methods of Communication Research	
COMM:602	Qualitative Methods in Communication	
COMM:603	Quantitative Methods in Communication	
Content Areas (select 12 credits from the following)		12
COMM:506	Contemporary Public Relations	
COMM:510	Crisis Communication	
COMM:531	Risk Communication	
COMM:538	Health Communication	
COMM:540	Strategic Social Media	
COMM:541	Media Entrepreneurship	
COMM:550	Sport Communication	
COMM:554	Theory of Group Processes	
COMM:560	Science Communication	
COMM:561	Ethics in Science Communication	
COMM:571	Theories of Rhetoric	
COMM:575	Political Communication	
COMM:608	Communication Pedagogy	
COMM:630	Communication in Organizations	
COMM:631	Analyzing Organizational Communication	
COMM:637	Training Methods in Communication	
COMM:645	Intercultural Communication Theory	
COMM:680	Graduate Communication Internship	
COMM:691	Advanced Communication Studies	
COMM:697	Graduate Research in Communication	
Graduate Electives		6
Exit Options (choose one)		6
COMM:699	Masters Thesis	
Comprehensive Examination and six credits of additional Communication coursework		
Total Hours		36

Health and Crisis Communication, Certificate

The Health and Crisis Communication Certificate is designed for professionals who would like to expand their expertise in health and crisis communication. Specifically, graduates with the certificate would have advanced knowledge of how to develop and implement health and crisis campaigns to meet community needs and how to use health information to provide quality healthcare.

Requirements

Code	Title	Hours
COMM:538	Health Communication	3
COMM:531	Risk Communication	3
COMM:510	Crisis Communication	3

Instructional Communication for Educators, Certificate

This certificate program is intended for high school teachers seeking to teach dual-credit speech and communication courses under the College Credit Plus program. Students will take a combination of core courses and electives, learning to apply communication theory in their classrooms. The program will be available online as well as face-to-face, providing a flexible option for full-time high school teachers.

Requirements

Code	Title	Hours
Required Core Courses		6
COMM:600	Introduction to Graduate Study in Communication	
COMM:608	Communication Pedagogy	
Theory Courses (Choose three credits from the following)		3
COMM:623	Applied Communication Theory	
COMM:624	Survey of Communication Theory	
COMM:625	Theories of Mass Communication	
Electives (Choose nine credits from the following)		9
COMM:510	Crisis Communication	
COMM:531	Risk Communication	
COMM:538	Health Communication	
COMM:540	Strategic Social Media	
COMM:541	Media Entrepreneurship	
COMM:542	Social Media Metrics and Analytics	
COMM:550	Sport Communication	
COMM:560	Science Communication	
COMM:571	Theories of Rhetoric	
COMM:601	Mixed Methods of Communication Research	
COMM:602	Qualitative Methods in Communication	
COMM:603	Quantitative Methods in Communication	
COMM:606	Communication Problems in the Basic Speech Course	
COMM:630	Communication in Organizations	
COMM:637	Training Methods in Communication	
COMM:645	Intercultural Communication Theory	
COMM:670	Communication Criticism	
COMM:691	Advanced Communication Studies	
Total Hours		18

Strategic Communication, MA

The Master of Arts in Strategic Communication is a 100% online delivery method and is designed to fit student individual lifestyle for completion in as little as 12 to 16 months. The program targets any students (and working professionals) who are interested in strategically creating, disseminating, analyzing, and managing communication messages across social media, and/or for health professionals, health organizations, and media outlets.

Admission Requirements

- Meet the general requirements for admission to the Graduate School.
- Hold a bachelor's degree in Communication or a closely related area with a grade point average of 3.0 or better.
- Statement of purpose.

International applicants must meet the requirements of the Graduate School at The University of Akron to demonstrate their English language proficiency.

Admission decisions will be based on a student's academic credentials and the ability to explain why he/she would like to pursue a professional online M.A. in Strategic Communication and his/her potential to succeed in an online environment.

Program Requirements

Code	Title	Hours
Required Courses		18
COMM:510	Crisis Communication	
COMM:600	Introduction to Graduate Study in Communication	
COMM:601	Mixed Methods of Communication Research	
COMM:623	Applied Communication Theory	
COMM:630	Communication in Organizations	
COMM:645	Intercultural Communication Theory	
Cognate Area Courses		12
Social Media		
Required course:		
COMM:540	Strategic Social Media	
Select nine credits from the following:		
COMM:541	Media Entrepreneurship	
COMM:542	Social Media Metrics and Analytics	
COMM:691	Advanced Communication Studies	
MGMT:601	Business Analytics and Information Strategy	
MKTG:620	Strategic Marketing	
Any graduate elective		
Health and Crisis Communication		
Required course:		
COMM:538	Health Communication	
Select nine credits from the following:		
COMM:531	Risk Communication	
COMM:539	Health Informatics	
COMM:691	Advanced Communication Studies	
MKTG:620	Strategic Marketing	
Any graduate elective		
Comprehensive Examination		
Total Hours		30

Strategic Social Media, Certificate

The Strategic Social Media Certificate is designed for professionals who would like to further develop their social media analytic skills with an emphasis on strategies for content creation, supporting platforms, and tools needed to achieve communication goals in the changing societal context.

Requirements

Code	Title	Hours
COMM:516	Social Media Content Creation	3
or COMM:517	Social Media Platforms	
COMM:540	Strategic Social Media	3
COMM:542	Social Media Metrics and Analytics	3

Dance, Theatre & Arts Administration

- Arts Administration, MA (p. 31)

Arts Administration (AADMN)

AADMN:600 Research & Writing Techniques (3 Credits)

Exploration of the basic research tools and methods appropriate to the discipline, including utilization of the computer. Guidelines for writing thesis. (Formerly 7850:600)

AADMN:603 Special Topics in Arts Administration (1-4 Credits)

(May be repeated as different subject areas are covered, but no more than 12 credits may be applied toward M. A. degree) Traditional and experimental courses in arts administration, supplementing those listed in the General Bulletin. (Formerly 7850:603)

AADMN:610 Principles of Arts Administration (3 Credits)

Principles and practices in non-profit arts management, including organizational structure, function of boards, personnel and volunteer management, and public policy for the arts. (Formerly 7850:666)

AADMN:620 Arts Administration Practices & Policies (3 Credits)

Financial management of the arts, facilities management, presenting performances, touring, and unique management problems in non-profit theatre companies, dance companies, orchestras, and museums. (Formerly 7850:691)

AADMN:630 Fund Raising & Grantsmanship in the Arts (3 Credits)

Techniques and execution of a development campaign for individuals, corporations, foundations, federal and state grants, and endowment, including research and proposal writing. (Formerly 7850:682)

AADMN:640 Legal Aspects of Arts Administrators (3 Credits)

Legal responsibilities and liabilities of an arts organization, contracts, copyright law, insurance, taxation, artists' rights, personnel law, and labor law. (Formerly 7850:692)

AADMN:650 Audience Development (3 Credits)

Developing audiences for the Arts through Arts marketing techniques, including season and single ticket campaigns, promotional strategies, media/public relations, market research, and telemarketing. (Formerly 7850:665)

AADMN:660 Colloquium on the Arts (3 Credits)

A brief exploration of the major visual and performing art forms and organizations examined in relationship to the business management of arts. Team-taught. (Formerly 7850:605)

AADMN:670 Internship (3-6 Credits)

Prerequisite: permission. Faculty supervised work experience in which student participates in an arts management, performance or technical situation with a selected cultural organization. (Formerly 7850:698)

AADMN:680 Master's Thesis/Project (1-6 Credits)

Prerequisite: permission of graduate coordinator of arts administration program. Research related to the completion of the master's thesis or project depending on the student's degree option. (Formerly 7850:699)

Theatre (THEA)

THEA:533 Theatre Organization and Production Management (3 Credits)

Study of successful methods of theatre organization and production stage management of professional and non-professional performing arts operations. (Formerly 7800:533)

THEA:555 Creating Performance (3 Credits)

(May be repeated for a total of six credits.) This course introduces devising processes, improvisation, ensemble work, and physical theatre techniques appropriate to the preparation of practical performance projects from sources other than a conventional play. (Formerly 7800:555)

THEA:567 Multi-Cultural Theatre (3 Credits)

A detailed examination of contemporary performances, performance texts, and theoretical writings that reference the history and experience of diverse communities of America and the world. (Formerly 7800:567)

THEA:572 Methods of Teaching Elementary Theatre Arts (3 Credits)

Prerequisites: graduate status. Course provides skills, knowledge and experiences essential to teaching effective and creative theatre arts in elementary school through current theories, methods and materials. (Formerly 7800:572)

THEA:573 Methods of Teaching Secondary Theatre Arts (3 Credits)

Prerequisite: graduate status. This course presents skills, knowledge and experiences essential to teaching innovative and creative theatre arts in the secondary school through current theories, methods and materials. (Formerly 7800:573)

THEA:575 Acting for the Musical Theatre (3 Credits)

Prerequisite: permission. A scene study course in analyzing and performing roles in American musicals. Accompanist provided. (Formerly 7800:575)

THEA:576 Theatre and Community Action (3 Credits)

This course will explore civic engagement strategies and situations linking theatre and community in which students tackle community issues and concerns utilizing various performance techniques. (Formerly 7800:576)

THEA:590 Workshop in Theatre Arts (1-3 Credits)

(May be repeated for a total of 6 credits) Prerequisite: advanced standing or permission. Group study or group projects investigating particular phases of theatre arts not covered by other courses in curriculum. (Formerly 7800:590)

THEA:600 Research and Writing Techniques (3 Credits)

Exploration of the basic research tools and methods appropriate to the discipline, including utilization of the computer. Guidelines for writing thesis. (Formerly 7800:600)

THEA:603 Special Topics in Theatre Arts & Dance (1-4 Credits)

(May be repeated as different subject areas are covered, but no more than 12 credits may be applied toward M. A. degree) Traditional and experimental courses in theater, supplementing those listed in the General Bulletin. (Formerly 7800:603)

THEA:641 Problems in Directing (3 Credits)

Advanced directing course with special emphasis on staging of complex plays from all periods of dramatic literature. (Formerly 7800:641)

THEA:645 Seminar in Dramatic Literature (3 Credits)

Representative Western stage play (non-American) are examined in theatrical, historical, and critical/theoretical contexts. (Formerly 7800:645)

THEA:646 Graduate Acting: Techniques (3 Credits)

Advanced study of basic acting techniques, especially Stanislavski, through analysis and performance. Voice/Movement Lab required. (Formerly 7800:646)

THEA:648 Graduate Acting: Problems (3 Credits)

Study of problems confronting the advanced actor in various modern styles of performance Voice/Movement Lab required. (Formerly 7800:648)

THEA:658 History of Theatre (3 Credits)

Theater history from the Greeks to the present with emphasis on physical theater, conventions, and theater architecture of each period. (Formerly 7800:658)

THEA:659 Stage Lighting Design and Technology (3 Credits)

Study of the art and technique of stage lighting design, including drafting of lighting plots, function of lighting instruments and of intensity control. (Formerly 7800:659)

THEA:660 Advanced Technical Theatre (3 Credits)

Processes including multiple set productions, revolves and their rigging, techniques in simple hydraulics, pneumatics and load capacities, and properties and techniques in multi-media. (Formerly 7800:660)

THEA:662 Seminar in Scene Design (3 Credits)

Prerequisite: THEA 336 or undergraduate scene design course or permission of instructor. Study of problems in scene design: portfolio projects, research of noted designers, studies of theater spaces, and new scenographic materials. (Formerly 7800:662)

THEA:690 Graduate Research/Readings (1-3 Credits)

(May be repeated for a total of nine credits) Prerequisite: permission. Individual research or independent readings under supervision of member of theater graduate faculty. (Formerly 7800:690)

THEA:698 Internship: Theater (3-6 Credits)

Prerequisite: permission. Faculty supervised work experience in which student participates in an arts management, performance or technical situation with a selected cultural organization. (Formerly 7800:698)

THEA:699 Masters Thesis (1-6 Credits)

Prerequisite: permission of graduate coordinator of theater arts program. Research related to the completion of the master's thesis. (Formerly 7800:699)

Arts Administration, MA

The University of Akron's Arts Administration Graduate Program is designed to prepare students for successful careers in all disciplines of the non-profit arts. The strength of the program lies in a commitment to balancing theoretical study in the classroom with application through practical experiences and internships.

For information on the master's program in Arts Administration contact Arnold Tunstall, Interim Coordinator, Arts Administration at (330) 972-5950 or tarnold@uakron.edu

Admission Requirements

- Complete the general requirements for admission to the Graduate School.
- Complete an undergraduate major in the area of proposed graduate work or equivalent work as approved by the coordinator of the graduate arts administration/theatre program.
- Statement of purpose (no more than 300 words) summarizing background and outlining career goals.

Applications accepted on a rolling basis. All application materials must be received by March 15 for fall enrollment and to be considered for Graduate Assistantships.

Code	Title	Hours
Required Arts Administration Courses		21
AADMN:600	Research & Writing Techniques	
AADMN:660	Colloquium on the Arts	
AADMN:650	Audience Development	
AADMN:610	Principles of Arts Administration	
AADMN:630	Fund Raising & Grantsmanship in the Arts	
AADMN:620	Arts Administration Practices & Policies	
AADMN:640	Legal Aspects of Arts Administrators	
Internship and Master's Thesis/Project		9
AADMN:670	Internship	
AADMN:680	Master's Thesis/Project	
Management Courses (Choose three credits from the following)		3
PAUS:563	Non-Profit Management	
PAUS:660	Strategic Management	
ENTRE:608	Entrepreneurship and Innovation	
HRM:651	Organizational Transformation	
HRM:652	Managing People in Organizations	
Marketing/Finance Courses (Choose three credits from the following)		3
PAUS:526	Grantsmanship	
PAUS:562	Fundraising & Resource Management	
PAUS:563	Non-Profit Management	
PAUS:641	Urban Economic Growth & Development	
PAUS:642	Public Budgeting	
ACCT:601	Financial Accounting	
FIN:602	Managerial Finance	
MKTG:620	Strategic Marketing	
MKTG:635	Digital Marketing	
SALES:630	Customer Relationship Management	
COMM:506	Contemporary Public Relations	
Total Hours		36

English

- Composition, Certificate (p. 35)
- Creative Writing, MFA (p. 35)
- English, MA (p. 35)
- Literature, Certificate (p. 36)
- Teaching English as a Second Language, Certificate (p. 36)

English (ENGL)

ENGL:500 Anglo Saxon (3 Credits)

Studies in Old English language and Old English prose and poetry, including Beowulf. (Formerly 3300:500)

ENGL:503 Development of Arthurian Legend (3 Credits)

Traces evolution of Arthurian materials from 540 to 1500 and beyond, with emphasis on characters, themes, events and treatments. (Formerly 3300:503)

ENGL:506 Chaucer (3 Credits)

Close study of Chaucer's major works - The Canterbury Tales and Troilus and Criseyde in Middle English. (Formerly 3300:506)

ENGL:507 Middle English Literature (3 Credits)

Study of genres, topics, styles and writers of the Middle English literary works from 12th to 15th centuries. Readings in Middle English. (Formerly 3300:507)

ENGL:521 Swift & Pope (3 Credits)

An intensive study of the major satires of Swift and Pope. Concentration on the rhetorical strategies of each author within the context of the shifting intellectual and cultural milieu at the end of the 17th and beginning of the 18th Centuries. (Formerly 3300:521)

ENGL:524 Early English Fiction (3 Credits)

Development of English novel before 1830. Focus on works of Defoe, Richardson, Fielding, Smollett, Sterne, Austen and Scott. (Formerly 3300:524)

ENGL:530 Victorian Poetry & Prose (3 Credits)

Poetry, prose of the late 19th Century, excluding fiction, with attention to Tennyson, Browning, Arnold, Carlyle, Ruskin and other major writers. (Formerly 3300:530)

ENGL:531 Victorian Fiction (3 Credits)

Reading major novels of Victorian era, of varying length, by Emily Bronte, Dickens, Eliot, Thackeray and Hardy. Characterization, theme and attitude toward life emphasized. (Formerly 3300:531)

ENGL:535 20th Century British Poetry (3 Credits)

Concentrated study of major poems of Yeats, Eliot and Auden, with attention also to Hardy, Housman, Spender, C. Day Lewis, Dylan Thomas and others. (Formerly 3300:535)

ENGL:536 British Fiction: 1900-1925 (3 Credits)

Study of Conrad, Joyce, D.H. Lawrence and Virginia Woolf, with attention to their innovations in narrative and style, their psychological realism and symbolism. (Formerly 3300:536)

ENGL:537 British Fiction Since 1925 (3 Credits)

Study of important British novelists since 1925, excluding Lawrence, Joyce and Woolf. Attention to development of British short story from 1925 to present. (Formerly 3300:537)

ENGL:548 American Romantic Fiction (3 Credits)

Examination of early American fiction, tracing its genesis, romantic period and germinal movements toward realism. Writers discussed include Cooper, Poe, Hawthorne and Melville. (Formerly 3300:548)

ENGL:549 American Fiction: Realism & Naturalism (3 Credits)

Examination of American writers of realistic and naturalistic fiction (e.g. Howells, James, Crane, Dreiser), tracing developments in American fiction against background of cultural and historical change. (Formerly 3300:549)

ENGL:550 Modern American Fiction (3 Credits)

Study of significant American short and long fiction from World War I to the present. (Formerly 3300:550)

ENGL:553 American Women Poets (3 Credits)

Study of modern poets' uses and revisions of tradition, women's relationships, conceptions of art and of the artist-as-woman, and the debate between "public" and "private" poetry. (Formerly 3300:553)

ENGL:556 Thoreau, Emerson and Their Circle (3 Credits)

A study of work and life of Henry David Thoreau, Ralph Waldo Emerson, and other key figures of the American Renaissance. (Formerly 3300:556)

ENGL:557 Writers on Writing (3 Credits)

A close look at what established writers have to say about the process of writing. Students write response essays and take exams on readings. (Formerly 3300:557)

ENGL:560 Film and Literature (3 Credits)

Analysis of literary texts and their film adaptations. Emphasis on genre, structure, and visual elements as counterparts to written texts. (Formerly 3300:560)

ENGL:566 Linguistics and Language Arts (3 Credits)

Foundation course in linguistics with pedagogical implications for second language learners. Fundamental topics (morphology, syntax, semantics, phonetics, pragmatics) and related topics (sociolinguistics, contrastive analysis) covered. (Formerly 3300:566)

ENGL:567 Modern European Fiction (3 Credits)

Representative European writers from about 1850 to present, in translation. Focus on fiction of such writers as Zola, Tolstoy, Dostoyevsky, Mann, Proust, Kafka and Solzhenitsyn. (Formerly 3300:567)

ENGL:568 International Poetry (3 Credits)

This survey of world poetry focuses on the stylistic concerns and social consequences of literature from Latin America, Africa, Asia, Europe, and beyond. (Formerly 3300:568)

ENGL:569 Eros & Love in Early Western Literature (3 Credits)

An analysis of sex and love in the western literature from Greco-Roman times to 1800. Emphasis allegorical, satiric, fantastic or realistic uses of sexuality and "romantic" love. (Formerly 3300:569)

ENGL:570 History of English Language (3 Credits)

Development of English language, from its beginnings: sources of its vocabulary, its sounds, its rules; semantic change; political and social influences on changes; dialect origins; correctness. (Formerly 3300:570)

ENGL:571 U.S. Dialects: Black & White (3 Credits)

Study of differences in pronunciation, vocabulary and grammar among U.S. language varieties. Origins, regional and social dimensions are explored. Correctness, focusing on black English and Appalachian speech, explored. (Formerly 3300:571)

ENGL:572 Syntax (3 Credits)

Principles of syntactic description. Sentence structures are investigated from a variety of languages, with emphasis on English. (Formerly 3300:572)

ENGL:573 Theoretical Foundations and Principles of ESL (3 Credits)

Prerequisites: ENGL 371 or ENGL 466/566. Corequisites: ENGL 371 or ENGL 466/566. Second language acquisition theories and teaching methodologies surveyed. Second language teaching principles from research in linguistics, psycholinguistics, and second language pedagogy explored. (Formerly 3300:573)

ENGL:574 African American English (3 Credits)

African American English grammatical structure, pronunciations, origins, and cultural role. Comparisons with academic English. Discussion of language correctness, legal status, and role in education. (Formerly 3300:574)

ENGL:575 Theory of Rhetoric (3 Credits)

Ancient and modern theories of rhetoric, with attention to classical oration, "topics" of rhetoric and their application to teaching of English. (Formerly 3300:575)

ENGL:577 Sociolinguistics (3 Credits)

Major sociolinguistic concepts and methodology examined, as well as relationships between language, socio-cultural factors, and education. Issues of Standard English, power, and gender also examined. (Formerly 3300:577)

ENGL:578 Grammatical Structures of Modern English (3 Credits)

Contemporary understanding of Modern English sentence structure: parts of speech, sentence types, phrase types, modification, coordination and subordination, parentheticals. Traditional grammar and sentence rhetoric discussed. (Formerly 3300:578)

ENGL:579 Management Reports (3 Credits)

Study of principles and writing practice in effective business style, specialized structure, and purpose for business reports. (Formerly 3300:579)

ENGL:585 Science Fiction (3 Credits)

A study of twentieth-century British and American science fiction, featuring primary forms of the science fiction story and the work of major authors. (Formerly 3300:585)

ENGL:586 Learner English (3 Credits)

Introduction to tools for and practice in analyzing second language learners' production of English. Theory and practice of teaching oral and written English also covered. (Formerly 3300:586)

ENGL:587 Field Experience: Teaching Second Language Learners (3 Credits)

Prerequisite: Permission of the instructor required to enroll. Practical experience in which second language teachers-in-training observe, participate in, and practice teaching under the supervision of the instructor and/or an experienced, certified teacher. (Formerly 3300:587)

ENGL:589 Seminar in English (2-3 Credits)

(May be repeated with different topics.) Special studies, and methods of literary research, in selected areas of English and American literature and language. (Formerly 3300:589)

ENGL:590 Workshop in English (1-3 Credits)

(May be repeated with different topics.) Group studies of special topics in English. Cannot be used to meet undergraduate or graduate major requirements in English; for elective credit only. (Formerly 3300:590)

ENGL:592 Internship in English (1-3 Credits)

Prerequisite: permission of instructor. Graduate internship, including analytical reading and writing focused on liberal arts and career applications of the study of English. May count up to three credit. (Formerly 3300:592)

ENGL:600 Teaching College Composition Practicum (3 Credits)

Prerequisite: teaching assistantship. Orientation and weekly analysis of teaching rationale and practice, limited to teaching assistants in the Department of English. (Credits may not be used to meet M.A. in English degree requirements.) (Formerly 3300:600)

ENGL:610 New Directions in the Teaching of Writing (3 Credits)

This course introduces recent approaches to teaching writing through modes of digital composition, as well as considering composing for audiences with varying access needs. (Formerly 3300:610)

ENGL:611 Argument and Research Writing (3 Credits)

This course introduces students to major theories of argumentation and research writing, with an emphasis on pedagogy. (Formerly 3300:611)

ENGL:615 Shakespearean Drama (3 Credits)

Concentrated study of several Shakespearean plays with emphasis on historical, critical and dramatic documents pertinent to development of Shakespeare's art. (Formerly 3300:615)

ENGL:616 Shakespeare's Contemporaries in English Drama (3 Credits)

Readings in such playwrights as Lyly, Greene, Marlowe, Jonson, Beaumont, Fletcher, Webster, Middleton and Ford and in contemporary writings relevant to theory and practice of drama. (Formerly 3300:616)

ENGL:618 Milton (3 Credits)

Emphasis on Milton's major poems and prose works: *Paradise Lost*, *Paradise Regained*, *Areopagitica*. Student becomes acquainted with Milton the man and Milton the artist. (Formerly 3300:618)

ENGL:619 Seventeenth-Century English Literature (3 Credits)

An examination of seventeenth-century British authors, including Donne, Jonson, Marvell, Milton, Bacon, and Bunyan, their canonical positions, their craft, and their literary criticism. (Formerly 3300:619)

ENGL:620 Autobiography as Literature (3 Credits)

This course examines the genre of autobiography and memoir. A wide representation of autobiographies will be the focus of discussion and analysis. (Formerly 3300:620)

ENGL:625 Autobiographical Writing (3 Credits)

Using a workshop format, this course examines autobiographical essays written by class members. Attention will also be given to the art and craft of writing autobiography. (Formerly 3300:625)

ENGL:627 Keats & Contemporaries (3 Credits)

Writings of John Keats, studied against background of romantic poetic theory and poetry of Keats' contemporaries. (Formerly 3300:627)

ENGL:629 Twentieth Century Literature (3 Credits)

This course introduces students to recent approaches to Twentieth Century Literature. The class is based on three thematic units and includes poetry, fiction, and drama. (Formerly 3300:629)

ENGL:630 Literature of the 1930s (3 Credits)

A study of 1930s American literature in its social context, using recent critical theory to examine relationships between history and literature. (Formerly 3300:630)

ENGL:643 Seminar in James (3 Credits)

A study of Henry James' life and works. Primary emphasis will be on James' fiction, both long and short, early and late; but some attention will also be given to his literary criticism, travel pieces and plays. (Formerly 3300:643)

ENGL:645 Poe and Hawthorne (3 Credits)

Substantial readings from each author: tales, novels, essays, letters, poetry. Also, representative literary criticism about each author. (Formerly 3300:645)

ENGL:646 Whitman & Dickinson (3 Credits)

Students study the work of Walt Whitman, Emily Dickinson, and the appropriate recent scholarship. Students conduct, write about, and present their own scholarly research. (Formerly 3300:646)

ENGL:650 The New Rhetorics (3 Credits)

This seminar examines the impact of rhetorical theory on the study and teaching of writing. We will study works from classical, modern, and postmodern rhetoricians. (Formerly 3300:650)

ENGL:651 The Pragmatists (3 Credits)

This seminar examines the pragmatic roots of composition studies—the "tacit tradition," including classical expressivism, and criticisms of that movement. (Formerly 3300:651)

ENGL:660 Cultural Studies: Theory and Practice (3 Credits)

This course explores the relationship between Cultural Studies and English Studies, examining the impact of Cultural Studies on the practice of textual analysis. (Formerly 3300:660)

ENGL:665 Literary Criticism (3 Credits)

Inquiry into nature and value of literature and problems of practical criticism as represented in major statements of ancient and modern critics. (Formerly 3300:665)

ENGL:670 Modern Linguistics (3 Credits)

Introductory examination of methods and results of modern grammatical research in syntax, semantics, phonology and dialects. Goals include understanding of language variation and background preparation for linguistic studies of literature. (Formerly 3300:670)

ENGL:673 Theories of Composition (3 Credits)

Study of composition theories and research, with attention to their implications for writing and writing instruction. Particular focus on such topics as composing processes, invention, form, style, modes of writing, language varieties and evaluation of writing. Class sessions include discussion of readings and presentations. (Formerly 3300:673)

ENGL:674 Research Methodologies in Composition (3 Credits)

Research methodologies in composition and their application. Students will define research areas, summarize and evaluate work already done, and propose and complete semester research projects. (Formerly 3300:674)

ENGL:675 Writing for MBAs (3 Credits)

Emphasizes managerial writing. Writing tasks are presented as decision-making tools, and students develop strategies for messages to subordinates, analytical reports and messages to outside audiences. (Formerly 3300:675)

ENGL:676 Theory & Teaching of Basic Composition (3 Credits)

Review of current research and exploration of specific instructional methods for teaching basic composition. (Formerly 3300:676)

ENGL:677 Science Writing (3 Credits)

Study of principles and writing practice for effective communication in the physical or social sciences, including purpose, audience, specialized document structure, and oral presentations. (Formerly 3300:677)

ENGL:679 Scholarly Writing (3 Credits)

Study of composing, analyzing and evaluating academic arguments. Practice in specific forms of academic writing such as reviews of research, articles and book reviews. (Formerly 3300:679)

ENGL:683 Seminar in Satire (3 Credits)

A study of satire from the Middle Ages through the late 20th Century, with particular attention to techniques of satiric attack, modes of comedy and irony and literary criticism. (Formerly 3300:683)

ENGL:689 Seminar in English (2-3 Credits)

(May be repeated with change of topics) Special topics within the general field of literature and language, usually focusing on major figures or themes. (Formerly 3300:689)

ENGL:690 Critical Approaches to Literature (3 Credits)

Critical Approaches to Literature is a graduate-level course designed to familiarize high school teachers with strategies for introducing analysis, theory, and research to their students. (Formerly 3300:690)

ENGL:698 Individual Reading in English (1-3 Credits)

Individual study under guidance of professor who directs and coordinates student's reading and research. (Formerly 3300:698)

ENGL:699 Master's Thesis/Capstone (3 Credits)

Prerequisites: 18 credit hours completed in the program and permission of the department. Original work in the field of literature and language, culminating in the completion of either a thesis or a capstone. (Formerly 3300:699)

Composition, Certificate

To be eligible for the certificate in composition, a person must be admitted to the University as a graduate student (with either full or provisional status). An eligible person interested in the program should contact Dr. Lance Svehla, program director.

Requirements

Five courses in composition are required.

Code	Title	Hours
Required Courses		
ENGL:673	Theories of Composition	3
ENGL:674	Research Methodologies in Composition	3
or ENGL:676	Theory & Teaching of Basic Composition	
Electives		
Select nine credits of the following chosen with certificate director:		9
ENGL:574	African American English	
ENGL:577	Sociolinguistics	
ENGL:578	Grammatical Structures of Modern English	
ENGL:589	Seminar in English	
ENGL:600	Teaching College Composition Practicum	
ENGL:625	Autobiographical Writing	
ENGL:650	The New Rhetorics	
ENGL:651	The Pragmatists	3
ENGL:660	Cultural Studies: Theory and Practice	
ENGL:670	Modern Linguistics	
ENGL:679	Scholarly Writing	
ENGL:689	Seminar in English	
Total Hours		18

Creative Writing, MFA

The NEOMFA (Northeast Ohio Master of Fine Arts) program in creative writing is a consortium between the University of Akron, Cleveland State University, Kent State University, and Youngstown State University. This unique MFA program provides students with opportunities to develop their skills in writing fiction, poetry, creative nonfiction, and playwriting. Students have access to faculty and resources at all four NEOMFA campuses. Through extensive practice in workshops and craft and theory courses, students will develop their creative writing abilities while also studying literature and completing a relevant internship. The MFA is a terminal degree.

Admission Requirements

Students must be accepted by the Graduate School at the University of Akron or one of the other three participating universities. They must also submit three letters of recommendation, a statement of goals, and a writing portfolio to the NEOMFA, following guidelines at <http://neomfa.org> (<http://neomfa.org/>). The portfolio will be reviewed by an admissions committee of members from all four universities. Application materials must be submitted by January 15.

Degree Requirements

Students must complete the following courses among the participating universities by taking classes restricted to graduate students only, except as noted below:

Code	Title	Hours
Writing Workshops		
Select 15 credits		15
Craft and Theory Courses		
Select nine credits (at least three and no more than six in the student's primary genre of concentration)		9
Literature Courses		
Select six credits		6
Internship		
Select three credits		3
Thesis		
Select six credits		6
Electives		
Select nine credits, up to six of which may be from advisor-approved courses not solely restricted to graduate students		9
Total Hours		48

Up to nine credits from previously uncompleted graduate degrees may be accepted for transfer credit in the NEOMFA program.

English, MA

The Master of Arts in English provides students with a strong practical and theoretical grounding as they prepare to move forward into careers or into graduate and professional schools. Students will learn 1) advanced methods for deeper study of literature written in English, 2) the fundamentals of Composition as a discipline, and 3) practical writing skills through courses in professional and rhetorical writing. Courses will place texts within wider cultural and multicultural debates. Through assigned writings students will articulate informed viewpoints on real-world issues and practice various forms of professional and critical writing, learning to interpret texts in contexts ranging from academic debate to the contemporary classroom to a variety of professional settings.

Admission Requirements

In addition to the graduate application and official transcripts, applicants must submit a statement of purpose. Applications are accepted on a rolling basis.

Program Requirements

Code	Title	Hours
Core Courses		
		18
ENGL:611	Argument and Research Writing	
ENGL:673	Theories of Composition	
ENGL:665	Literary Criticism	
or ENGL:690 Critical Approaches to Literature		
ENGL:689	Seminar in English ¹	
ENGL:699	Master's Thesis/Capstone	
or ENGL:698 Individual Reading in English		

One additional 600-level Literature Course

Electives 12

Students must take 12 additional credits in English at the 500 or 600-level.

Total Hours 30

¹ For the ENGL:689 Seminar in English requirement one of the following two courses must be taken: Seminar in English: Grant Writing (3 credits) or Seminar in English: Professional Writing Theory and Practice (3 credits). Only these specific courses will fulfill the requirement. No other ENGL:689 Seminar will be accepted for this requirement.

Graduation Requirement: Candidates for graduation must see the Department of English Graduate Coordinator to complete the departmental Graduate Student Survey.

Literature, Certificate

To be eligible for the graduate certificate in literature, a person must be admitted to the University as a graduate student (with either full or provisional status). An eligible person interested in the program should contact the Graduate Coordinator in the Department of English.

Requirements

Of the five required courses (15 credits), two must be core courses, Chaucer and Shakespearean Drama; four of the five courses must be at the 600-level; and one must be in American literature.

Code	Title	Hours
Core Courses		
ENGL:506	Chaucer ¹	3
ENGL:615	Shakespearean Drama	3
Additional Coursework		
American Literature Course		3
Two Other Literature Courses		6
Total Hours		15

¹ Unless the student has passed a comparable course at the undergraduate level with a grade of B or better.

Teaching English as a Second Language, Certificate

This program is intended for both native and non-native speakers of English who seek training in the teaching of English as a second language (ESL) and wish to obtain an initial qualification to teach ESL/EFL (English as a foreign language) in educational settings other than public schools in Ohio or in countries outside the United States. For Ohio qualification in teaching ESL in the Ohio public school system, see the TESOL Endorsement requirements in this bulletin under the College of Education.

The program is designed to introduce the student to the central issues in the theory and practice of teaching English to non-native speakers through courses in modern and applied linguistics, in second language pedagogy and in related disciplines.

Students who do not have English as a native language must demonstrate adequate proficiency in English with a valid TOEFL score of 79 (internet-based) or higher or a valid IELTS score of 6.5 or higher.

The awarding of this certificate is not contingent upon completion of a degree program. A minimum grade point average of 3.0 is required. Graduate students must apply for the certificate program through the Graduate School.

All students who wish to pursue the TESL certificate should meet with the program director to discuss the program.

Requirement

The certificate requires the completion of a minimum of 15 credit hours of course work, including five core courses and one elective course.

Code	Title	Hours
Core Requirements		
ENGL:566	Linguistics and Language Arts ¹	3
ENGL:573	Theoretical Foundations and Principles of ESL ¹	3
ENGL:578	Grammatical Structures of Modern English	3
ENGL:577	Sociolinguistics	3
or ENGL:570	History of English Language	
Electives		
Select one of the following: ²		3
ENGL:570	History of English Language	
ENGL:577	Sociolinguistics	
ENGL:587	Field Experience: Teaching Second Language Learners	
EDCI:541	Teaching Literacy to English Learners	
EDCI:543	Techniques of Teaching English as a Second Language	
EDCI:556	Scaffolding Language and Content Learning for English Learners	
SPAN:505	Spanish Linguistics: Phonology	
SLPA:530	Aspects of Normal Language Development	
Total Hours		15

¹ Students should be currently taking or have successfully completed ENGL:566 prior to taking ENGL:573.

² Choice to be decided in consultation with Dr. Wei Zhang, program director.

Geosciences

- Environmental Studies, Certificate (p. 39)
- Geology, MS (p. 39)

Geology (GEOL)

GEOL:505 Archaeological Geology (3 Credits)

Prerequisite: admission to Geology Master's program or permission. Provides background in geologic principles and techniques relevant to archaeologists. Topics include stratigraphy, absolute dating, locality assessment, zooarchaeology, taphonomy, and remote sensing. Required lab, field trips. (Formerly 3370:505)

GEOL:507 Archaeogeophysical Survey (3 Credits)

Prerequisite: admission to Geology Master's program or permission. Advanced instruction in subsurface geophysical survey techniques in archaeology. Emphasis on magnetic gradiometry and electrical resistivity techniques, image processing and geological and archaeological interpretation. (Formerly 3370:507)

GEOL:510 Regional Geology of North America (3 Credits)

Prerequisite: admission to Geology Master's program or permission. Examination of physiographic provinces of North America emphasizing structure, tectonic setting, stratigraphy and processes responsible for landforms in each province. Laboratory, field trips. (Formerly 3370:510)

GEOL:511 Glacial Geology (3 Credits)

Prerequisite: admission to Geology Master's program or permission. Causes and effects of Pleistocene expansion of polar ice masses with emphasis on glacial deposits and world climatic changes. Field trips. (Formerly 3370:511)

GEOL:521 Coastal Geology (3 Credits)

Prerequisite: admission to Geology Master's program or permission. Study of the origins and evolution of coasts and coastal deposits with particular attention paid to the interaction of waves and currents with sediment, and the development of associated sedimentary features. Field trips. (Formerly 3370:521)

GEOL:525 Principles of Sedimentary Basin Analysis (3 Credits)

Prerequisite: admission to Geology Master's program or permission. Primarily the study of depositional systems, regional and global stratigraphic cycles, and sedimentation and plate tectonics. (Formerly 3370:525)

GEOL:532 Optical Mineralogy - Introductory Petrology (3 Credits)

Prerequisite: Admission to Geology Master's program or permission. Optical techniques for identification, characterization, and classification of minerals and rocks using the petrography microscope. Laboratory. (Formerly 3370:532)

GEOL:533 Advanced Petrology (3 Credits)

Prerequisite: GEOL 532. Petrogenesis of igneous, metamorphic and sedimentary rocks as determined by microscopic studies of textures and mineral assemblages using thin section. Laboratory. (Formerly 3370:533)

GEOL:535 Petroleum Geology (3 Credits)

Prerequisite: admission to Geology Master's program or permission. Natural occurrences of petroleum. Characteristics, origin, entrapment and exploration methods. Laboratory, field trips. (Formerly 3370:535)

GEOL:536 Coal Geology (3 Credits)

Prerequisite: admission to Geology Master's program or permission. Origin, composition and occurrence of coal with emphasis on depositional environments, coalification processes, exploration, evaluation and exploitation. Laboratory, field trips. (Formerly 3370:536)

GEOL:537 Economic Geology (3 Credits)

Prerequisite: admission to Geology Master's program or permission. Study of metallic and nonmetallic mineral deposits emphasizing paragenesis and exploration. Laboratory, field trips. (Formerly 3370:537)

GEOL:541 Fundamentals of Geophysics (3 Credits)

Prerequisite: admission to Geology Master's program or permission. Fundamental concepts in solid earth geophysics, planetary physics, geodesy, and geomagnetism. Contributions of geophysics to recent major developments in geoscience. (Formerly 3370:541)

GEOL:543 Rivers (3 Credits)

Prerequisites: Permission of department. Study of the geologic and environmental aspects of river systems and related human impacts. Includes mandatory, 0 credit weekend field work. (Formerly 3370:543)

GEOL:544 Environmental Magnetism (3 Credits)

Prerequisite: admission to Geology Master's program or permission. Introduction to the theory and methods of environmental magnetism and the application of environmental magnetism to interpreting sedimentary deposits. (Formerly 3370:544)

GEOL:545 Environmental and Engineering Geophysics (3 Credits)

Advanced subsurface exploration using ground penetrating radar and multi-channel electrical resistivity. Applications in environmental assessment, civil engineering and geotechnical engineering. Field trips. (Formerly 3370:545)

GEOL:546 Exploration Geophysics (3 Credits)

Prerequisite: admission to Geology Master's program or permission. Basic principles and techniques of geophysical exploration with emphasis on gravimetric, magnetic, seismic and electrical methods and application to geological problems. Laboratory, field trips. (Formerly 3370:546)

GEOL:550 Advanced Structural Geology (3 Credits)

Prerequisite: admission to Geology Master's program or permission. Fundamental and advanced concepts of structural geology with emphasis on current and developing concepts. Laboratory, field trips. (Formerly 3370:550)

GEOL:551 Field/Lab Studies in Environmental Science (3 Credits)

Prerequisite: permission of instructor. Field/Laboratory inquiry into a specific interdisciplinary, environmental science topic. Students complete a research project involving collecting, analyzing and interpreting real world data. (May be repeated once.) (Formerly 3370:551)

GEOL:552 Geology and Environmental Science Service Learning (1-3 Credits)

Graduate students gain experience as project managers for class projects by designing research plans, supervising data collection, lab analyses and preparing final project reports. (Formerly 3370:552)

GEOL:553 Geology Field Camp I (3 Credits)

Prerequisite: admission to Geology Master's program and permission of instructor. Introduction to collection and interpretation of field data and construction of geologic maps. (Formerly 3370:553)

GEOL:554 Geology Field Camp II (3 Credits)

Prerequisite: admission to Geology Master's program and permission of instructor. Advanced techniques and methods of field geology necessary for interpreting detailed geological maps. (Formerly 3370:554)

GEOL:555 Field Studies in Geology (1-3 Credits)

Prerequisite: Permission of instructor. Field trip course emphasizing aspects of geology not readily studied in Ohio. Includes pre-trip preparation and post-trip examination. Student will bear trip expenses. (May be repeated for up to four credits.) (Formerly 3370:555)

GEOL:562 Macroevolution (3 Credits)

Prerequisite: admission to Geology Master's program or permission. Provides a comprehensive treatment of macroevolutionary theory, focusing on evidence from the fossil record. Topics include genetics, speciation, development, and fossil lineages. Laboratory. (Formerly 3370:562)

GEOL:563 Environmental Micropaleontology (3 Credits)

Prerequisite: admission to Geology Master's program or permission. Introduction to techniques of micropaleontology evolution and paleoecology of selected microfossil groups. Laboratory, field trips. (Formerly 3370:563)

GEOL:565 Geomicrobiology (3 Credits)

Prerequisite: Graduate standing. A course addressing the physiology, ecology, and activities of microorganisms that mediate important biogeochemical processes, and the interdisciplinary approaches to studying them. (Formerly 3370:565)

GEOL:570 Geochemistry (3 Credits)

Prerequisite: admission to Geology Master's program or permission. Application of chemical principles to the study of geologic processes. Laboratory, field trips. (Formerly 3370:570)

GEOL:572 Stable Isotope Geochemistry (3 Credits)

Prerequisite: admission to Geology Master's program or permission. Application of stable isotope geochemistry to the study of the hydrologic and carbon cycles, modern sedimentary environments, and the interpretation of sedimentary rocks. (Formerly 3370:572)

GEOL:574 Groundwater Hydrology (3 Credits)

Prerequisite: admission to Geology Master's program or permission. Origin, occurrence, regimen and utilization of groundwater. Qualitative and quantitative presentation of geological and geochemical aspects of groundwater hydrology. Laboratory, field trips. (Formerly 3370:574)

GEOL:580 Seminar in Environmental Studies (2 Credits)

Prerequisite: Graduate status. Discussion of specific environmental topic(s) from an interdisciplinary viewpoint; resource persons are drawn from the University and surrounding community. (Formerly 3370:580)

GEOL:581 Analytical Methods in Geology (2 Credits)

Prerequisite: admission to Geology Master's program or permission. A survey of analytical methods used to solve geologic problems with emphasis on method selection, proper sample collection, analysis of data quality and data presentation. (Formerly 3370:581)

GEOL:584 Geoscience Research & Consulting Methods (2 Credits)

Prerequisite: Must be a Geology Department graduate student or senior major in geology, or have permission of instructor. Methods for finding, gathering, managing, and evaluating geoscience information. Emphasis on finding data sources (including electronic), creating valid data sets, visualizing data. (Formerly 3370:584)

GEOL:585 Individual Readings in Geology (1-4 Credits)

Prerequisite: permission of graduate advisor required. (May be repeated for a total of 8 credits; credits may not be used to meet degree requirements.) Directed reading to fit individual student programs. Credit/Noncredit. (Formerly 3370:585)

GEOL:590 Workshop in Geology and Environmental Science (1-3 Credits)

Group studies of special topics in geology and environmental science. May not be used to meet graduate degree requirements in the Department. May be used for elective credit only. (May be repeated.) (Formerly 3370:590)

GEOL:591 Graduate Internship in Geology and Environmental Science (1-3 Credits)

Prerequisite: Permission of the Chair. Supervised professional experience in geology or geophysics. (May only apply three credits toward minimum graduate requirements in Geology and Environmental Science.) (Formerly 3370:591)

GEOL:631 Rocks & Minerals (4 Credits)

Prerequisite: admission to Geology Master's program or permission. Intensive course integrating crystallography, mineralogy and petrology for the science teacher and graduate student from disciplines other than geology. Laboratory. (Formerly 3370:631)

GEOL:639 Nuclear Geology (3 Credits)

(Two hour lecture, three hour laboratory) Prerequisites: minimum of seven credits in chemistry, eight credits in physics, eight credits in calculus and eight credits in geology or permission. Discusses nature of radioactive and stable isotopes, their applications in geology, radioactive minerals, radioactive background and disposal of radioactive wastes. Nuclear analytical techniques will also be discussed; lecture, laboratory and field study. (Formerly 3370:639)

GEOL:643 Geostatistics (3 Credits)

Prerequisite: admission to Geology Master's program or permission. Application of statistical methods to geology and geophysics including tests of hypotheses, trend surface analysis, analysis of variance, nonparametric statistics and time series analysis. (Formerly 3370:643)

GEOL:655 Advanced Field Studies in Geology (1-3 Credits)

Prerequisite: Permission of instructor. Field trip course studying aspects of geology not seen in Ohio; includes pre- and post-trip academic activities. Students will bear costs. (May be repeated for a total of four credits.) (Formerly 3370:655)

GEOL:656 Global Tectonics (3 Credits)

Prerequisite: admission to Geology Master's program or permission. Theoretical study of physical forces involved in formation and deformation of earth's crust with emphasis on plate tectonics and associated diastrophic features. (Formerly 3370:656)

GEOL:661 Geologic Record of Past Global Change (3 Credits)

Prerequisite: equivalent of baccalaureate degree in geology or permission of instructor. Study of the geologic record of past global climate and environmental change from geochemical, paleontological, sedimentological and other geological evidence. (Formerly 3370:661)

GEOL:674 Advanced Ground Water Hydrology (3 Credits)

Prerequisite: admission to Geology Master's program or permission. Study of water table and artesian aquifers under steady and nonsteady state conditions. Collection and evaluation of field data with regard to theory. Water well and well field design. Laboratory and field work. (Formerly 3370:674)

GEOL:680 Seminar in Geology (2 Credits)

(May be repeated for a total of six credits) Selected topics with reference material from original sources. (Formerly 3370:680)

GEOL:684 Selected Topics in Geology (1-3 Credits)

(May be repeated for a total of eight credits) Prerequisite: permission. Topics not regularly offered as formal courses, generally of classic current importance. Entails lectures, readings, discussions and/or guided laboratory work. (Formerly 3370:684)

GEOL:685 Advanced Individual Readings in Geology (1-4 Credits)

Prerequisite: Permission of graduate advisor. Directed readings to fit individual student programs. (May be repeated for a maximum of nine credits.) (Formerly 3370:685)

GEOL:688 Geology Teaching Practicum (2 Credits)

Corequisite: graduate assistantship. Training and experience in college teaching of geology under supervision of experienced faculty. May be repeated for a maximum of 8 credits. Credits may not be used to meet degree requirements. Credit/Noncredit. (Formerly 3370:688)

GEOL:696 Geology Colloquium (1 Credit)

Lecture on current topics in geological sciences and thesis proposals and defenses by graduate students. May be repeated. Does not satisfy degree requirements. (Formerly 3370:696)

GEOL:698 Graduate Research Problems (1-3 Credits)

(May be repeated for a total of six credits) Prerequisite: permission. Directed reading and research in an aspect of geology chosen by student in consultation with an instructor. (Formerly 3370:698)

GEOL:699 Master's Thesis (1-6 Credits)

Independent and original investigation. Must be successfully completed, report written and defended before a committee. (Formerly 3370:699)

Environmental Studies, Certificate Program

This graduate certificate program is designed for environmental professionals who wish to broaden their background or update their skills. In order to satisfy the course prerequisites, it is recommended that students have an undergraduate degree in one of the natural sciences, engineering, or a strong background in mathematics and science. For advising please contact the Director of the Center for Environmental Studies in the Department of Geosciences.

Admission

To participate in the program the student should:

- Be formally admitted to The University of Akron as a graduate or non-degree graduate student.
- Make a written application to the program and receive written notification of admission from the Center for Environmental Studies.

Requirements

A plan of study will be developed in consultation with the Director of the Center for Environmental Studies. Students must complete the core requirement and a minimum of 14 credits from the list of electives or other courses approved by the Director. Electives must be selected from a minimum of three different departments.

Code	Title	Hours
Core		
GEOL:580	Seminar in Environmental Studies (may be repeated as an elective)	2
Electives		
Select a minimum of 14 credits of the following, or other approved courses:		14
BIOL:521	Tropical Field Biology	
BIOL:526	Wetland Ecology	
BIOL:660	Environmental Physiology	
BIOL:624	Advanced Aquatic Ecology	
GEOG:505	Geographic Information Systems	
GEOG:507	Advanced Geographic Information Systems	
GEOG:547	Remote Sensing	
GEOG:549	Advanced Remote Sensing	
GEOG:595	Soil & Water Field Studies	
GEOL:511	Glacial Geology	
GEOL:570	Geochemistry	
GEOL:574	Groundwater Hydrology	

GEOL:580	Seminar in Environmental Studies
GEOL:661	Geologic Record of Past Global Change
GEOL:674	Advanced Ground Water Hydrology
HIST:571	American Environmental History
STAT:561	Applied Statistics
SOCIO:686	Population
CHEE:563	Pollution Control
CHEE:750	Advanced Pollution Control
CIVE:523	Chemistry for Environmental Engineers
CIVE:526	Environmental Engineering Design
CIVE:527	Water Quality Modeling & Management
CIVE:528	Hazardous & Solid Wastes
CIVE:620	Sanitary Engineering Problems
CIVE:621	Environmental Engineering Principles
CIVE:631	Soil Remediation
CIVE:731	Bioremediation
LAWX:661	Environmental Law

Total Hours 16

Geology, MS

Admission Requirements

In addition to the graduate application and official transcripts applicants must submit three letters of recommendation and a statement of purpose.

Program Requirements

Complete a minimum of 30 credits of which at least 10 credits shall be at the 600 level and no more than two in research problems and six in thesis research.

In all geology M.S. degree programs except Engineering Geology, at least 22 graduate credits shall be geology courses.

A proficiency exam is taken during the student's first semester in the M.S. program. Students who demonstrate a lack of knowledge in areas related to their thesis topics may be required to take additional or remedial courses as suggested by the examining committee. Students may not begin formal thesis work until the proficiency exam has been completed. (Formal thesis work includes the thesis proposal and/or thesis research credits) Field camp can be taken for graduate credit; however, it will not count toward the 30 credits for the M.S. in the geology specialization.

Core Requirements

Code	Title	Hours
GEOL:680	Seminar in Geology	2
GEOL:699	Master's Thesis	6
Total Hours		8

Oral presentation and defense of thesis.

Degree Specialization

The program of each individual will be adapted to his/her career objectives.

The academic background of each incoming graduate student will be reviewed during the student's first semester by the graduate advisor,

thesis advisor, and department chair to determine whether background deficiencies exist for his/her planned program of study.

Geology

The minimal background for admission without deficiency should include a six-credit geology field camp course and equivalents to courses in mineralogy, petrology, structural geology, sedimentology/stratigraphy, and any two upper level geology courses.

Students should have completed the equivalent of a minimum of six semester courses in introductory chemistry, physics, biology, calculus or equivalents; including at least one semester of calculus, physics and chemistry. All courses should be taught for science/mathematics/engineering majors.

Earth Science

Equivalents of the current geology courses for the University's B.A. in geology are required. Course program will be selected to provide the student with a well-rounded background in lithosphere, hydrosphere and atmosphere. Those who will be teachers must take EDCI:780 Seminar. Curricular & Instructional Studies: Earth Science, or equivalent.

Engineering Geology

This program is for the graduate engineer and geologist who wishes to broaden expertise in the other field. The entering student who has some deficiencies in either engineering or geology may have to satisfy one or more of the following requirements while proceeding with graduate studies. A committee of engineering geology faculty will determine appropriate coursework on an individual basis.

Code	Title	Hours
GEOL:101	Introductory Physical Geology	4
GEOL:350	Structural Geology	4
MATH:221	Analytic Geometry-Calculus I	12
& MATH:222	and Analytic Geometry-Calculus II	
& MATH:223	and Analytic Geometry-Calculus III	
CIVE:201	Statics	3
CIVE:202	Introduction to Mechanics of Solids	3
CIVE:313	Soil Mechanics	3
CIVE:314	Foundation Design	3
Total Hours		32

Required courses:

- Graduate Geology Courses - 18
- Graduate Engineering Courses - 8

Environmental Geology

Equivalents of the University's B.S. degree in natural science (biology, chemistry, geology, mathematics, or physics) or engineering, plus the equivalent of the University's minor in geology and Geology Field Camp I and II are required. As many as eight credits may be selected from engineering, biology and/or geography with the approval of a geology advisor.

History

- Applied History and Public Humanities, MA (p. 42)

History (HIST)

HIST:500 Gender and Culture in China (3 Credits)

Prerequisite: graduate standing. This course examines the dynamic between gender and culture from late imperial to post-socialist China, with connections drawn to public policies in different periods. (Formerly 3400:500)

HIST:501 Japan & the Pacific War, 1895-1945 (3 Credits)

The rise of Japanese militarism, Japan's drive to create an empire in East and Southeast Asia, 1895-1945, and its role in the Pacific War, 1937-1945. (Formerly 3400:501)

HIST:504 Studies in Roman History (3 Credits)

Concentrated investigation of selected topics such as imperialism in middle and late Republic, the age of Augustus, or the fall of western Empire. (Formerly 3400:504)

HIST:509 Imperial Spain, 1469-1700 (3 Credits)

Prerequisite: For M.A. and Ph.D. students only. This course examines the rise and fall of Spain as the first world power. It covers Spanish political, cultural, and social history, 1469-1700. (Formerly 3400:509)

HIST:510 History and Film (3 Credits)

Examines films as historical experiences, historical events, and artifacts of history. Themes and foci will vary. Repeatable once with permission. (Formerly 3400:510)

HIST:516 Modern India (3 Credits)

History of the Indian subcontinent from c.1500 with emphasis on Indian society and culture, British imperialism, and the emergence of Indian nationalism. (Formerly 3400:516)

HIST:517 Latin America and the United States (3 Credits)

Prerequisite: graduate standing. Inter-American relations viewed from Latin American and US perspectives; US policy, imperialism; economic and cultural influences. Historiography of US-Latin American relations examined. (Formerly 3400:517)

HIST:518 History of Brazil Since 1500 (3 Credits)

Survey of the economic, political, social and cultural history of Brazil since 1500 to the present; the course also examines historiographical debates in Brazilian history. (Formerly 3400:518)

HIST:524 The Renaissance (3 Credits)

The age of transition from the Middle Ages to modern times (1350-1600). Special emphasis on intellectual trends, the development of humanism, and the fine arts. (Formerly 3400:524)

HIST:525 The Reformation (3 Credits)

Europe in 16th Century; its religious, cultural, political and diplomatic development, with special emphasis on Protestant, Anglican and Catholic reformations. (Formerly 3400:525)

HIST:529 Europe in the French Revolutionary Era, 1789-1815 (3 Credits)

Development of Revolution; Napoleon's regime and satellites. (Formerly 3400:529)

HIST:538 Nazi Germany (3 Credits)

This course covers the social, economic, and political history of Germany from World War I to 1945 with emphasis on the Third Reich. (Formerly 3400:538)

HIST:540 Tudor & Stuart Britain, 1485-1714 (3 Credits)

An examination of the development of, and increasing links between the British kingdoms in the early modern period, with emphasis on culture, politics, and religion. (Formerly 3400:540)

HIST:543 Churchill's England (3 Credits)

An examination of the changes that Britain experienced during the life of Winston Churchill, 1874-1965. Emphasis is on cultural, social, and political developments. (Formerly 3400:543)

HIST:551 Colonial American History (3 Credits)

This course covers the history of colonial America from the first European contact in the Americas in 1492 to the onset of the American Revolution. (Formerly 3400:551)

HIST:552 American Revolutionary Era (3 Credits)

The struggle for the rights of colonists and independence; the impact of war on American society and the creation of republican institutions. (Formerly 3400:552)

HIST:553 The Early American Republic (3 Credits)

Prerequisite: Graduate student status. The evolution of the American republic from its early beginnings after the American Revolution to the antebellum era. Emphasis upon political, social, and cultural developments. (Formerly 3400:553)

HIST:554 The Civil War & Reconstruction, 1850-1877 (4 Credits)

Sectionalism, slavery and the causes of the Civil War; wartime activities of the Union and Confederacy; leading personalities; problems of reconstruction and the new Union. (Formerly 3400:554)

HIST:555 The Origins of Modern America, 1877-1917 (3 Credits)

United States from Reconstruction Era to World War I (1877-1920); emphasis on political responses to rise of an industrialized-urbanized society, the populist and progressive movements. (Formerly 3400:555)

HIST:556 America in World Wars & Depression, 1917-1945 (3 Credits)

World War I and Versailles; the 1920s, the Great Depression and the New Deal; World War II. (Formerly 3400:556)

HIST:557 The United States since 1945 (3 Credits)

Nuclear age, cold war, foreign policy and domestic affairs to present. Social, political, constitutional, diplomatic, cultural and economic changes since 1945. (Formerly 3400:557)

HIST:561 The United States as a World Power (3 Credits)

This course analyzes the emergence and functioning of the United States as a world power, with particular emphasis on the twentieth century. (Formerly 3400:561)

HIST:563 United States Constitutional History (3 Credits)

This course examines the evolution of constitutional government from the drafting of the U.S. Constitution (1787) to present. (Formerly 3400:563)

HIST:565 American Economy Since 1900 (3 Credits)

Survey of economic developments since 1900; topics include agriculture, business and labor. Special emphasis on role of big business and evolution of monetary and fiscal policy. (Formerly 3400:565)

HIST:567 History of American Pop Culture (3 Credits)

Historical analysis of mass cultural phenomena and the social experiences associated with mass technologies that transformed modern American life in the nineteenth and twentieth centuries. (Formerly 3400:567)

HIST:568 African-American Social and Intellectual History (3 Credits)

Examination of black thought and activities reflective of African-American culture, conditions facing black people within America and efforts toward coordinated black activity. (Formerly 3400:568)

HIST:569 African-Amer Women's History (3 Credits)

Study of black American women's lives from colonial times to the present featuring autobiographical, fictional and secondary works authored by black women. (Formerly 3400:569)

HIST:570 Ohio History (3 Credits)

Political, social, economic and intellectual history of Ohio, with special emphasis on Ohio's relationship to Old Northwest and to the nation. (Formerly 3400:570)

HIST:571 American Environmental History (3 Credits)

Utilization, conservation of natural resources from beginnings of American society to present; combination of economic, technological history of extensive treatment of public policy, environmental issues. (Formerly 3400:571)

HIST:575 Mexico (3 Credits)

History of Mexico from Indian civilizations to present with emphasis on relations with United States; social and political ramifications of the 20th Century Mexican revolution. (Formerly 3400:575)

HIST:576 Central America & the Caribbean (3 Credits)

Selected aspects of the histories of Central American and Caribbean countries with emphasis on populist and peasant movements, political reform, social revolution, economic and underdevelopment, and relations with the United States. (Formerly 3400:576)

HIST:582 War & Western Civilization (3 Credits)

War and society in Europe, America and beyond from ancient world to present with special emphasis on period since 1740. (Formerly 3400:582)

HIST:583 History and Video Games (3 Credits)

Examines the presentation of history in video games analyzing them for accuracy, bias, structural limitations, and utility as teaching tools. (Formerly 3400:583)

HIST:584 Museums and Archives (3 Credits)

This course will focus on the work of history museums, historical societies and historic house museums, and archives. (Formerly 3400:584)

HIST:585 History, Communities, and Memory (3 Credits)

Course examines the interactions between the work of academic historians and the public in areas such as local history, monuments, oral history, film, and the internet. (Formerly 3400:585)

HIST:587 Science and Technology in World History (3 Credits)

This course examines the development and diffusion of science and technology in human history, its impact on society, culture, and daily life. (Formerly 3400:587)

HIST:589 Ottoman State and Society (3 Credits)

Explores political, economic, and social dynamics of one of the world's most enduring and expansive multiethnic empires. (Formerly 3400:589)

HIST:593 Special Studies: North American History (3 Credits)

Prerequisite: Graduate student status. Special studies in the history of North America (Rio Grande to the Arctic). See department office for information on particular offerings. (Formerly 3400:593)

HIST:594 Workshop in History (1-3 Credits)

(May be repeated) Group studies of special subjects pertaining to history. May be used for elective credit only. May not be used to meet undergraduate or graduate major requirements in history. (Formerly 3400:594)

HIST:595 Special Studies: European History (3 Credits)

Prerequisite: Graduate student status. Special studies in European history (from the fall of the Roman Empire to the present). See department office for information on particular offerings. (Formerly 3400:595)

HIST:596 Special Studies in History: Other (3 Credits)

Prerequisite: Graduate status Special studies in the history of Latin America, Asia, Africa, or the Pacific. See department office for information on particular offerings. (Formerly 3400:596)

HIST:598 Race, Nation, and Class in the Middle East (3 Credits)

This course analyzes identity politics and the development of the ideas of race, nation, and class in the Middle East from a historical perspective. (Formerly 3400:598)

HIST:599 Women and Gender in Middle Eastern Societies (3 Credits)

This course explores the multi-layered processes and dimensions, including texts, cultural values and practices, institutions, and events, which have shaped and continue to shape women's experiences in the Middle East. (Formerly 3400:599)

HIST:601 Graduate Research Seminar in History (4 Credits)

Prerequisite: Eight HIST graduate credits or permission of the instructor. Research seminar designed to train students in the skills of researching and writing history, with a particular emphasis on article-length pieces. (Formerly 3400:601)

HIST:602 MA Option Paper Completion (1 Credit)

Prerequisite: Permission of instructor. This course is for students completing the MA research paper option. Students should enroll in this course during the semester the option paper is completed. (Formerly 3400:602)

HIST:610 Graduate Reading Seminar in Comparative Studies of World Civilizations (4 Credits)

Comparative historiography on world civilizations: East Asia, South Asia, the Middle East, Africa, and the Americas. Emphasis on key themes: kingship, empire, colonization, nationalism, resistance, post-colonialism. (Formerly 3400:610)

HIST:612 Reading Seminar: The Middle East (4 Credits)

Study of historical literature, sources of materials, and major interpretations of Middle Eastern history. (Formerly 3400:612)

HIST:622 Reading Seminar in Ancient History (4 Credits)

Study of historical literature, sources of materials and major interpretations of ancient history, especially Greek and Roman periods. (Formerly 3400:622)

HIST:625 Reading Seminar in Medieval History (4 Credits)

Study of historical literature, sources of materials and major interpretations of medieval European history. (Formerly 3400:625)

HIST:631 Reading Seminar in Modern European History to 1815 (4 Credits)

Study of historical literature, sources of materials, major interpretations of early modern Europe history to Napoleonic era. (Formerly 3400:631)

HIST:634 Reading Seminar in Modern European History Since 1815 (4 Credits)

Study of historical literature, sources of materials and major interpretations of modern European history since early 19th Century. (Formerly 3400:634)

HIST:651 Reading Seminar: The Modern British Empire (4 Credits)

Prerequisite: Graduate student status. Study of the historical literature on the modern British Empire, from the end of the American Revolution through decolonization in the 20th century. (Formerly 3400:651)

HIST:666 Reading Seminar in American History to 1877 (4 Credits)

Study of historical literature, sources of materials and major interpretations of American colonial and United States history to Civil War. (Formerly 3400:666)

HIST:669 Reading Seminar in American History Since 1877 (4 Credits)

Study of historical literature, sources of materials and major interpretations of United States history since Civil War. (Formerly 3400:669)

HIST:677 Reading Seminar in Latin American History (4 Credits)

Study of historical literature, primary texts and major interpretations and debates on selected topics in Latin American history. (Formerly 3400:677)

HIST:680 Reading Seminar: China (4 Credits)

Study of Chinese texts, secondary literature, and major interpretations of the history of China. (Formerly 3400:680)

HIST:689 Historiography (3 Credits)

Study of historians, historical writings and interpretations through the ages. Required for master's degree if candidate has not had equivalent undergraduate or graduate course elsewhere. (Formerly 3400:689)

HIST:690 History Teaching Practicum (3 Credits)

Prerequisite: graduate assistantship. Required of all graduate assistants each fall semester. Training and experience in college teaching of history under the supervision of an experienced faculty member. Credits may not be used to meet degree requirements. (Formerly 3400:690)

HIST:694 Thesis Research (1-6 Credits)

Research for Master of Arts degree thesis. (Formerly 3400:694)

HIST:697 Individual Reading for M.A. Students (1-4 Credits)

(May be repeated for a total of 12 credits) Directed reading to fit individual student programs. May be repeated, but no more than six credits may count toward the M.A. degree in history. Written permission of the instructor required. (Formerly 3400:697)

HIST:698 Individual Reading for M.A. Students (1-4 Credits)

(May be repeated for a total of 12 credits) Directed reading to fit individual student programs. May be repeated, but no more than six credits may count toward the M.A. degree in history. Written permission of the instructor required. (Formerly 3400:698)

HIST:699 Master's Thesis (1-6 Credits)

Prerequisite: HIST 694. Writing of Master of Arts degree thesis. (Formerly 3400:699)

HIST:797 Individual Reading for PhD Student (1-6 Credits)

(May be repeated, but no more than 12 credits may apply toward the Ph.D. in history) Directed reading to fit individual student programs. Written permission of the instructor required. (Formerly 3400:797)

HIST:798 Individual Reading: PhD Student (1-6 Credits)

(May be repeated, but no more than 12 credits may apply toward the Ph.D. in history) Directed reading to fit individual student programs. Written permission of the instructor required. (Formerly 3400:798)

HIST:898 Dissertation Research (1-15 Credits)

Research for Doctor of Philosophy degree dissertation. (Formerly 3400:898)

HIST:899 Doctoral Dissertation (1-15 Credits)

Prerequisite: HIST 898. Writing of Doctor of Philosophy degree dissertation. (Formerly 3400:899)

Applied History and Public Humanities, MA

The Master of Arts in Applied History and Public Humanities offers advanced training requiring study deeper, broader, and more sophisticated than is expected at the undergraduate level. With a focus on public history, students will earn both an M.A. and a Certificate in Public Humanities. The program trains students in content, theory, and application through coursework in History and other departments and experiential learning. It prepares students for further study or careers

in humanities organizations, businesses, government, or the non-profit sector.

Admission Requirements

Students applying for admission to the M.A. program must have a minimum undergraduate grade point average of 3.0. The applicant's average in history courses should be substantially higher. Applicants must also have completed at least 24 semester or 36 quarter hours in history courses at the undergraduate level.

An application to the M.A. program consists of the following:

1. An application form.
2. A letter of intent, stating the applicant's reasons for wishing to pursue graduate work and the fields of history which the applicant intends to study.
3. Scores from the Graduate Record Examination (GRE), General Aptitude Test.
4. A writing sample, preferably a research paper from a history class.
5. Three letters of recommendation, preferably from faculty who know the applicant well.
6. Applicants whose native language is not English must have a score of at least 79 on the internet-based TOEFL.

The Graduate Committee may grant provisional admission to applicants whose qualifications do not warrant full admission, but whose academic records indicate promise of successful performance. When these students have completed 15 semester credits with a 3.0 average or better, the Director of Graduate Studies will petition the Graduate School to grant full admission.

Students whose undergraduate work falls well below the minimum standards of admissions but who believe they have the ability and ambition for graduate work may demonstrate their capability by taking upper-level undergraduate courses. As post-baccalaureate students, they may apply for Provisional Admission after having completed twelve credit hours of history with a 4.0 average or sixteen credit hours with a 3.0 average.

Code	Title	Hours
Field 1: Public History		
IHSC:501	Foundations of Museums and Archives I ¹	3
IHSC:502	Foundations of Museums and Archives II ¹	3
HIST:666	Reading Seminar in American History to 1877 ¹	4
or HIST:669	Reading Seminar in American History Since 1877	
Field 2: Thematic History: Conflict and Memory, Media and History 8		
Select 8 Hours from the Following Courses		
HIST:610	Graduate Reading Seminar in Comparative Studies of World Civilizations	
HIST:612	Reading Seminar: The Middle East	
HIST:631	Reading Seminar in Modern European History to 1815	
HIST:634	Reading Seminar in Modern European History Since 1815	
HIST:651	Reading Seminar: The Modern British Empire	
HIST:669	Reading Seminar in American History Since 1877 ¹	
or HIST:666	Reading Seminar in American History to 1877	
HIST:677	Reading Seminar in Latin American History	
HIST:680	Reading Seminar: China	

Field 3: Public Humanities 6

Select minimum of 6 credit hours from two different departments ¹

ENGL:689	Seminar in English ²
COMM:540	Strategic Social Media
THEA:533	Theatre Organization and Production Management
THEA:555	Creating Performance
THEA:567	Multi-Cultural Theatre
THEA:576	Theatre and Community Action
AADMN:660	Colloquium on the Arts
AADMN:630	Fund Raising & Grantsmanship in the Arts
AADMN:620	Arts Administration Practices & Policies

History Required Courses

HIST:601	Graduate Research Seminar in History ¹	4
HIST:689	Historiography	3
Total Hours		31

¹ Counts towards Certificate

² ENGL:689 topics must be Digital Projects in the Humanities, Grant Writing, or Professional Writing

Math

- Applied Mathematics, Accelerated BS/MS (p. 45)
- Applied Mathematics, MS (p. 46)

Mathematics (MATH)

MATH:501 History of Mathematics (3 Credits)

Prerequisite: Departmental permission. Origin and development of mathematical ideas. Course does not meet degree requirements in the department. (Formerly 3450:501)

MATH:510 Advanced Linear Algebra (3 Credits)

Prerequisite: Departmental permission. Study of vector spaces, linear transformation, canonical and quadratic forms, inner product spaces. (Formerly 3450:510)

MATH:511 Abstract Algebra I (3 Credits)

Prerequisite: Departmental permission. Study of groups, rings, fields, integral domains, vector spaces, field extensions. Galois theory. May not be used to meet master's degree requirements in mathematics. (Formerly 3450:511)

MATH:512 Abstract Algebra II (3 Credits)

Prerequisite: MATH 511 or departmental permission. Study of groups, rings, fields, integral domains, vector spaces, field extensions, Galois theory. (Formerly 3450:512)

MATH:513 Theory of Numbers (3 Credits)

Prerequisite: Departmental permission. Euclidean algorithm, unique factorization theorem, congruences, primitive roots, indices, quadratic residues, number-theoretic functions, Gaussian integers and continued fractions. (Formerly 3450:513)

MATH:515 Combinatorics & Graph Theory (3 Credits)

Prerequisite: Departmental permission. Introduction to basic ideas and techniques of mathematical counting; properties of structure of systems. (Formerly 3450:515)

MATH:520 Mathematical Technology and Communication (3 Credits)

Prerequisites: Departmental permission. Graphical, numerical, and algebraic computation with applications using a variety of mathematical hardware and software: symbolic manipulators, dynamic geometry software, programs, scripts and web-browsers. (Formerly 3450:520)

MATH:521 Advanced Calculus I (3 Credits)

Sequential. Prerequisite: Departmental permission. Real number system, sequences, series, set theory, continuity, differentiation, integration, partial derivatives, multiple integration, maxima and minima, convergences and uniform convergences, power series, improper integrals, transformations, line and surface integrals. May not be used to meet master's degree requirements for mathematics or applied mathematics. (Formerly 3450:521)

MATH:522 Advanced Calculus II (3 Credits)

Sequential. Prerequisite: Departmental permission. Real number system, sequences, series, set theory, continuity, differentiation, integration, partial derivatives, multiple integration, maxima and minima, convergence and uniform convergence, power series, improper integrals, transformations, line and surface integrals. (Formerly 3450:522)

MATH:525 Complex Variables (3 Credits)

Prerequisite: Departmental permission. Complex variables; elementary functions, differentiation and analytic functions; integration and Cauchy's theorem; power series and Laurent series; residue theorem; applications such as conformal mappings, inversion of integral transform. (Formerly 3450:525)

MATH:527 Applied Numerical Methods I (3 Credits)

Prerequisite: departmental permission. Numerical methods in polynomial interpolation, root finding, numerical integration, and numerical linear algebra. May not be used to meet master's degree requirements for applied mathematics. (Formerly 3450:527)

MATH:528 Applied Numerical Methods II (3 Credits)

Prerequisite: Departmental permission. Numerical methods in the solution of ordinary and partial differential equations. Numerical differentiation, Runge-Kutta methods, and iterative methods for ODEs, finite differences for PDEs. (Formerly 3450:528)

MATH:532 Introduction to Partial Differential Equations (3 Credits)

Prerequisite: Departmental permission. Studies of various aspects of the analysis of Partial Differential Equations, including the construction of solutions, their uniqueness, behavior and qualitative properties. (Formerly 3450:532)

MATH:535 Systems of Ordinary Differential Equations (3 Credits)

Prerequisites: Departmental permission. Analysis, solution of systems of equations, linear, nonlinear. Topics: stability theory, perturbation methods, asymptotic methods, applications from physical, social sciences. (Formerly 3450:535)

MATH:536 Mathematical Models (3 Credits)

Prerequisite: Departmental permission. Formulation and analysis of mathematical models in social and physical sciences. Analysis of deterministic and stochastic models. Topics may include stochastic processes, linear programming, graph theory, theory of measurement. (Formerly 3450:536)

MATH:538 Advanced Engineering Mathematics I (3 Credits)

Prerequisite: Departmental permission. Matrices, eigenvalue problems, systems of ODEs, vector analysis, complex variables. May not be used to meet master's requirements for applied mathematics. (Formerly 3450:538)

MATH:539 Advanced Engineering Mathematics II (3 Credits)

Prerequisite: Departmental permission. Special functions, fourier series and transforms, PDEs. (Formerly 3450:539)

MATH:541 Concepts in Geometry (4 Credits)

Prerequisite: Departmental permission. Axiomatic treatment of both Euclidean and non-Euclidean geometries. Other concepts included are finite geometry, transformations, constructions and inversions. (Formerly 3450:541)

MATH:545 Introduction to Topology (3 Credits)

Prerequisite: Departmental permission. Introduction to topological spaces and topologies, mapping, cardinality, homeomorphisms, connected spaces, metric spaces. (Formerly 3450:545)

MATH:589 Topics in Mathematics (1-4 Credits)

(May be repeated for a total of 12 credits) Prerequisite: Permission of instructor. Selected topics in mathematics and applied mathematics at an advanced level. (Formerly 3450:589)

MATH:591 Workshop in Mathematics (1-4 Credits)

(May be repeated) Group studies of special topics in mathematics and applied mathematics. May not be used to meet undergraduate or graduate credit requirements in mathematics. May be used for elective credit only. (Formerly 3450:591)

MATH:611 Topics in Algebra (3 Credits)

Prerequisite: MATH 512 or departmental permission. Advanced study of selected topics in some of the following areas: semigroups, groups, rings, modules and fields. (Formerly 3450:611)

MATH:621 Real Analysis (3 Credits)

Prerequisite: MATH 522 or departmental permission. In-depth study of real analysis - metric spaces, normed vector spaces, integration theory, Hilbert spaces. (Formerly 3450:621)

MATH:625 Analytic Function Theory (3 Credits)

Prerequisite: MATH 522 or departmental permission. Complex number system, holomorphic functions, continuity, differentiability, power series complex integration, residue theory, singularities, analytic continuation, asymptotic expansion. (Formerly 3450:625)

MATH:627 Advanced Numerical Analysis I (3 Credits)

Prerequisites: MATH 522 (grade C- or better) and knowledge of C++, FORTRAN, or MATLAB or departmental permission. Error propagation; theoretical analysis of numerical methods in interpolation, integration and ordinary differential equations. (Formerly 3450:627)

MATH:628 Advanced Numerical Analysis II (3 Credits)

Prerequisites: MATH 522 (grade C- or better) and knowledge of C++, FORTRAN, or MATLAB or departmental permission. Theoretical analysis of numerical methods in linear algebra. (Formerly 3450:628)

MATH:631 Calculus of Variations (3 Credits)

Prerequisite: Departmental permission. Problems with fixed and movable endpoints, problems with constraints, generalization to several variables, the maximality principle, linear time-optimal problems, the connective between classical theory and the maximality principle. (Formerly 3450:631)

MATH:632 Advanced Partial Differential Equations (3 Credits)

Prerequisite: MATH 532 or departmental permission. Existence, uniqueness and stability of solutions to general classes of partial differential equations. Methods for solving these classes introduced, emphasizing both analytical and numerical techniques. (Formerly 3450:632)

MATH:633 Methods of Applied Mathematics I (3 Credits)

Prerequisite: MATH 539 or departmental permission. Methods of applied mathematics concentrating on techniques for analysis of differential and integral equations - applied complex analysis, integral transforms, partial differential equations, and integral equations. (Formerly 3450:633)

MATH:634 Methods of Applied Mathematics II (3 Credits)

Prerequisite: MATH 539 or departmental permission. Methods of applied mathematics concentrating on techniques for analysis of differential and integral equations - applied complex analysis, integral transforms, partial differential equations, and integral equations. (Formerly 3450:634)

MATH:635 Optimization (3 Credits)

Prerequisite: MATH 522 or departmental permission. Unconstrained and constrained optimization theory and methods in applied problems. (Formerly 3450:635)

MATH:636 Advanced Combinatorics & Graph Theory (3 Credits)

Prerequisite: Departmental permission. Theory and techniques of combinatorics as applied to network problems and graph theoretic problems. (Formerly 3450:636)

MATH:638 Theory & Application of Wavelets (3 Credits)

Prerequisite: Permission of instructor. Theory of wavelets and applications to signal and image analysis. Topics include time-frequency representations, filter bands, discrete and continuous wavelet transforms, wavelet packets, and applications. (Formerly 3450:638)

MATH:689 Advanced Topics in Mathematics (1-3 Credits)

(May be repeated for a total of six credits) Prerequisite: Permission of advisor. Seminar-type discussion on topics in mathematics leading to supervised research project. No more than 2 credits apply to major requirements. (Formerly 3450:689)

MATH:692 Seminar in Mathematics (3 Credits)

Prerequisite: Permission of advisor. Seminar-type discussion on topics in mathematics leading to supervised research project. (Formerly 3450:692)

MATH:695 Practicum in Mathematics (1-3 Credits)

(May be repeated) Prerequisite: Graduate teaching assistant or permission. Training and experience in college teaching of mathematics. May not be used to meet degree requirements. Credit/noncredit. (Formerly 3450:695)

MATH:697 Individual Reading: Mathematics (1-3 Credits)

(May be repeated for a total of four credits) Prerequisites: Graduate standing and permission. Directed studies in mathematics at graduate level under guidance of selected faculty member. (Formerly 3450:697)

MATH:698 Master's Research (1-6 Credits)

(May be repeated) Prerequisite: Permission of advisor. Research in suitable topics in mathematics or applied mathematics culminating in a research paper. May not be used to meet master's degree requirements for mathematics or applied mathematics. (Formerly 3450:698)

MATH:699 Master's Thesis (3 Credits)

Prerequisite: Permission. A properly qualified candidate for the master's degree may obtain three credits for research that culminates in a public oral presentation of the faculty-supervised thesis. (Formerly 3450:699)

MATH:721 Functional Analysis I (3 Credits)

Prerequisites: [MATH 510 and MATH 621] or departmental permission. These courses are sequential. Study of normed linear spaces and transformations between them with an emphasis on the formulation and analysis of differential and integral equations as operator equations on these spaces. (Formerly 3450:721)

MATH:722 Functional Analysis II (3 Credits)

Prerequisites: [MATH 510 and MATH 621] or departmental permission. These courses are sequential. Study of normed linear spaces and transformations between them with an emphasis on the formulation and analysis of differential and integral equations as operator equations on these spaces. (Formerly 3450:722)

MATH:728 Matrix Iterative Analysis (3 Credits)

Prerequisite: Departmental permission. Basic Iterative methods, Matrix Properties and Concepts, Linear and Nonlinear equation solver, Semi-iterative and conjugate-gradient methods. (Formerly 3450:728)

MATH:730 Advanced Numerical Solution of Partial Differential Equations (3 Credits)

Prerequisites: [MATH 522 and MATH 528], or MATH 628, or departmental permission. Derivation, analysis, and implementation of difference and variational-based methods for the solution of partial differential equations and systems of differential equations. (Formerly 3450:730)

MATH:732 Advanced Partial Differential Equations II (3 Credits)

Prerequisites: [MATH 522 and MATH 532] or departmental permission. Well-posedness of elliptic, hyperbolic and parabolic problems. Variational Methods for Elliptic problems, Conservation Laws and numerical methods, potential theory and integral equations. (Formerly 3450:732)

MATH:733 Asymptotic Methods & Nonlinear Analysis I (3 Credits)

Prerequisites: [MATH 633 and MATH 634] or equivalent. Survey of asymptotic and perturbation methods as applied to integrals and differential equations. Topics: bifurcation and stability with applications from the physical sciences and engineering. (Formerly 3450:733)

MATH:734 Asymptotic Methods & Nonlinear Analysis II (3 Credits)

Prerequisites: [MATH 633 and MATH 634] or equivalent. Survey of asymptotic and perturbation methods as applied to integrals and differential equations. Topics: bifurcation and stability with applications from the physical sciences and engineering. (Formerly 3450:734)

MATH:735 Dynamical Systems (3 Credits)

Prerequisite: MATH 522 or departmental permission. The study of mathematical models of systems which evolve over time. An introduction to maps and applications to ordinary differential equations. (Formerly 3450:735)

Applied Mathematics, Accelerated BS/MS

This is an accelerated BS/MS program. By completing the program successfully, a student will earn the baccalaureate degree after four years and the master's degree after five years. During the third year of the baccalaureate degree, a student will formally apply to the program through the Graduate School. Upon acceptance, the student will be cleared to complete the remaining electives of the baccalaureate degree and 30 credits of graduate coursework for the master's degree in the last two years. Up to nine credits of approved graduate coursework will count toward both the baccalaureate and the master's degrees.

Graduate work will include the following courses:

Code	Title	Hours
MATH:621	Real Analysis	3
MATH:627	Advanced Numerical Analysis I	3
MATH:633	Methods of Applied Mathematics I	3
MATH:692	Seminar in Mathematics	3

MATH:699	Master's Thesis (Non-thesis option is not available)	3
Select at least one of the following:		3
MATH:625	Analytic Function Theory	
MATH:628	Advanced Numerical Analysis II	
MATH:632	Advanced Partial Differential Equations	
Select at least two of the following:		6
MATH:634	Methods of Applied Mathematics II	
MATH:635	Optimization	
MATH:730	Advanced Numerical Solution of Partial Differential Equations	
Select six elective credits		6
Total Hours		30

A student must maintain a 3.0 or better grade point average to stay in the program. If a student is not able to do this, then they will have the option to complete the regular bachelor's degree program instead of the five-year accelerated plan.

Applied Mathematics, MS

Admission Requirements

In addition to the graduate application and official transcripts applicants must submit three letters of recommendation and a statement of purpose. Applications are accepted on a rolling basis.

Goals

This program is designed to train students in the formulation, analysis, and solution of mathematical models in a variety of application areas.

Administration

Upon admission to the program, each student will undergo a review process to determine competency in undergraduate core mathematical areas and background in at least one junior-level or higher course in engineering or physics. If necessary, the appropriate course(s) will be added to the required course list for the student.

Program Requirements

A minimum of 30 graduate credits, after the completion of deficiency courses, is required.

Core Requirements

Code	Title	Hours
Core Courses		
MATH:621	Real Analysis	3
MATH:627	Advanced Numerical Analysis I	3
MATH:633	Methods of Applied Mathematics I	3
<i>Group 1</i>		
Select at least one of the following:		3
MATH:625	Analytic Function Theory	
MATH:628	Advanced Numerical Analysis II	
MATH:632	Advanced Partial Differential Equations	
<i>Group 2</i>		
Select at least two of the following:		6
MATH:634	Methods of Applied Mathematics II	
MATH:635	Optimization	

MATH:730	Advanced Numerical Solution of Partial Differential Equations	
Thesis/Nonthesis Option		
Complete Thesis Option or Nonthesis Option		12
Total Hours		30

Thesis Option

In addition to the placement review and core requirements, at least six credits of electives approved by the graduate adviser, three credits of MATH:692 Seminar in Mathematics, and three credits of MATH:699 Master's Thesis must be completed.

Nonthesis Option

In addition to the placement review and core requirements, at least twelve credits of electives approved by the graduate adviser must be completed.

Music

- Music, Composition, MM (p. 53)
- Music, Music Education, MM (p. 53)
- Music, Music Education: Choral/General Music, MM (p. 54)
- Music, Music Education: Instrumental, MM (p. 55)
- Music, Music Technology, MM (p. 56)
- Music, Performance in Accompanying, MM (p. 57)
- Music, Performance in Keyboard, MM (p. 57)
- Music, Performance in Voice, MM (p. 58)
- Music, Performance in Winds, Strings, Percussion, MM (p. 59)
- Music, Performance: Choral Conducting, MM (p. 59)
- Music, Performance: Orchestral Conducting, MM (p. 60)
- Music, Performance: Wind Conducting, MM (p. 61)
- Music, Theory, MM (p. 61)

Applied Music (MUSAP)

MUSAP:521 Percussion (2-4 Credits)

The following courses (MUSAP 521 - MUSAP 542) are intended for a student majoring in one of the programs in the Department of Music. Course levels correspond approximately to class standing (100 for freshman, 200 for sophomore, etc.) A student may progress up one level by successfully completing an applied music jury, usually offered in the spring semester. NOTE: No more than eight credits at the 100, 200 or 300 level may apply in music degree programs; no such limit exists for the 400 level. (Formerly 7520:521)

MUSAP:522 Classical Guitar (2-4 Credits)

The following courses (MUSAP 521 - MUSAP 542) are intended for a student majoring in one of the programs in the Department of Music. Course levels correspond approximately to class standing (100 for freshman, 200 for sophomore, etc.) A student may progress up one level by successfully completing an applied music jury, usually offered in the spring semester. NOTE: No more than eight credits at the 100, 200 or 300 level may apply in music degree programs; no such limit exists for the 400 level. (Formerly 7520:522)

MUSAP:535 Tuba (2-4 Credits)

The following courses (MUSAP 521 - MUSAP 542) are intended for a student majoring in one of the programs in the Department of Music. Course levels correspond approximately to class standing (100 for freshman, 200 for sophomore, etc.) A student may progress up one level by successfully completing an applied music jury, usually offered in the spring semester. NOTE: No more than eight credits at the 100, 200 or 300 level may apply in music degree programs; no such limit exists for the 400 level. (Formerly 7520:535)

MUSAP:536 Flute or Piccolo (2-4 Credits)

The following courses (MUSAP 521 - MUSAP 542) are intended for a student majoring in one of the programs in the Department of Music. Course levels correspond approximately to class standing (100 for freshman, 200 for sophomore, etc.) A student may progress up one level by successfully completing an applied music jury, usually offered in the spring semester. NOTE: No more than eight credits at the 100, 200 or 300 level may apply in music degree programs; no such limit exists for the 400 level. (Formerly 7520:536)

MUSAP:537 Oboe or English Horn (2-4 Credits)

The following courses (MUSAP 521 - MUSAP 542) are intended for a student majoring in one of the programs in the Department of Music. Course levels correspond approximately to class standing (100 for freshman, 200 for sophomore, etc.) A student may progress up one level by successfully completing an applied music jury, usually offered in the spring semester. NOTE: No more than eight credits at the 100, 200 or 300 level may apply in music degree programs; no such limit exists for the 400 level. (Formerly 7520:537)

MUSAP:538 Clarinet or Bass Clarinet (2-4 Credits)

The following courses (MUSAP 521 - MUSAP 542) are intended for a student majoring in one of the programs in the Department of Music. Course levels correspond approximately to class standing (100 for freshman, 200 for sophomore, etc.) A student may progress up one level by successfully completing an applied music jury, usually offered in the spring semester. NOTE: No more than eight credits at the 100, 200 or 300 level may apply in music degree programs; no such limit exists for the 400 level. (Formerly 7520:538)

MUSAP:539 Bassoon or Contrabassoon (2-4 Credits)

The following courses (MUSAP 521 - MUSAP 542) are intended for a student majoring in one of the programs in the Department of Music. Course levels correspond approximately to class standing (100 for freshman, 200 for sophomore, etc.) A student may progress up one level by successfully completing an applied music jury, usually offered in the spring semester. NOTE: No more than eight credits at the 100, 200 or 300 level may apply in music degree programs; no such limit exists for the 400 level. (Formerly 7520:539)

MUSAP:540 Saxophone (2-4 Credits)

The following courses (MUSAP 521 - MUSAP 542) are intended for a student majoring in one of the programs in the Department of Music. Course levels correspond approximately to class standing (100 for freshman, 200 for sophomore, etc.) A student may progress up one level by successfully completing an applied music jury, usually offered in the spring semester. NOTE: No more than eight credits at the 100, 200 or 300 level may apply in music degree programs; no such limit exists for the 400 level. (Formerly 7520:540)

MUSAP:541 Harpsichord (2-4 Credits)

The following courses (MUSAP 521 - MUSAP 542) are intended for a student majoring in one of the programs in the Department of Music. Course levels correspond approximately to class standing (100 for freshman, 200 for sophomore, etc.) A student may progress up one level by successfully completing an applied music jury, usually offered in the spring semester. NOTE: No more than eight credits at the 100, 200 or 300 level may apply in music degree programs; no such limit exists for the 400 level. (Formerly 7520:541)

MUSAP:542 Composition (2-4 Credits)

Private Lessons in Music Composition. (May be repeated) Prerequisites: MUSIC 252 and permission of instructor; 7500:452 recommended. Private instruction in composition. Primarily for student whose major is theory-composition. (Formerly 7520:542)

MUSAP:621 Percussion (2-4 Credits)

MUSAP 621 - MUSAP 661 Graduate Study in Applied Music. (May be repeated) Prerequisites: undergraduate degree in music, graduate standing and/or permission of instructor determined through audition. (Formerly 7520:621)

MUSAP:622 Classical Guitar (2-4 Credits)

MUSAP 621 - MUSAP 661 Graduate Study in Applied Music. (May be repeated) Prerequisites: undergraduate degree in music, graduate standing and/or permission of instructor determined through audition. (Formerly 7520:622)

MUSAP:623 Harp (2-4 Credits)

MUSAP 621 - MUSAP 661 Graduate Study in Applied Music. (May be repeated) Prerequisites: undergraduate degree in music, graduate standing and/or permission of instructor determined through audition. (Formerly 7520:623)

MUSAP:624 Voice (2-4 Credits)

MUSAP 621 - MUSAP 661 Graduate Study in Applied Music. (May be repeated) Prerequisites: undergraduate degree in music, graduate standing and/or permission of instructor determined through audition. (Formerly 7520:624)

MUSAP:625 Piano (2-4 Credits)

MUSAP 621 - MUSAP 661 Graduate Study in Applied Music. (May be repeated) Prerequisites: undergraduate degree in music, graduate standing and/or permission of instructor determined through audition. (Formerly 7520:625)

MUSAP:626 Organ (2-4 Credits)

MUSAP 621 - MUSAP 661 Graduate Study in Applied Music. (May be repeated) Prerequisites: undergraduate degree in music, graduate standing and/or permission of instructor determined through audition. (Formerly 7520:626)

MUSAP:627 Violin (2-4 Credits)

MUSAP 621 - MUSAP 661 Graduate Study in Applied Music. (May be repeated) Prerequisites: undergraduate degree in music, graduate standing and/or permission of instructor determined through audition. (Formerly 7520:627)

MUSAP:628 Viola (2-4 Credits)

MUSAP 621 - MUSAP 661 Graduate Study in Applied Music. (May be repeated) Prerequisites: undergraduate degree in music, graduate standing and/or permission of instructor determined through audition. (Formerly 7520:628)

MUSAP:629 Cello (2-4 Credits)

MUSAP 621 - MUSAP 661 Graduate Study in Applied Music. (May be repeated) Prerequisites: undergraduate degree in music, graduate standing and/or permission of instructor determined through audition. (Formerly 7520:629)

MUSAP:630 String Bass (2-4 Credits)

MUSAP 621 - MUSAP 661 Graduate Study in Applied Music. (May be repeated) Prerequisites: undergraduate degree in music, graduate standing and/or permission of instructor determined through audition. (Formerly 7520:630)

MUSAP:631 Trumpet or Cornet (2-4 Credits)

MUSAP 621 - MUSAP 661 Graduate Study in Applied Music. (May be repeated) Prerequisites: undergraduate degree in music, graduate standing and/or permission of instructor determined through audition. (Formerly 7520:631)

MUSAP:632 French Horn (2-4 Credits)

MUSAP 621 - MUSAP 661 Graduate Study in Applied Music. (May be repeated) Prerequisites: undergraduate degree in music, graduate standing and/or permission of instructor determined through audition. (Formerly 7520:632)

MUSAP:633 Trombone (2-4 Credits)

MUSAP 621 - MUSAP 661 Graduate Study in Applied Music. (May be repeated) Prerequisites: undergraduate degree in music, graduate standing and/or permission of instructor determined through audition. (Formerly 7520:633)

MUSAP:634 Baritone (2-4 Credits)

MUSAP 621 - MUSAP 661 Graduate Study in Applied Music. (May be repeated) Prerequisites: undergraduate degree in music, graduate standing and/or permission of instructor determined through audition. (Formerly 7520:634)

MUSAP:635 Tuba (2-4 Credits)

MUSAP 621 - MUSAP 661 Graduate Study in Applied Music. (May be repeated) Prerequisites: undergraduate degree in music, graduate standing and/or permission of instructor determined through audition. (Formerly 7520:635)

MUSAP:636 Flute or Piccolo (2-4 Credits)

MUSAP 621 - MUSAP 661 Graduate Study in Applied Music. (May be repeated) Prerequisites: undergraduate degree in music, graduate standing and/or permission of instructor determined through audition. (Formerly 7520:636)

MUSAP:637 Oboe or English Horn (2-4 Credits)

MUSAP 621 - MUSAP 661 Graduate Study in Applied Music. (May be repeated) Prerequisites: undergraduate degree in music, graduate standing and/or permission of instructor determined through audition. (Formerly 7520:637)

MUSAP:638 Clarinet or Bass Clarinet (2-4 Credits)

MUSAP 621 - MUSAP 661 Graduate Study in Applied Music. (May be repeated) Prerequisites: undergraduate degree in music, graduate standing and/or permission of instructor determined through audition. (Formerly 7520:638)

MUSAP:639 Bassoon or Contrabassoon (2-4 Credits)

MUSAP 621 - MUSAP 661 Graduate Study in Applied Music. (May be repeated) Prerequisites: undergraduate degree in music, graduate standing and/or permission of instructor determined through audition. (Formerly 7520:639)

MUSAP:640 Saxophone (2-4 Credits)

MUSAP 621 - MUSAP 661 Graduate Study in Applied Music. (May be repeated) Prerequisites: undergraduate degree in music, graduate standing and/or permission of instructor determined through audition. (Formerly 7520:640)

MUSAP:641 Harpsichord (2-4 Credits)

MUSAP 621 - MUSAP 661 Graduate Study in Applied Music. (May be repeated) Prerequisites: undergraduate degree in music, graduate standing and/or permission of instructor determined through audition. (Formerly 7520:641)

MUSAP:642 Applied Composition (2-4 Credits)

MUSAP 621 - MUSAP 661 Graduate Study in Applied Music. (May be repeated) Prerequisites: undergraduate degree in music, graduate standing and/or permission of instructor determined through audition. (Formerly 7520:642)

MUSAP:661 Jazz Percussion (2-4 Credits)

MUSAP 621 - MUSAP 661 Graduate Study in Applied Music. (May be repeated) Prerequisites: undergraduate degree in music, graduate standing and/or permission of instructor determined through audition. (Formerly 7520:661)

MUSAP:662 Jazz Guitar (2-4 Credits)

(May be repeated) Prerequisite: undergraduate degree with a major in music. Private instruction in composition offered primarily for a student majoring in composition. Another student may be approved by composition faculty. (Formerly 7520:662)

MUSAP:663 Jazz Electric Bass (2-4 Credits)

See department for course description. (Formerly 7520:663)

MUSAP:664 Jazz Piano (2-4 Credits)

See department for course description. (Formerly 7520:664)

MUSAP:665 Jazz Trumpet (2-4 Credits)

See department for course description. (Formerly 7520:665)

MUSAP:666 Jazz Trombone (2-4 Credits)

See department for course description. (Formerly 7520:666)

MUSAP:667 Jazz Saxophone (2-4 Credits)

See department for course description. (Formerly 7520:667)

MUSAP:668 Jazz Composition (2-4 Credits)

See department for course description. (Formerly 7520:668)

MUSAP:669 Jazz Vocal Styles (2-4 Credits)

See department for course description. (Formerly 7520:669)

Music Organizations (MUSEN)

MUSEN:521 Guitar Chamber Music (1 Credit)

Prerequisite: Open to all upper class instrumentalists and vocalists. Guitarists must have taken Guitar Ensemble, MUSEN 116. Study, coaching, and performance of major works for guitar with other instruments or voice. Major conducted ensemble for guitar majors. (Formerly 7510:521)

MUSEN:602 Akron Symphony Chorus (1 Credit)

Open to University and community members by audition. Prospective members should contact School of Music two weeks before semester begins. Performs with Akron Symphony Orchestra. (Formerly 7510:602)

MUSEN:603 University Symphony Orchestra (1 Credit)

Membership by audition. Organization devoted to study of orchestral literature. Full-length concerts as well as special University appearances. Major conducted ensemble. (Formerly 7510:603)

MUSEN:604 Wind Symphony (1 Credit)

Membership by audition. The Wind Symphony is the most select ensemble at the University and performs the most demanding and contemporary repertoire. Major conducted ensemble. (Formerly 7510:604)

MUSEN:605 Vocal Chamber Ensemble (1 Credit)

Membership open to those enrolled in applied voice study. Coaching and rehearsal of solo and ensemble literature for voices from operatic, oratorio and lieder repertoires. (Formerly 7510:605)

MUSEN:606 Brass Ensemble (1 Credit)

Membership by audition. Study and performance of literature for brass ensemble from all periods of music history. Frequent public concerts. For advanced brass players. (Formerly 7510:606)

MUSEN:607 String Ensemble (1 Credit)

Membership by audition. In-depth study and performance of chamber music literature with special emphasis on string quartet and piano trio. (Formerly 7510:607)

MUSEN:608 Opera/Lyric Theater Workshop (1 Credit)

Membership by audition. Musical and dramatic group study of excerpts from operatic repertoire. Includes annual production of standard opera and/or contemporary chamber work with staging, costumes and scenery. (Formerly 7510:608)

MUSEN:609 Percussion Ensemble (1 Credit)

Membership by audition. Study and performance of literature for various percussion groups; develops skill in ensemble performance. (Formerly 7510:609)

MUSEN:610 Woodwind Ensemble (1 Credit)

Membership by audition. Study and performance of woodwind literature from all periods for various combinations of woodwinds. Develops performance skills and knowledge of woodwind literature. (Formerly 7510:610)

MUSEN:614 Keyboard Ensemble (1 Credit)

In-depth study of ensemble playing. Required for keyboard assistantship recipients. (Formerly 7510:614)

MUSEN:615 Jazz Ensemble (1 Credit)

Membership by audition. Provides experience in jazz ensemble performance. A student is assumed to have knowledge of rudiments of music and some experience in jazz ensemble performance. (Formerly 7510:615)

MUSEN:616 Guitar Ensemble (1 Credit)

See department for course description. (Formerly 7510:616)

MUSEN:618 Small Ensemble-Mixed (1 Credit)

Chamber Ensemble, Baroque Ensemble and Contemporary Music Ensemble. Each is a group of diverse instruments which rehearses and performs a selected body of music. (Formerly 7510:618)

MUSEN:620 Concert Choir (1 Credit)

Membership by audition. Highly select mixed choir. Performs classical literature from all periods. Campus, regional, and tour performances. "Major conducted ensemble" for vocal majors. (Formerly 7510:620)

MUSEN:621 University Singers (1 Credit)

Membership by audition. Mixed ensemble devoted to performance of a wide variety of choral literature from classical to popular. "Major conducted ensemble" for vocal majors. (Formerly 7510:621)

MUSEN:624 Opera Chorus (1 Credit)

Open to students and members of University community by audition. Rehearsal and production of opera and musical theatre literature with staging, costumes, and scenery. (Formerly 7510:624)

MUSEN:625 Symphony Band (1 Credit)

Membership by audition. The Symphony Band is a select ensemble at the University and performs standard and contemporary repertoire for wind bands. Major conducted ensemble. (Formerly 7510:625)

MUSEN:626 Marching Band (1 Credit)

This organization is noted for its high energy performances at University football games. Enrollment is open to all members of the University student body. (Formerly 7510:626)

MUSEN:627 Blue & Gold Brass (1 Credit)

The official band for Akron home basketball games. Membership is by audition. (Formerly 7510:627)

MUSEN:628 Concert Band (1 Credit)

Membership by audition. Open to all students regardless of academic major. The Concert Band performs standard and contemporary repertoire for wind bands. Major conducted ensemble. (Formerly 7510:628)

MUSEN:629 Blue and Gold Brass II (1 Credit)

The official band for Akron home ladies basketball games. Membership is by audition. (Formerly 7510:629)

MUSEN:630 Summer Symphonic Band (1 Credit)

Membership open to UA students and community musicians. Enrollment in course required. Summer Symphonic Band performs standard repertoire for wind band. (Formerly 7510:630)

MUSEN:650 Chamber Choir (1 Credit)

Membership by audition. Premiere and flagship choral ensemble. Highest level of musicianship, vocal technique, and professionalism required. Performs classical literature of all periods and genres. (Formerly 7510:650)

Music, School of (MUSIC)

MUSIC:500 Internship in Music (2-4 Credits)

Prerequisite: Permission. Faculty supervised work experience in which student rehearses/conducts/teaches a performance ensemble with a selected cultural or educational organization. (Formerly 7500:500)

MUSIC:525 Music Teaching Methodologies for Graduate Students (2 Credits)

Basic pedagogic techniques related to the teaching of undergraduate music courses, including preparation of syllabi, methods of evaluation, and instruction on class preparation and presentation. (Formerly 7500:525)

MUSIC:526 Graduate Music Theory Review (2 Credits)

Prerequisite: Undergraduate music theory equivalent to four semesters. Review of basic music theory concepts. Coverage includes the chromatic harmony vocabulary of the 18th, 19th, and 20th centuries. (Formerly 7500:526)

MUSIC:527 Graduate Music History Review (2 Credits)

Prerequisite: Undergraduate music history equivalent to four semesters of music history or literature study. Review of basic music history for graduate students. Coverage extends from antiquity to the present. Both reading and listening assignments will be required. (Formerly 7500:527)

MUSIC:551 Introduction to Musicology (2 Credits)

Prerequisite: MUSIC 352. Comparative musicology; acoustics; psychology and physiology of music; aesthetics; theory of music theory; historical musicology. (Formerly 7500:551)

MUSIC:553 Music Software Survey and Use (2 Credits)

Prerequisite: MUSIC 122. A survey and evaluation of available software in the various forms of musical instruction. Students will design a course suitable for submission to a programmer. (Formerly 7500:553)

MUSIC:555 Advanced Conducting: Instrumental (2 Credits)

Prerequisites: MUSIC 361 and MUSIC 442. Baton techniques and problems relating to practice, reading and preparation of scores; organization of ensembles; programming; conducting large instrumental ensembles. One hour lab required. (Formerly 7500:555)

MUSIC:556 Advanced Conducting: Choral (2 Credits)

Prerequisite: MUSIC 361 or equivalent. Conduction techniques to the choral ensemble, including leadership, error detection, tonal development, stylistic accuracy and analysis. One hour lab required. (Formerly 7500:556)

MUSIC:563 Repertoire & Pedagogy: String Instruments (3 Credits)

Prerequisite: permission of instructor. Study in depth of the four bowed string instruments, their teaching and close relationship. Despite obvious difference in physical application of cello and bass from violin and viola, methods of bowing, sound production and coloring are closely related. Application of the instruments to solo, chamber and orchestral playing. (Formerly 7500:563)

MUSIC:567 Guitar Pedagogy (2 Credits)

Prerequisite: permission of instructor. A systematic analysis of prevailing schools of guitar pedagogy. Sound production psychology, method books and special problems in teaching addressed. (Formerly 7500:567)

MUSIC:568 Guitar Arranging (2 Credits)

Prerequisite: permission of instructor. After comparative analyses of selected examples, student make original solo guitar arrangements of works written for other solo instruments ensembles. (Formerly 7500:568)

MUSIC:569 History & Literature: Guitar & Lute (2 Credits)

Prerequisite: permission of instructor. Study of plucked, fretted, string instruments from the 14th Century to the present; construction, notation, literature and performance practices. Modern editions and recordings evaluated. (Formerly 7500:569)

MUSIC:570 Studies Choral Literature I: Medieval/Renaissance (2 Credits)

A survey of choral repertoire in terms of general structure, character, voicing, notation, pitch, ornamentation, improvisation, and interpretation of dynamics, rhythm, articulation, and tempo. (Formerly 7500:570)

MUSIC:571 Studies Choral Literature II: Baroque (2 Credits)

A study of the repertoire in terms of general structure, character, voicing, notation, pitch, ornamentation, improvisation, and interpretation of dynamics, rhythm, articulation, and tempo. (Formerly 7500:571)

MUSIC:572 Studies Choral Literature III: Classic/Romantic (2 Credits)

A study of the repertoire in terms of general structure, character, voicing, notation, pitch, ornamentation, improvisation, and interpretation of dynamics, rhythm, articulation, and tempo. (Formerly 7500:572)

MUSIC:573 Studies Choral Literature IV: 20th Century (2 Credits)

A study of the repertoire in terms of general structure, character, voicing, notation, pitch, ornamentation, improvisation, and interpretation of dynamics, rhythm, articulation, and tempo. (Formerly 7500:573)

MUSIC:574 Integrative Conducting Workshop (2 Credits)

A study of how to prepare and execute effective rehearsal which responds to the needs of the singers while maintaining stylistic integrity in executing the music. (Formerly 7500:574)

MUSIC:589 Music Education Jury (0 Credits)

Prerequisites: Successful completion of undergraduate keyboard and music theory sequence, and minimum 500 jury level. Barrier exam for all music education majors. (Formerly 7500:589)

MUSIC:590 Workshop in Music (1-3 Credits)

Prerequisite: permission of instructor. Investigation of topics not offered in regular curriculum. Graduate student must fulfill additional requirements. (Formerly 7500:590)

MUSIC:601 Choral Literature (2 Credits)

Prerequisite: permission of instructor. Study in depth of style, structure, technical demands, manner of setting text, and special performance problems found in masterworks by great choral composers of nine centuries. (Formerly 7500:601)

MUSIC:604 Development of Opera (2 Credits)

Prerequisite: permission of instructor. Growth and development of opera from 1600 to present. Includes detailed examination of stylistic and structural changes as well as performance practices. (Formerly 7500:604)

MUSIC:609 Pedagogy of Jazz Improvisation (3 Credits)

A detailed study of the methods and materials as they relate to the teaching of jazz improvisation. (Formerly 7500:609)

MUSIC:611 Foundations & Principles of Music Education (3 Credits)

A study of basic historical, philosophical, sociological, and psychological concepts in the context of music education. (Formerly 7500:611)

MUSIC:612 Practices & Trends in Music Education (3 Credits)

A study of the history of practices and trends in American music education. (Formerly 7500:612)

MUSIC:613 Measurement & Evaluation in Music (3 Credits)

A study of measurement and evaluation techniques and their application in music education. (Formerly 7500:614)

MUSIC:616 Musical Styles & Analysis I: Music Before 1750 (2 Credits)

Prerequisite: Score of 70% or higher in the Graduate Diagnostic Examination. Detailed study of compositional techniques and stylistic traits observed in Western music of the Middle Ages, Renaissance, and Baroque periods. (Formerly 7500:616)

MUSIC:617 Musical Styles & Analysis II: Music Between 1750 and 1900 (2 Credits)

Prerequisite: Score of 70% or higher in the Graduate Diagnostic Examination. Detailed study of compositional techniques and stylistic traits observed in Western music of the Classical and Romantic periods. (Formerly 7500:617)

MUSIC:618 Musical Styles & Analysis III: Music Since 1900 (2 Credits)

Prerequisite: Graduate standing as a music major. Detailed study of compositional techniques and stylistic traits observed in Western music in the Twentieth and Twenty-First Centuries. (Formerly 7500:618)

MUSIC:622 Music History Survey I: Music Before 1750 (2 Credits)

Prerequisite: Score of 70% or higher in the Graduate Diagnostic Examination. Historical and stylistic analysis of music from the Middle Ages, Renaissance, and Baroque; study in depth of specific examples, from recordings, scores and live performances; continuation and synthesis of approaches normal to study of music history; selected readings related to each student's particular fields of interest; project papers. (Formerly 7500:622)

MUSIC:623 Music History Survey II: Music Between 1750 and 1900 (2 Credits)

Prerequisite: Score of 70% or higher in the Graduate Diagnostic Examination. Historical and stylistic analysis of classic and romantic music; study in depth of specific examples, through recordings, scores and live performances; discontinuation and synthesis of approaches normal to study of music history; selected readings related to each student's particular fields of interest; project papers. (Formerly 7500:623)

MUSIC:624 Music History Survey III: Music Since 1900 (2 Credits)

Historical and stylistic analysis of music since 1900; study in depth of specific examples through recordings and live performances, continuation and synthesis of approaches normal to study of music history; selected readings and project papers. (Formerly 7500:624)

MUSIC:625 Graduate Bibliography & Research (2 Credits)

Prerequisite: undergraduate music degree of equivalent. Examination of all types of published music materials; research methods for thesis preparation and professional publishing; field trips to music libraries, computerized music research. (Formerly 7500:625)

MUSIC:627 Computer Studio Design (2 Credits)

The design and maintenance of a computer lab. Emphasis on hardware and software setup to maximize function and minimize maintenance. (Formerly 7500:627)

MUSIC:628 Instructional Programming in Music for Microcomputer (3 Credits)

Prerequisite: MUSIC 553. Introduction to programming languages for the microcomputer including BASIC, Pascal and Assembler. Programming will be directed towards music educational concepts. (Formerly 7500:613)

MUSIC:630 Teaching & Literature: Brass Instruments (2 Credits)

Prerequisite: permission of instructor. Research in current trends and issues in brass teaching techniques and appropriate literature. (Formerly 7500:630)

MUSIC:631 Teaching & Literature: Woodwind Instruments (2 Credits)

Prerequisite: permission of instructor. To delineate and clarify contemporary techniques of woodwind pedagogy and to develop a comprehensive understanding of woodwind literature. (Formerly 7500:631)

MUSIC:632 Teaching & Literature: Percussion Instruments (2 Credits)

To train undergraduate and graduate percussion students in techniques of percussion education. Emphasis on research, literature, performance, and techniques from elementary through secondary levels. (Formerly 7500:532)

MUSIC:633 Teaching & Literature: Piano & Harpsichord (2 Credits)

Prerequisite: permission of instructor. The examination of piano and harpsichord literature in historically chronological order with special attention to its pedagogical value and stylistic differences. (Formerly 7500:633)

MUSIC:634 Teaching & Literature: String Instruments (2 Credits)

Prerequisite: permission of instructor. Research in current trends and issues in string teaching techniques and appropriate literature. (Formerly 7500:634)

MUSIC:640 Advanced Accompanying I (1 Credit)

Prerequisite: Graduate standing in keyboard performance and/or accompanying or the permission of the instructor. An in-depth study of principles of accompanying, sight reading, standard repertoire, and transposition. (Formerly 7500:640)

MUSIC:641 Advanced Accompanying II (1 Credit)

Prerequisite: Graduate standing in keyboard performance and/or accompanying or the permission of the instructor. An in-depth study of principles of accompanying, sight reading, standard repertoire, and transposition. (Formerly 7500:641)

MUSIC:642 Advanced Accompanying III (1 Credit)

Prerequisite: Graduate standing in keyboard performance and/or accompanying or the permission of the instructor. An in-depth study of principles of accompanying, sight reading, standard repertoire, and transposition. (Formerly 7500:642)

MUSIC:643 Advanced Accompanying IV (1 Credit)

Prerequisite: Graduate standing in keyboard performance and/or accompanying or the permission of the instructor. An in-depth study of principles of accompanying, sight reading, standard repertoire, and transposition. (Formerly 7500:643)

MUSIC:647 Masters Chamber Recital (1 Credit)

Prerequisite: permission of instructor. Composition student will present a recital of chamber music compositions (at least one-half hour in length) written while in residence at the University. Student will actively organize and coordinate the recital and will also participate either as performer or conductor. (Formerly 7500:647)

MUSIC:653 Electronic Music (3 Credits)

The theory and practice of electronic music composition. Developing a practical understanding of sound synthesis and MIDI in a digital/analog multi-track recording studio. (Formerly 7500:653)

MUSIC:657 School of Music Performance Seminar (0 Credits)

Each performance area provides a forum for student and faculty members for lectures, recitals and opportunity to practice the various skills necessary for successful music performance. (Formerly 7500:657)

MUSIC:665 Vocal Pedagogy (2 Credits)

Prerequisite: permission of instructor. In-depth study of subjects dealing with teaching of voice: physiology of vocal instrument, principles governing vocal production and application of vocal pedagogy. (Formerly 7500:665)

MUSIC:666 Advanced Song Literature I (2 Credits)

Prerequisite: permission of instructor. Systematic study of song literature presented chronologically according to national schools of composition. Stylistic compositional characteristics and representative works of all major composers of solo song literature. (Formerly 7500:666)

MUSIC:667 Advanced Song Literature II (2 Credits)

Prerequisite: permission of instructor. Systematic study of American, British and Italian song literature presented chronologically. Includes study of stylistic compositional characteristics and repertoire of major composers of song literature. (Formerly 7500:667)

MUSIC:674 Seminar in Music (1-3 Credits)

(May be repeated for a total of 9 credits.) Intensive examination of special topics in the field of music. (Formerly 7500:674)

MUSIC:675 Seminar in Music Education (1-3 Credits)

(May be repeated for a total of 6 credits) Intensive examination of special topics in the field of music education. (Formerly 7500:675)

MUSIC:692 Student Teaching Colloquium (1 Credit)

Corequisite: EDCI 694. For music education majors; certification, contracts, benefits, job market prospects and student teaching experience sharing. Restricted to students enrolled in Student Teaching in Music. (Formerly 7500:692)

MUSIC:697 Advanced Problems in Music (1-3 Credits)

(May be repeated for a total of eight credits) Prerequisite: permission of graduate advisor. Studies or research projects related to problems in music. (Formerly 7500:697)

MUSIC:698 Graduate Recital (2 Credits)

Prerequisite: permission of graduate advisor. Recital prepared and presented as a requirement for any appropriate degree option. If recital document is to be written in conjunction with the recital, add 699 for the additional credit. Once passed, may not be repeated for credit. (Formerly 7500:698)

MUSIC:699 Masters Thesis/Project (4-6 Credits)

Prerequisite: permission of graduate advisor. Research related to the completion of the master's thesis, project, or recital document written in conjunction with the graduate recital, depending on the student's degree option. (Formerly 7500:699)

Music, Composition, MM

The degree Master of Music is offered by the School of Music with options in music education, music technology, performance, composition, theory, and accompanying.

Admission Requirements

- Students must have earned an undergraduate baccalaureate degree in music or the equivalent as determined by the department.
- The Graduate School's requirements for admission.
- Three letters of recommendation.
- The music education options require an interview with music education faculty.
- The performance and accompanying options require an audition on the student's major instrument/voice. Please contact the coordinator of Graduate Studies for an audition time.
- The option in orchestral, choral, and wind conducting require the applicant to successfully pass an interview and audition with the orchestra conducting faculty member and an audition on his/her particular applied instrument.

Applications are accepted on a rolling basis.

The student should consult with the coordinator of Graduate Studies in Music for additional information regarding the individualized nature of each option.

For the Voice Performance and Piano Accompanying options a proficiency equal to two semesters each of Italian, German, and French is required for completion of the Master of Music degree. There is no substitution for this requirement for the MM Voice Performance. Piano Accompanying degree program (only) may substitute Diction I and II for this requirement. For details on how to show language proficiency please contact the Graduate Coordinator for the School of Music.

After completion of all course work, the student must pass an examination covering the graduate program. This examination is individualized for each candidate's unique program.

Composition Option

Code	Title	Hours
Music Core Courses		8
Select eight credits of the following:		
MUSIC:555	Advanced Conducting: Instrumental	
MUSIC:556	Advanced Conducting: Choral	
MUSIC:616	Musical Styles & Analysis I: Music Before 1750	

MUSIC:617	Musical Styles & Analysis II: Music Between 1750 and 1900	
Major Required Courses		21-23
MUSIC:618	Musical Styles & Analysis III: Music Since 1900	
MUSIC:624	Music History Survey III: Music Since 1900	
MUSIC:647	Masters Chamber Recital	
MUSIC:674	Seminar in Music (must be Schenkerian Analysis)	
MUSIC:699	Masters Thesis/Project	
MUSEN:6xx	Ensemble (participation in two ensembles required)	
MUSAP:642	Applied Composition ¹	
Additional Music Courses		0-2
Graduate-level (music) courses, workshops, applied lessons (other than in composition) and/or advanced problems to be selected by the student and advisor.		
Electives		3
To be selected by student and advisor, Areas include graduate-level courses in other disciplines, such as theatre arts, in which the student obtains permission of instructor, or MUSAP:642 Applied Composition.		
Total Hours		32-36

¹ Eight credits of MUSAP:642 Applied Composition required.

Music, Music Education, MM

The degree Master of Music is offered by the School of Music with options in music education, music technology, performance, composition, theory, and accompanying.

Admission Requirements

- Students must have earned an undergraduate baccalaureate degree in music or the equivalent as determined by the department.
- The Graduate School's requirements for admission.
- Three letters of recommendation.
- The music education options require an interview with music education faculty.
- The performance and accompanying options require an audition on the student's major instrument/voice. Please contact the coordinator of Graduate Studies for an audition time.
- The option in orchestral, choral, and wind conducting require the applicant to successfully pass an interview and audition with the orchestra conducting faculty member and an audition on his/her particular applied instrument.

Applications are accepted on a rolling basis.

The student should consult with the coordinator of Graduate Studies in Music for additional information regarding the individualized nature of each option.

For the Voice Performance and Piano Accompanying options a proficiency equal to two semesters each of Italian, German, and French is required for completion of the Master of Music degree. There is no substitution for this requirement for the MM Voice Performance. Piano Accompanying degree program (only) may substitute Diction I and II for this requirement. For details on how to show language proficiency please contact the Graduate Coordinator for the School of Music.

After completion of all course work, the student must pass an examination covering the graduate program. This examination is individualized for each candidate's unique program.

Music Education Option Thesis Option

Code	Title	Hours
Required Music Education Core Courses		
MUSIC:611	Foundations & Principles of Music Education (summer)	3
MUSIC:612	Practices & Trends in Music Education (fall)	3
MUSIC:613	Measurement & Evaluation in Music (spring)	3
MUSIC:699	Masters Thesis/Project	4-6
Additional Music/Education Courses		
Select 17-19 credits with approval of music education and graduate 17-19 advisors. Choices may include the following:		
MUSIC:675	Seminar in Music Education	
MUSIC:697	Advanced Problems in Music	
MUSIC:590	Workshop in Music	
MUSAP:5xx/ MUSAP:6xx	Applied Music	
MUSEN:6xx	Ensemble	
MUSIC:5xx/ MUSIC:6xx	Other music courses	
EDFN:5xx/ EDFN:6xx	Educational Foundations and Leadership	
EDLP:5xx/ EDLP:6xx	General Administration	
EDCI:5xx/ EDCI:6xx	Curricular and Instructional Studies	
EDCI:780	Seminar: Curricular & Instructional Studies (Maximum of 4 credits)	
Total Hours		30-34

Non-Thesis Option

Code	Title	Hours
Required Music Education Core Courses		
MUSIC:611	Foundations & Principles of Music Education (summer)	3
MUSIC:612	Practices & Trends in Music Education (fall)	3
MUSIC:613	Measurement & Evaluation in Music (spring)	3
Additional Music/Education Courses		
Select 25 credits with approval of music and graduate advisors. Choices may include the following:		25
MUSIC:675	Seminar in Music Education	
MUSIC:697	Advanced Problems in Music	
MUSIC:590	Workshop in Music	
MUSAP:5xx/ MUSAP:6xx	Applied Music	
MUSEN:6xx	Ensemble	
MUSIC:5xx/ MUSIC:6xx	Other music courses	
EDFN:5xx/ EDFN:6xx	Educational Foundations and Leadership	

EDLP:5xx/ EDLP:6xx	General Administration	
EDCI:5xx/ EDCI:6xx	Curricular and Instructional Studies	
EDCI:780	Seminar: Curricular & Instructional Studies (Maximum of 4 credits)	
Total Hours		34

Music, Music Education: Choral/General Music, MM

The degree Master of Music is offered by the School of Music with options in music education, music technology, performance, composition, theory, and accompanying.

Admission Requirements

- Students must have earned an undergraduate baccalaureate degree in music or the equivalent as determined by the department.
- The Graduate School's requirements for admission.
- Three letters of recommendation.
- The music education options require an interview with music education faculty.
- The performance and accompanying options require an audition on the student's major instrument/voice. Please contact the coordinator of Graduate Studies for an audition time.
- The option in orchestral, choral, and wind conducting require the applicant to successfully pass an interview and audition with the orchestra conducting faculty member and an audition on his/her particular applied instrument.

Applications are accepted on a rolling basis.

The student should consult with the coordinator of Graduate Studies in Music for additional information regarding the individualized nature of each option.

For the Voice Performance and Piano Accompanying options a proficiency equal to two semesters each of Italian, German, and French is required for completion of the Master of Music degree. There is no substitution for this requirement for the MM Voice Performance. Piano Accompanying degree program (only) may substitute Diction I and II for this requirement. For details on how to show language proficiency please contact the Graduate Coordinator for the School of Music.

After completion of all course work, the student must pass an examination covering the graduate program. This examination is individualized for each candidate's unique program.

Music Education: Choral/General Music Option Thesis Option

Code	Title	Hours
Required Music Education Core Courses		
MUSIC:611	Foundations & Principles of Music Education (summer)	3
MUSIC:612	Practices & Trends in Music Education (fall)	3
MUSIC:613	Measurement & Evaluation in Music (spring)	3

MUSIC:699 Masters Thesis/Project (must be related to choral/ general music education) 4-6

Additional Music/Education Courses

Select 17-19 credits with approval of music education and graduate advisors. A minimum of 14 credits must be related to choral/general music education. Choices may include the following:

MUSIC:675	Seminar in Music Education
MUSIC:697	Advanced Problems in Music
MUSIC:590	Workshop in Music
MUSAP:5xx/ MUSAP:6xx	Applied Music
MUSEN:6xx	Ensemble
MUSIC:5xx/ MUSIC:6xx	Other music courses
EDFN:5xx/ EDFN:6xx	Educational Foundations and Leadership
EDLP:5xx/ EDLP:6xx	General Administration
EDCI:5xx/ EDCI:6xx	Curricular and Instructional Studies
EDCI:780	Seminar: Curricular & Instructional Studies (maximum of 4 credits)

Total Hours 30-34

Non-Thesis Option

Code	Title	Hours
Required Music Education Core Courses		
MUSIC:611	Foundations & Principles of Music Education (summer)	3
MUSIC:612	Practices & Trends in Music Education (fall)	3
MUSIC:613	Measurement & Evaluation in Music (spring)	3
Additional Music/Education Courses		
Select 25 credits with approval of music education and graduate advisors. A minimum of 22 credits must be related to choral/general music education. Choices may include the following:		25
MUSIC:675	Seminar in Music Education	
MUSIC:697	Advanced Problems in Music	
MUSIC:590	Workshop in Music	
MUSAP:5xx/ MUSAP:6xx	Applied Music	
MUSEN:6xx	Ensemble	
MUSIC:5xx/ MUSIC:6xx	Other music courses	
EDFN:5xx/ EDFN:6xx	Educational Foundations and Leadership	
EDLP:5xx/ EDLP:6xx	General Administration	
EDCI:5xx/ EDCI:6xx	Curricular and Instructional Studies	
EDCI:780	Seminar: Curricular & Instructional Studies (maximum of 4 credits)	
Total Hours		34

Music, Music Education: Instrumental, MM

The degree Master of Music is offered by the School of Music with options in music education, music technology, performance, composition, theory, and accompanying.

Admission Requirements

- Students must have earned an undergraduate baccalaureate degree in music or the equivalent as determined by the department.
- The Graduate School's requirements for admission.
- Three letters of recommendation.
- The music education options require an interview with music education faculty.
- The performance and accompanying options require an audition on the student's major instrument/voice. Please contact the coordinator of Graduate Studies for an audition time.
- The option in orchestral, choral, and wind conducting require the applicant to successfully pass an interview and audition with the orchestra conducting faculty member and an audition on his/her particular applied instrument.

Applications are accepted on a rolling basis.

The student should consult with the coordinator of Graduate Studies in Music for additional information regarding the individualized nature of each option.

For the Voice Performance and Piano Accompanying options a proficiency equal to two semesters each of Italian, German, and French is required for completion of the Master of Music degree. There is no substitution for this requirement for the MM Voice Performance. Piano Accompanying degree program (only) may substitute Diction I and II for this requirement. For details on how to show language proficiency please contact the Graduate Coordinator for the School of Music.

After completion of all course work, the student must pass an examination covering the graduate program. This examination is individualized for each candidate's unique program.

Music Education: Instrumental Option Thesis Option

Code	Title	Hours
Required Music Education Core Courses		
MUSIC:611	Foundations & Principles of Music Education (summer)	3
MUSIC:612	Practices & Trends in Music Education (fall)	3
MUSIC:613	Measurement & Evaluation in Music (spring)	3
MUSIC:699	Masters Thesis/Project (must be related to instrumental music education)	4-6

Additional Music/Education Courses

Select 17-19 credits with approval of music education and graduate advisors. A minimum of 14 credits must be related to choral/general music education. Choices may include the following:

MUSIC:675	Seminar in Music Education
MUSIC:697	Advanced Problems in Music
MUSIC:590	Workshop in Music

MUSAP:5xx/ MUSAP:6xx	Applied Music	
MUSEN:6xx	Ensemble	
MUSIC:5xx/ MUSIC:6xx	Other music courses	
EDFN:5xx/ EDFN:6xx	Educational Foundations and Leadership	
EDLP:5xx/ EDLP:6xx	General Administration	
EDCI:5xx/ EDCI:6xx	Curricular and Instructional Studies	
EDCI:780	Seminar: Curricular & Instructional Studies (maximum of 4 credits)	
Total Hours		30-34

Non-Thesis Option

Code	Title	Hours
Required Music Education Core Courses		
MUSIC:611	Foundations & Principles of Music Education (summer)	3
MUSIC:612	Practices & Trends in Music Education (fall)	3
MUSIC:613	Measurement & Evaluation in Music (spring)	3
Additional Music/Education Courses		
Select 25 credits with approval of music education and graduate advisors. A minimum of 22 credits must be related to choral/general music education. Choices may include the following:		25
MUSIC:675	Seminar in Music Education	
MUSIC:697	Advanced Problems in Music	
MUSIC:590	Workshop in Music	
MUSAP:5xx/ MUSAP:6xx	Applied Music	
MUSEN:6xx	Ensemble	
MUSIC:5xx/ MUSIC:6xx	Other music courses	
EDFN:5xx/ EDFN:6xx	Educational Foundations and Leadership	
EDLP:5xx/ EDLP:6xx	General Administration	
EDCI:5xx/ EDCI:6xx	Curricular and Instructional Studies	
EDCI:780	Seminar: Curricular & Instructional Studies (maximum of 4 credits)	
Total Hours		34

Music, Music Technology, MM

The degree Master of Music is offered by the School of Music with options in music education, music technology, performance, composition, theory, and accompanying.

Admission Requirements

- Students must have earned an undergraduate baccalaureate degree in music or the equivalent as determined by the department.
- The Graduate School's requirements for admission.
- Three letters of recommendation.

- The music education options require an interview with music education faculty.
- The performance and accompanying options require an audition on the student's major instrument/voice. Please contact the coordinator of Graduate Studies for an audition time.
- The option in orchestral, choral, and wind conducting require the applicant to successfully pass an interview and audition with the orchestra conducting faculty member and an audition on his/her particular applied instrument.

Applications are accepted on a rolling basis.

The student should consult with the coordinator of Graduate Studies in Music for additional information regarding the individualized nature of each option.

For the Voice Performance and Piano Accompanying options a proficiency equal to two semesters each of Italian, German, and French is required for completion of the Master of Music degree. There is no substitution for this requirement for the MM Voice Performance. Piano Accompanying degree program (only) may substitute Diction I and II for this requirement. For details on how to show language proficiency please contact the Graduate Coordinator for the School of Music.

After completion of all course work, the student must pass an examination covering the graduate program. This examination is individualized for each candidate's unique program.

Music Technology Option

Code	Title	Hours
Music Core Courses		
Select six credits of the following:		6
MUSIC:555	Advanced Conducting: Instrumental	
MUSIC:556	Advanced Conducting: Choral	
MUSIC:616	Musical Styles & Analysis I: Music Before 1750	
MUSIC:617	Musical Styles & Analysis II: Music Between 1750 and 1900	
MUSIC:622	Music History Survey I: Music Before 1750	
MUSIC:623	Music History Survey II: Music Between 1750 and 1900	
MUSIC:624	Music History Survey III: Music Since 1900	
Major Required Courses		
MUSIC:553	Music Software Survey and Use	2
MUSIC:618	Musical Styles & Analysis III: Music Since 1900	2
MUSIC:627	Computer Studio Design	2
MUSIC:628	Instructional Programming in Music for Microcomputer	3
MUSIC:653	Electronic Music	3
MUSIC:699	Masters Thesis/Project	4
MUSEN:6xx	Ensemble (participation in two ensembles sequences)	2
MUSAP:542	Composition	4
COMM:697	Graduate Research in Communication	3
Electives		
Select two credits selected by the student and advisor		2
Total Hours		33

Music, Performance in Accompanying, MM

The degree Master of Music is offered by the School of Music with options in music education, music technology, performance, composition, theory, and accompanying.

Admission Requirements

- Students must have earned an undergraduate baccalaureate degree in music or the equivalent as determined by the department.
- The Graduate School's requirements for admission.
- Three letters of recommendation.
- The music education options require an interview with music education faculty.
- The performance and accompanying options require an audition on the student's major instrument/voice. Please contact the coordinator of Graduate Studies for an audition time.
- The option in orchestral, choral, and wind conducting require the applicant to successfully pass an interview and audition with the orchestra conducting faculty member and an audition on his/her particular applied instrument.

Applications are accepted on a rolling basis.

The student should consult with the coordinator of Graduate Studies in Music for additional information regarding the individualized nature of each option.

For the Voice Performance and Piano Accompanying options a proficiency equal to two semesters each of Italian, German, and French is required for completion of the Master of Music degree. There is no substitution for this requirement for the MM Voice Performance. Piano Accompanying degree program (only) may substitute Diction I and II for this requirement. For details on how to show language proficiency please contact the Graduate Coordinator for the School of Music.

After completion of all course work, the student must pass an examination covering the graduate program. This examination is individualized for each candidate's unique program.

Performance Option in Accompanying

Code	Title	Hours
Music Core Courses		8
Select eight credits of the following:		
MUSIC:555	Advanced Conducting: Instrumental	
MUSIC:556	Advanced Conducting: Choral	
MUSIC:616	Musical Styles & Analysis I: Music Before 1750	
MUSIC:617	Musical Styles & Analysis II: Music Between 1750 and 1900	
MUSIC:618	Musical Styles & Analysis III: Music Since 1900	
MUSIC:622	Music History Survey I: Music Before 1750	
MUSIC:623	Music History Survey II: Music Between 1750 and 1900	
MUSIC:624	Music History Survey III: Music Since 1900	
Major Required Courses		23-26
MUSIC:633	Teaching & Literature: Piano & Harpsichord	
MUSIC:640	Advanced Accompanying I	

MUSIC:641	Advanced Accompanying II	
MUSIC:642	Advanced Accompanying III	
MUSIC:643	Advanced Accompanying IV	
MUSIC:666	Advanced Song Literature I	
MUSIC:698	Graduate Recital (to be completed in a minimum of two performance media)	
MUSEN:614	Keyboard Ensemble (participation in two ensembles required) ¹	
MUSEN:618	Small Ensemble-Mixed	
MUSAP:6xx	Applied Music (piano, organ and/or harpsichord)	
Additional Music Courses		2-3
Graduate-level (music) courses, advanced problems, workshops and/or applied lessons, to be selected by the student and advisor.		
Electives		2
Areas may include graduate-level courses in other disciplines, such as theatre arts, for which the student obtains permission of instructor, or additional music courses, as determined by the student and advisor.		
Total Hours		35-39

¹ Two semesters ensemble participation required for degrees completed in two semesters. Four semesters ensemble participation required for degrees completed in four semesters

No more than a total of 16 credits of MUSAP courses may be applied to the degree.

All candidates for this degree must accompany a minimum of three solo ensemble recitals (instrumental and vocal). These can be done as part of MUSIC:697.

Music, Performance in Keyboard, MM

The degree Master of Music is offered by the School of Music with options in music education, music technology, performance, composition, theory, and accompanying.

Admission Requirements

- Students must have earned an undergraduate baccalaureate degree in music or the equivalent as determined by the department.
- The Graduate School's requirements for admission.
- Three letters of recommendation.
- The music education options require an interview with music education faculty.
- The performance and accompanying options require an audition on the student's major instrument/voice. Please contact the coordinator of Graduate Studies for an audition time.
- The option in orchestral, choral, and wind conducting require the applicant to successfully pass an interview and audition with the orchestra conducting faculty member and an audition on his/her particular applied instrument.

Applications are accepted on a rolling basis.

The student should consult with the coordinator of Graduate Studies in Music for additional information regarding the individualized nature of each option.

For the Voice Performance and Piano Accompanying options a proficiency equal to two semesters each of Italian, German, and French is required for completion of the Master of Music degree. There is no substitution for this requirement for the MM Voice Performance. Piano Accompanying degree program (only) may substitute Diction I and II for this requirement. For details on how to show language proficiency please contact the Graduate Coordinator for the School of Music.

After completion of all course work, the student must pass an examination covering the graduate program. This examination is individualized for each candidate's unique program.

Performance Option in Keyboard

Code	Title	Hours
Music Core Courses		8
Select eight credits of the following:		
MUSIC:555	Advanced Conducting: Instrumental	
MUSIC:556	Advanced Conducting: Choral	
MUSIC:616	Musical Styles & Analysis I: Music Before 1750	
MUSIC:617	Musical Styles & Analysis II: Music Between 1750 and 1900	
MUSIC:622	Music History Survey I: Music Before 1750	
MUSIC:623	Music History Survey II: Music Between 1750 and 1900	
MUSIC:624	Music History Survey III: Music Since 1900	
Major Required Courses		18-21
MUSIC:618	Musical Styles & Analysis III: Music Since 1900	
MUSIC:633	Teaching & Literature: Piano & Harpsichord	
MUSIC:633	Teaching & Literature: Piano & Harpsichord	
MUSIC:697	Advanced Problems in Music	
MUSIC:698	Graduate Recital	
MUSEN:614	Keyboard Ensemble (participation in two or four ensembles required) ¹	
MUSAP:6xx	Applied Music (piano, organ and/or harpsichord)	
Additional Music Courses		3-4
Graduate-level (music) courses, advanced problems, workshops and/or applied lessons, to be selected by the student and advisor.		
Electives		4
Areas may include graduate level courses in other disciplines, such as theatre arts, for which the student obtains permission of instructor, or additional music courses, as determined by the student and advisor.		
Total Hours		33-37

¹ Two semesters ensemble participation required for degrees completed in two semesters. Four semesters ensemble participation required for degrees completed in four semesters.

It is recommended that each student's graduate committee recommend the appropriate elective credits.

No more than a total of 16 credits of MUSAP courses may be applied to the degree.

Music, Performance in Voice, MM

The degree Master of Music is offered by the School of Music with options in music education, music technology, performance, composition, theory, and accompanying.

Admission Requirements

- Students must have earned an undergraduate baccalaureate degree in music or the equivalent as determined by the department.
- The Graduate School's requirements for admission.
- Three letters of recommendation.
- The music education options require an interview with music education faculty.
- The performance and accompanying options require an audition on the student's major instrument/voice. Please contact the coordinator of Graduate Studies for an audition time.
- The option in orchestral, choral, and wind conducting require the applicant to successfully pass an interview and audition with the orchestra conducting faculty member and an audition on his/her particular applied instrument.

Applications are accepted on a rolling basis.

The student should consult with the coordinator of Graduate Studies in Music for additional information regarding the individualized nature of each option.

For the Voice Performance and Piano Accompanying options a proficiency equal to two semesters each of Italian, German, and French is required for completion of the Master of Music degree. There is no substitution for this requirement for the MM Voice Performance. Piano Accompanying degree program (only) may substitute Diction I and II for this requirement. For details on how to show language proficiency please contact the Graduate Coordinator for the School of Music.

After completion of all course work, the student must pass an examination covering the graduate program. This examination is individualized for each candidate's unique program.

Performance Option in Voice

Code	Title	Hours
Music Core Courses		8
Select eight credits of the following:		
MUSIC:555	Advanced Conducting: Instrumental	
MUSIC:556	Advanced Conducting: Choral	
MUSIC:616	Musical Styles & Analysis I: Music Before 1750	
MUSIC:617	Musical Styles & Analysis II: Music Between 1750 and 1900	
MUSIC:622	Music History Survey I: Music Before 1750	
MUSIC:623	Music History Survey II: Music Between 1750 and 1900	
MUSIC:624	Music History Survey III: Music Since 1900	
MUSIC:604	Development of Opera	
Major Required Courses		20-22
MUSIC:618	Musical Styles & Analysis III: Music Since 1900	
MUSIC:665	Vocal Pedagogy	
MUSIC:666	Advanced Song Literature I	
MUSIC:667	Advanced Song Literature II	

MUSIC:698	Graduate Recital	
MUSEN:6xx	Ensemble (participation in two ensembles required) ¹	
MUSAP:624	Voice ²	
Additional Music Courses		2
Graduate-level (music) courses, workshops, advanced problems and/or applied lessons, to be selected by student and advisor.		
Electives		4
Areas may include graduate-level courses in other disciplines, such as theatre arts, in which the student obtains permission of instructor, or additional music courses, as determined by the student and advisor.		
Total Hours		34-36

¹ Two semesters ensemble participation required for degrees completed in two semesters. Four semesters ensemble participation required for degrees completed in four semesters.

² Eight credits of MUSAP:524 required.

No more than a total of 16 credits of MUSAP courses may be applied to the degree.

Music, Performance in Winds, Strings, Percussion, MM

The degree Master of Music is offered by the School of Music with options in music education, music technology, performance, composition, theory, and accompanying.

Admission Requirements

- Students must have earned an undergraduate baccalaureate degree in music or the equivalent as determined by the department.
- The Graduate School's requirements for admission.
- Three letters of recommendation.
- The music education options require an interview with music education faculty.
- The performance and accompanying options require an audition on the student's major instrument/voice. Please contact the coordinator of Graduate Studies for an audition time.
- The option in orchestral, choral, and wind conducting require the applicant to successfully pass an interview and audition with the orchestra conducting faculty member and an audition on his/her particular applied instrument.

Applications are accepted on a rolling basis.

The student should consult with the coordinator of Graduate Studies in Music for additional information regarding the individualized nature of each option.

For the Voice Performance and Piano Accompanying options a proficiency equal to two semesters each of Italian, German, and French is required for completion of the Master of Music degree. There is no substitution for this requirement for the MM Voice Performance. Piano Accompanying degree program (only) may substitute Diction I and II for this requirement. For details on how to show language proficiency please contact the Graduate Coordinator for the School of Music.

After completion of all course work, the student must pass an examination covering the graduate program. This examination is individualized for each candidate's unique program.

Performance Option in Winds, String, Percussion

Code	Title	Hours
Music Core Courses		8
Select eight credits of the following:		
MUSIC:555	Advanced Conducting: Instrumental	
MUSIC:556	Advanced Conducting: Choral	
MUSIC:616	Musical Styles & Analysis I: Music Before 1750	
MUSIC:617	Musical Styles & Analysis II: Music Between 1750 and 1900	
MUSIC:622	Music History Survey I: Music Before 1750	
MUSIC:623	Music History Survey II: Music Between 1750 and 1900	
MUSIC:624	Music History Survey III: Music Since 1900	
Major Required Courses		16-18
MUSIC:618	Musical Styles & Analysis III: Music Since 1900	
MUSEN:6xx	Ensemble (participation in two ensembles required) ¹	
MUSAP:6xx	Applied Music (select appropriate instrument) ²	
Select one of the following as appropriate to major instrument:		
MUSIC:630	Teaching & Literature: Brass Instruments	
MUSIC:631	Teaching & Literature: Woodwind Instruments	
MUSIC:632	Teaching & Literature: Percussion Instruments	
MUSIC:634	Teaching & Literature: String Instruments	
MUSIC:698	Graduate Recital	
Additional Music Courses		6
Graduate-level (music) workshops, applied lessons, advanced problems and/or courses to be selected by student and advisor.		
Electives		4
Areas may include graduate-level courses in other disciplines, such as theatre arts, in which the student obtains permission of instructor, or additional music courses, as determined by the student and advisor.		
Total Hours		34-36

¹ Two semesters ensemble participation required for degrees completed in two semesters. Four semesters ensemble participation required for degrees completed in four semesters.

² Eight credits of MUSAP:6xx Applied Music required.

No more than a total of 16 credits of MUSAP courses may be applied to the degree.

Music, Performance: Choral Conducting, MM

The degree Master of Music is offered by the School of Music with options in music education, music technology, performance, composition, theory, and accompanying.

Admission Requirements

- Students must have earned an undergraduate baccalaureate degree in music or the equivalent as determined by the department.
- The Graduate School's requirements for admission.
- Three letters of recommendation.
- The music education options require an interview with music education faculty.
- The performance and accompanying options require an audition on the student's major instrument/voice. Please contact the coordinator of Graduate Studies for an audition time.
- The option in orchestral, choral, and wind conducting require the applicant to successfully pass an interview and audition with the orchestra conducting faculty member and an audition on his/her particular applied instrument.

Applications are accepted on a rolling basis.

The student should consult with the coordinator of Graduate Studies in Music for additional information regarding the individualized nature of each option.

For the Voice Performance and Piano Accompanying options a proficiency equal to two semesters each of Italian, German, and French is required for completion of the Master of Music degree. There is no substitution for this requirement for the MM Voice Performance. Piano Accompanying degree program (only) may substitute Diction I and II for this requirement. For details on how to show language proficiency please contact the Graduate Coordinator for the School of Music.

After completion of all course work, the student must pass an examination covering the graduate program. This examination is individualized for each candidate's unique program.

Performance Option: Choral Conducting

Code	Title	Hours
Music Core Courses		8
Select eight credits of the following:		
MUSIC:616	Musical Styles & Analysis I: Music Before 1750	
MUSIC:617	Musical Styles & Analysis II: Music Between 1750 and 1900	
MUSIC:622	Music History Survey I: Music Before 1750	
MUSIC:624	Music History Survey III: Music Since 1900	
Major Required Courses		24
MUSIC:556	Advanced Conducting: Choral	
MUSIC:570	Studies Choral Literature I: Medieval/Renaissance	
MUSIC:571	Studies Choral Literature II: Baroque	
MUSIC:572	Studies Choral Literature III: Classic/Romantic	
MUSIC:573	Studies Choral Literature IV: 20th Century	
MUSIC:675	Seminar in Music Education	
MUSIC:697	Advanced Problems in Music ¹	
MUSIC:698	Graduate Recital	
MUSEN:610	Woodwind Ensemble	
MUSEN:621	University Singers ²	
MUSAP:524	Voice ³	
Electives		3

Areas may include graduate-level courses in other disciplines, with permission of the instructor, or additional music courses other than ensembles.

Total Hours 35

- ¹ Four credits of MUSIC:697 (Choral Conducting) required.
- ² Two semesters ensemble participation required for degrees completed in two semesters. Four semesters ensemble participation required for degrees completed in four semesters.
- ³ Four credits of MUSAP:524 required.

No more than a total of 16 credits of MUSAP courses may be applied to the degree.

Music, Performance: Orchestral Conducting, MM

The degree Master of Music is offered by the School of Music with options in music education, music technology, performance, composition, theory, and accompanying.

Admission Requirements

- Students must have earned an undergraduate baccalaureate degree in music or the equivalent as determined by the department.
- The Graduate School's requirements for admission.
- Three letters of recommendation.
- The music education options require an interview with music education faculty.
- The performance and accompanying options require an audition on the student's major instrument/voice. Please contact the coordinator of Graduate Studies for an audition time.
- The option in orchestral, choral, and wind conducting require the applicant to successfully pass an interview and audition with the orchestra conducting faculty member and an audition on his/her particular applied instrument.

Applications are accepted on a rolling basis.

The student should consult with the coordinator of Graduate Studies in Music for additional information regarding the individualized nature of each option.

For the Voice Performance and Piano Accompanying options a proficiency equal to two semesters each of Italian, German, and French is required for completion of the Master of Music degree. There is no substitution for this requirement for the MM Voice Performance. Piano Accompanying degree program (only) may substitute Diction I and II for this requirement. For details on how to show language proficiency please contact the Graduate Coordinator for the School of Music.

After completion of all course work, the student must pass an examination covering the graduate program. This examination is individualized for each candidate's unique program.

Performance Option: Orchestral Conducting

Code	Title	Hours
Music Core Courses		8
Select eight credits of the following:		

MUSIC:616	Musical Styles & Analysis I: Music Before 1750
MUSIC:617	Musical Styles & Analysis II: Music Between 1750 and 1900
MUSIC:618	Musical Styles & Analysis III: Music Since 1900
MUSIC:622	Music History Survey I: Music Before 1750
MUSIC:623	Music History Survey II: Music Between 1750 and 1900
MUSIC:624	Music History Survey III: Music Since 1900

Major Required Courses **29**

MUSIC:555	Advanced Conducting: Instrumental (course to be repeated for a total of four credits)
MUSIC:630	Teaching & Literature: Brass Instruments
MUSIC:631	Teaching & Literature: Woodwind Instruments
MUSIC:632	Teaching & Literature: Percussion Instruments
MUSIC:634	Teaching & Literature: String Instruments
MUSIC:675	Seminar in Music Education
MUSIC:698	Graduate Recital
MUSEN:620	Concert Choir ¹
MUSAP:6xx	Applied Music ²

Total Hours 37

¹ Participation in Orchestra required for all semesters in residence.

² Eight credits of MUSAP:6xx Applied Music required.

Music, Performance: Wind Conducting, MM

The degree Master of Music is offered by the School of Music with options in music education, music technology, performance, composition, theory, and accompanying.

Admission Requirements

- Students must have earned an undergraduate baccalaureate degree in music or the equivalent as determined by the department.
- The Graduate School's requirements for admission.
- Three letters of recommendation.
- The music education options require an interview with music education faculty.
- The performance and accompanying options require an audition on the student's major instrument/voice. Please contact the coordinator of Graduate Studies for an audition time.
- The option in orchestral, choral, and wind conducting require the applicant to successfully pass an interview and audition with the orchestra conducting faculty member and an audition on his/her particular applied instrument.

Applications are accepted on a rolling basis.

The student should consult with the coordinator of Graduate Studies in Music for additional information regarding the individualized nature of each option.

For the Voice Performance and Piano Accompanying options a proficiency equal to two semesters each of Italian, German, and French is required for completion of the Master of Music degree. There is no substitution for this requirement for the MM Voice Performance. Piano Accompanying degree program (only) may substitute Diction I and II for

this requirement. For details on how to show language proficiency please contact the Graduate Coordinator for the School of Music.

After completion of all course work, the student must pass an examination covering the graduate program. This examination is individualized for each candidate's unique program.

Performance Option: Wind Conducting

Code	Title	Hours
Music Core Courses		8

Select four credits of theory and four credits of history of the following:

MUSIC:616	Musical Styles & Analysis I: Music Before 1750
MUSIC:617	Musical Styles & Analysis II: Music Between 1750 and 1900
MUSIC:618	Musical Styles & Analysis III: Music Since 1900
MUSIC:622	Music History Survey I: Music Before 1750
MUSIC:623	Music History Survey II: Music Between 1750 and 1900
MUSIC:624	Music History Survey III: Music Since 1900

Major Required Courses **29**

MUSIC:555	Advanced Conducting: Instrumental (repeated for total of eight credits)
MUSIC:698	Graduate Recital
MUSIC:630	Teaching & Literature: Brass Instruments
MUSIC:631	Teaching & Literature: Woodwind Instruments
MUSIC:632	Teaching & Literature: Percussion Instruments
MUSIC:675	Seminar in Music Education (repeated for a total of five credits)
MUSEN:604	Wind Symphony (repeated for four semesters) or MUSEN:625 Symphony Band
MUSAP:xxx	Applied Music (repeated for two semesters)

Total Hours 37

Music, Theory, MM

The degree Master of Music is offered by the School of Music with options in music education, music technology, performance, composition, theory, and accompanying.

Admission Requirements

- Students must have earned an undergraduate baccalaureate degree in music or the equivalent as determined by the department.
- The Graduate School's requirements for admission.
- Three letters of recommendation.
- The music education options require an interview with music education faculty.
- The performance and accompanying options require an audition on the student's major instrument/voice. Please contact the coordinator of Graduate Studies for an audition time.
- The option in orchestral, choral, and wind conducting require the applicant to successfully pass an interview and audition with the orchestra conducting faculty member and an audition on his/her particular applied instrument.

Applications are accepted on a rolling basis.

The student should consult with the coordinator of Graduate Studies in Music for additional information regarding the individualized nature of each option.

For the Voice Performance and Piano Accompanying options a proficiency equal to two semesters each of Italian, German, and French is required for completion of the Master of Music degree. There is no substitution for this requirement for the MM Voice Performance. Piano Accompanying degree program (only) may substitute Diction I and II for this requirement. For details on how to show language proficiency please contact the Graduate Coordinator for the School of Music.

After completion of all course work, the student must pass an examination covering the graduate program. This examination is individualized for each candidate's unique program.

Theory Option

Code	Title	Hours
Music Core Courses		6
Select six credits of the following:		
MUSIC:555	Advanced Conducting: Instrumental	
MUSIC:556	Advanced Conducting: Choral	
MUSIC:622	Music History Survey I: Music Before 1750	
MUSIC:623	Music History Survey II: Music Between 1750 and 1900	
MUSIC:624	Music History Survey III: Music Since 1900	
MUSIC:625	Graduate Bibliography & Research	
Major Required Courses		26-28
7500:615		
MUSIC:616	Musical Styles & Analysis I: Music Before 1750	
MUSIC:617	Musical Styles & Analysis II: Music Between 1750 and 1900	
MUSIC:618	Musical Styles & Analysis III: Music Since 1900	
MUSIC:674	Seminar in Music	
MUSIC:697	Advanced Problems in Music ¹	
MUSIC:699	Masters Thesis/Project	
MUSEN:6xx	Ensemble (participation in two ensembles required) ²	2
MUSAP:642	Applied Composition	
Additional Music Courses		0-2
Graduate-level (music) workshops, applied music (other than composition), advanced problems, and/or courses to be selected by student and advisor.		
Electives		0-2
Areas include graduate-level courses in other disciplines in which student obtains permission of instructor or MUSAP:642 Applied Composition.		
Total Hours		34-40

¹ Eight credits of MUSIC:697 required.

² Two semesters ensemble participation required for degrees completed in two semesters. Four semesters ensemble participation required for degrees completed in four semesters.

Political Science

- Applied Political Communication, Certificate (p. 65)
- Applied Politics, Certificate (p. 65)
- Applied Politics, MAP (p. 66)
- Juris Doctor, J.D./Applied Politics, MAP (p. 66)
- Political Science, MA (p. 67)

Political Science (POLIT)

POLIT:500 Political Extremism & Violence (3 Credits)

This course examines the causes and consequences of political extremism & political violence in democracies and failed democracies. (Formerly 3700:500)

POLIT:502 Politics and the Media (3 Credits)

Examination of relationships between the press, the news media and political decision makers. (Formerly 3700:502)

POLIT:503 Media, Crime and Public Opinion (3 Credits)

Examines the social construction of crime in mass media and how it impacts public, including fear of crime, beliefs about crime causation, and crime policy. (Formerly 3700:503)

POLIT:510 International Security Policy (3 Credits)

Introduction to political uses of military forces. Major focus on methodological, conceptual, and ethical dilemmas confronted in developing and implementing defense policy. (Formerly 3700:510)

POLIT:513 Global Public Health Threats (3 Credits)

An introduction to comparative global biological and public health security policy. Topics include: infectious disease outbreaks, bioterrorism, and potential "nano-terrorism." (Formerly 3700:513)

POLIT:514 Wealth and Power Among Nations (3 Credits)

Studies relationship between politics and economy; mesh theoretical perspectives with exploration of the key empirical issues. Topics include: trade, relations, unions, finance, development, aid, sanctions. (Formerly 3700:514)

POLIT:517 Environmental Security and Climate Politics (3 Credits)

The course examines the relationship between the politics of climate change and environmental security. Students will examine a wide range of environmental security issues and will assess the effectiveness of efforts to resolve these issues. (Formerly 3700:517)

POLIT:518 Weapons of Mass Destruction (3 Credits)

An exploration of the development and proliferation of weapons of mass destruction and their use and potential use by nation states, extremist groups, and/or wayward individuals. Weapons categories explored include: biological, chemical, nuclear, radiological, cyber, and future threats. (Formerly 3700:518)

POLIT:519 Homeland Security Policy and Process (3 Credits)

The course will explore the concept of homeland security, the complexity of homeland security and disaster policy in a federal system, threats to homeland security, and the challenges to effective homeland security and disaster policy in the United States. (Formerly 3700:519)

POLIT:522 Understanding Racial & Gender Conflicts (3 Credits)

This is the core course the Certificates in Racial and Gender Conflict, providing students with an opportunity to intensively examine racial and gender conflict. (Formerly 3700:522)

POLIT:527 Campaign Battleground (3 Credits)

This course will provide a general framework with which to understand presidential, congressional, state, and local elections from the perspective of campaign professional and political observers. The course will follow campaigns in real time, investigating the strategy, tactics, and conduct of major party candidates and campaigns. It will also examine coverage of national, state, and local races by the media as well as analyze current polling. The course will include guest speakers including academics, campaign professionals, public officials, and journalists. (Formerly 3700:527)

POLIT:528 Ohio Politics (3 Credits)

This course focuses on factors that make Ohio economically competitive. Material focuses on recent election results, public opinion polling and influence of socioeconomic factors. (Formerly 3700:528)

POLIT:537 Government Versus Organized Crime (3 Credits)

The course gives a history of organized crime and the government's responses to fight it. Newly emerging international crime groups are also discussed. (Formerly 3700:537)

POLIT:540 Survey Research Methods (3 Credits)

Study of the survey research methods as applied to the analysis of public opinion, political behavior and public policy formation. (Formerly 3700:540)

POLIT:541 The Policy Process (3 Credits)

Intensive study of policy-making process, emphasizing roles of various participants in executive and legislative branches as well as private individuals and groups. (Formerly 3700:541)

POLIT:542 Methods of Policy Analysis (3 Credits)

Examines variety of methods available for analyzing public policies. Techniques of cost benefit analysis, evaluation research quasi-experimentation are covered as well as consideration of ethical questions in policy analysis, the practical problems facing policy analysts. (Formerly 3700:542)

POLIT:543 Political Scandals & Corruption (3 Credits)

This course will provide information on major political scandals, including media coverage, public opinion, the role of special prosecutors, and the impacts of scandals. (Formerly 3700:543)

POLIT:545 Al Qaeda and ISIS (3 Credits)

This course explores the causes and consequences of Al Qaeda's and ISIS' ideologies and tactics around the world. (Formerly 3700:545)

POLIT:546 National Security Intelligence (3 Credits)

The aim of this course is to familiarize students with the politics and policy of national security intelligence in the US. (Formerly 3700:546)

POLIT:547 Counterterrorism (3 Credits)

This course introduces students to the national security agencies, policies, politics and methods of defeating terrorism from abroad and in the United States. (Formerly 3700:547)

POLIT:548 Intelligence Analysis (3 Credits)

This course is intended to for students who seek a career in the field of government or private sector intelligence or who just have an interest in how intelligence analysis is done. (Formerly 3700:548)

POLIT:550 Administering Prisons, Probation, and Parole (3 Credits)

Analysis of the administrative, electoral, and community conflicts central to understanding, resolving, and preventing these conflicts in a correctional environment. (Formerly 3700:550)

POLIT:561 The Supreme Court & Constitutional Law (3 Credits)

Interpretation of the Constitution by the Supreme Court with emphasis on federal judicial, legislative and executive power; separation of powers; and federalism. (Formerly 3700:561)

POLIT:562 The Supreme Court & Civil Liberties (3 Credits)

Interpretation of the Constitution by the Supreme Court with emphasis on freedom of speech and press, freedom of religion, criminal rights and right to privacy. (Formerly 3700:562)

POLIT:563 Human Rights in World Politics (3 Credits)

An introduction to human rights from a comparative perspective; topics include: definition and development of human rights with attention paid to government interaction and wartime. (Formerly 3700:563)

POLIT:570 Fundamentals of Political Strategy (3 Credits)

Explore theoretical concepts, practical applications, roles, and best practices as it relates to political campaign management. Develop critical thinking skills to assess, analyze, act and communicate in situations throughout the election cycle, including message development and delivery, target audiences and voter contact and engagement. Consider real-life and rhetorical situations and hear from campaign professionals equipped to share first-hand perspectives on the operations and infrastructure of political campaigns. (Formerly 3700:570)

POLIT:571 Fundamentals of Electoral Messaging (3 Credits)

Explore theoretical concepts, practical applications, roles, and best practices as it relates to political campaign and electoral communication. Develop skills to plan, produce and execute strategic political messages including campaign addresses, press releases and media advisories, constituent, volunteer, and donor communications, and video releases while considering candidate and opposition research, fact sheets, time and budgetary constraints, polling and targeting data, and candidate preferences. (Formerly 3700:571)

POLIT:572 Campaign Finance, Fundraising, and Budgeting (3 Credits)

This course examines the most controversial aspect of applied politics: the role and influence of money. Topics include: the sources of political money, how it is raised and spent, the impact of money on the political process, the rules that govern political finance, and proposals for campaign finance reform. (Formerly 3700:572)

POLIT:573 Voter Contact & Elections (3 Credits)

Theoretical and practical approaches to gaining votes in all types of political campaigns. (Formerly 3700:573)

POLIT:574 Political Opinion, Behavior & Electoral Politics (3 Credits)

Advanced analysis of psychological, cultural and group processes of opinion formation and change. Attention given to the effect of opinion change on electoral outcomes. (Formerly 3700:574)

POLIT:575 American Interest Groups (3 Credits)

Reading and research on the development, structure and function of interest groups in the United States. (Formerly 3700:575)

POLIT:576 American Political Parties (3 Credits)

Reading and research on the development, structure and function of parties in the United States. (Formerly 3700:576)

POLIT:577 Government Relations and Lobbying (3 Credits)

This course examines government relations, lobbying, and advocacy through participating in hands-on applied projects, meeting with elected officials and government relations professionals, and preparing students for the wide range of career options available to government relations professionals. (Formerly 3700:577)

POLIT:578 Fundamentals of the Digital Campaign (3 Credits)

This course will examine the evolution of digital campaigning, explore the pillars of effective digital strategy, and analyze the role digital strategy plays from communications to fundraising to field and everything in between. It will look at the rise of digital platforms, strengths and weaknesses of them, how to best leverage them in a well-rounded digital program, along with security and disinformation tactics to navigate. Students will learn how to effectively research, craft, deploy, and execute an effective digital plan that can serve as the connective tissue of any winning campaign. (Formerly 3700:578)

POLIT:580 Policy Problems in Political Science (3 Credits)

Intensive study of selected problems in public policy. (Formerly 3700:580)

POLIT:581 The Challenges of Police Work (3 Credits)

Analysis of various political dimensions underlying the study of politics and policing in the context of police reform, crime, and the community. (Formerly 3700:581)

POLIT:582 Current Issues (CJ Topic) (3 Credits)

Study and critical analysis of current issues, programs, and policies relating to political science and criminal justice at the federal or state level. (Formerly 3700:582)

POLIT:583 Constitutional Problems in Criminal Justice (3 Credits)

Analyzes Supreme Court policy-making regarding problems of criminal justice, including search and seizure, self-incrimination, right to counsel, jury selection, and post-appeal prisoner rights. (Formerly 3700:583)

POLIT:590 Workshop in Political Science (1-3 Credits)

(May be repeated for a total of nine credits). Timely workshops on varying subjects to meet the changing needs of our students in response to new and emerging political issues and controversies. (Formerly 3700:590)

POLIT:592 Selected Topics in Political Science (3 Credits)

May be repeated for a total of six credits. Topics of substantial current importance or specialized topics with political science. (Formerly 3700:592)

POLIT:600 Scope & Theories of Political Science (3 Credits)

Prerequisite: Admission to political science graduate program or permission. Emphasis on the nature, scope and content of political theory; theory construction and validation in political science. (Formerly 3700:600)

POLIT:601 Research Methods in Political Science (3 Credits)

Prerequisite: POLIT 600. Techniques of quantitative research methodology in political science; utility and limitations of quantitative analysis. (Formerly 3700:601)

POLIT:603 Scholarly Writing & Professional Development in Political Science (3 Credits)

Prerequisite: Admission to a Political Science graduate program or permission. Course will assist in the development of Essay / Capstone projects: Organization, format presentation, editing, committee review. Will help polish student writing and presentation skills. (Formerly 3700:603)

POLIT:610 Seminar in International Politics (3 Credits)

Prerequisite: Admission to political science graduate program or permission. Analysis of current problems in theory and practice of politics and organization. (Formerly 3700:610)

POLIT:611 Seminar in War and Insurgency (3 Credits)

This course examines the issue of international conflict, war, and insurgency in international and domestic politics. (Formerly 3700:611)

POLIT:612 Seminar in Security Studies (3 Credits)

The aim of the course is to introduce graduate students to the study of national security politics and policy. (Formerly 3700:612)

POLIT:620 Seminar in Comparative Politics (3 Credits)

Prerequisite: Admission to political science graduate program or permission. Research selected topics in comparative politics. Comparative method. (Formerly 3700:620)

POLIT:622 Seminar in Alternatives to Violence at Home and Abroad (3 Credits)

Prerequisite: Admission to political science graduate program or permission. An interdisciplinary analysis of the nature of violence—from interpersonal to international—to enhance our capacity to reduce violence and other threats to liberty. (Formerly 3700:622)

POLIT:630 Seminar in National Politics (3 Credits)

Prerequisite: Admission to political science graduate program or permission. Reading and research on formulation, development and implementation of national policy in one or more areas of contemporary significance. (Formerly 3700:630)

POLIT:650 Seminar on Law, Punishment, & Politics: US & the World (3 Credits)

Prerequisite: Admission to political science graduate program or permission. Reading and research on the multiple and contingent interconnections between law, punishment, politics, and power. (Formerly 3700:650)

POLIT:655 Campaign and Election Law (3 Credits)

Prerequisite: Admission to political science graduate program or permission. Examines the legal environment for political campaigns. Topics include historical background, legal foundation, voting rights, filing requirements, campaign finance and political advertising (Formerly 3700:655)

POLIT:668 Seminar in Public Policy Agendas & Decisions (3 Credits)

Prerequisite: Admission to political science graduate program or permission. Reading and research on the development of public policy issues and modes of decision making used by policy makers. (Formerly 3700:668)

POLIT:672 Seminar: Political Influence & Organizations (3 Credits)

Prerequisite: Admission to political science graduate program or permission. Examination of how public concerns and demands are resolved or diffused. A theoretical and applied look at parties, interest groups, public opinion, media, and protest. (Formerly 3700:672)

POLIT:690 Special Topics in Political Science (1-3 Credits)

Prerequisite: Admission to political science graduate program or permission. Graduate-level examination of selected topics in American politics, comparative politics, international politics, international politics or political theory. (Formerly 3700:690)

POLIT:695 Internship in Government & Politics (3-6 Credits)

(May be repeated for a total of six credits.) Prerequisite: Admission to political science graduate program or permission. Supervised individual placement with political office holders, party groups, governmental agencies, law firms and other organizations providing professional-level work. (Formerly 3700:695)

POLIT:697 Independent Research & Readings (1-4 Credits)

(May be repeated, but no more than six credits toward the master's degree in political science) Prerequisite: Admission to political science graduate program or permission. (Formerly 3700:697)

POLIT:699 Master's Thesis (2-6 Credits)

Prerequisite: Admission to political science graduate program or permission. Master's Thesis. (Formerly 3700:699)

Applied Political Communication, Certificate

Applied political communication encompasses the interaction of political figures, political interests, governmental institutions, media, and the public in their efforts to persuade and influence political power and public policy outcomes. This certificate's interdisciplinary nature applies the fundamentals of public communication and political science to meet the specific needs and goals of political campaigns and advocacy organizations. Topics covered include campaign leadership strategies, audience analysis pertaining to specific publics, crisis communication, effective strategic messaging campaigns targeting publics through traditional communication channels, digital communication assets, and social media platforms. The certificate is designed for students seeking preparation for careers as legislative aides, political consultants, campaign managers, social media or digital strategists, political journalists, government press secretaries, lobbyists, or aides in public affairs organizations.

This certificate program is open to all students who have been admitted to graduate study at the University of Akron.

Program Contact (Political Science)

Dr. David Cohen
Professor, Political Science
330-972-6045
dbcohen@uakron.edu

Program Contact (Communication)

Dr. Julia Spiker
Professor, Communication
330-972-7198
jspiker@uakron.edu

Requirements

Students must complete 18 total credits consisting of core courses, elective courses, and internship credits.

Required Core Courses - 6 credits

Code	Title	Hours
POLIT:570	Fundamentals of Political Strategy	3
COMM:575	Political Communication	3

Required Internship - 3 credits

Code	Title	Hours
POLIT:695	Internship in Government & Politics	1-6
or COMM:680	Graduate Communication Internship	

Elective Courses - 9 credits

Code	Title	Hours
Political Science Courses (Minimum of 3 credits)		
POLIT:502	Politics and the Media	3
POLIT:527	Campaign Battleground	3
POLIT:540	Survey Research Methods	3
POLIT:571	Fundamentals of Electoral Messaging	3

POLIT:572	Campaign Finance, Fundraising, and Budgeting	3
POLIT:573	Voter Contact & Elections	3
POLIT:574	Political Opinion, Behavior & Electoral Politics	3
POLIT:575	American Interest Groups	3
POLIT:576	American Political Parties	3
POLIT:577	Government Relations and Lobbying	3
POLIT:578	Fundamentals of the Digital Campaign	3
POLIT:695	Internship in Government & Politics ¹	3-6

Communication Courses (Minimum of 3 credits)

COMM:506	Contemporary Public Relations	3
COMM:510	Crisis Communication	3
COMM:516	Social Media Content Creation	3
COMM:517	Social Media Platforms	3
COMM:531	Risk Communication	3
COMM:631	Analyzing Organizational Communication	3
COMM:540	Strategic Social Media	3
COMM:542	Social Media Metrics and Analytics	3
COMM:557	Public Speaking in America	3
COMM:559	Leadership and Communication	3
COMM:571	Theories of Rhetoric	3
COMM:680	Graduate Communication Internship ¹	1-6

¹ If taken instead of POLIT:695 or for additional credit beyond the three credits needed to fulfill the Required Internship.

Applied Politics, Certificate

The Ray C. Bliss Institute and the Department of Political Science have combined to offer a Certificate Program in Applied Politics for graduate students. The Certificate Program in Applied Politics offers course work in the history, organization, and management of campaigns intended to influence the outcome of political decisions. Working from a set of core courses, students are allowed to concentrate in the area of applied politics of greatest interest—campaigns, communications, lobbying, political parties, etc. Believing that democracy is best served by having active and informed citizens, the certificate is designed for all students, no matter what their degree program as long as they have an interest in practical politics.

Persons are eligible for admission to the Certificate Program in Applied Politics if they have been admitted to study as full-time students, special, or non-degree in any department of the University. Students who are pursuing a graduate degree in other departments at the University may be admitted to the Master's level certificate program upon the recommendation of the chair/director of the department/school in which they are enrolled. The student shall schedule courses with the assistance of an advisor at the earliest possible time.

Requirements

Students must complete 18 total credits consisting of core courses, elective courses, and internship credits.

Required Core Courses - 12 credits minimum selected from the following:

Code	Title	Hours
POLIT:570	Fundamentals of Political Strategy	3
POLIT:571	Fundamentals of Electoral Messaging	3

POLIT:572	Campaign Finance, Fundraising, and Budgeting	3
POLIT:573	Voter Contact & Elections	3
POLIT:578	Fundamentals of the Digital Campaign	3
POLIT:600	Scope & Theories of Political Science	3
POLIT:601	Research Methods in Political Science	3

Required Internship - 3 credits minimum

Code	Title	Hours
POLIT:695	Internship in Government & Politics	3-6

Elective Courses - 3 credits selected from the following (or above):

Code	Title	Hours
POLIT:502	Politics and the Media	3
POLIT:527	Campaign Battleground	3
POLIT:528	Ohio Politics	3
POLIT:540	Survey Research Methods	3
POLIT:563	Human Rights in World Politics	3
POLIT:574	Political Opinion, Behavior & Electoral Politics	3
POLIT:575	American Interest Groups	3
POLIT:576	American Political Parties	3
POLIT:577	Government Relations and Lobbying	3
POLIT:630	Seminar in National Politics	3
POLIT:655	Campaign and Election Law	3
POLIT:672	Seminar: Political Influence & Organizations	3
POLIT:695	Internship in Government & Politics (If students complete more than 3 credits of this course in fulfillment of their core requirements, the additional credit may be applied toward this elective category.)	3-6

Applied Politics, MAP

The Master of Applied Politics, in cooperation with the Ray C. Bliss Institute of Applied Politics, is one of the few programs in the United States focusing on practical politics. It is designed for students interested in working in the world of politics including activities to capture elective public office in partisan contests, influencing legislation, political organization, and public policy. Our modern curriculum produces graduates with real, tangible skills, who will be ready to make a mark in politics immediately. All courses are delivered live online (with an in-person component for those located in Northeast Ohio) and asynchronously online, thus allowing students to take classes and complete the program from anywhere in the world.

Admission Requirements

Admission is open to students who have completed a four-year undergraduate degree and who fulfill the admission requirements of the Graduate School. Three letters of recommendation (at least one from a faculty member) and a personal statement outlining the expected fit between the student's skills and objectives and the department's programs and resources are required. No specific field of undergraduate major is required for admission. The Graduate Record Examination (GRE) is not required. The program is designed to accommodate students taking course work on a full or part-time basis.

Applications are accepted on a rolling basis.

Degree Requirements

Students must complete a minimum of 30 credits of graduate work composed of core and elective courses, at least one internship, and a capstone presentation.

Code	Title	Hours
Required Core Courses - 24 credits		
POLIT:570	Fundamentals of Political Strategy	3
POLIT:571	Fundamentals of Electoral Messaging	3
POLIT:572	Campaign Finance, Fundraising, and Budgeting	3
POLIT:573	Voter Contact & Elections	3
POLIT:578	Fundamentals of the Digital Campaign	3
POLIT:600	Scope & Theories of Political Science	3
POLIT:601	Research Methods in Political Science	3
POLIT:695	Internship in Government & Politics	3-6

Code	Title	Hours
Elective Courses - Minimum of six credits selected from the following:		
POLIT:502	Politics and the Media	3
POLIT:527	Campaign Battleground	3
POLIT:528	Ohio Politics	3
POLIT:540	Survey Research Methods	3
POLIT:563	Human Rights in World Politics	3
POLIT:574	Political Opinion, Behavior & Electoral Politics	3
POLIT:575	American Interest Groups	3
POLIT:576	American Political Parties	3
POLIT:577	Government Relations and Lobbying	3
POLIT:630	Seminar in National Politics	3
POLIT:655	Campaign and Election Law	3
POLIT:672	Seminar: Political Influence & Organizations	3
POLIT:695	Internship in Government & Politics (If students complete more than 3 credits of this course in fulfillment of their core requirements, the additional credit may be applied toward this elective category.)	3-6

MAP Capstone Project

All students are required to construct a PowerPoint (or other visual presentation) and defend a capstone project which demonstrates knowledge and skills earned while in the MAP program. The capstone presentation can be completed using distance learning/remote technology if the student cannot be present on the UA campus.

Juris Doctor, J.D./Applied Politics, MAP

Admission Requirements

This joint J.D./Master of Applied Politics degree combines the two degrees while allowing students to complete requirements with fewer credits than taking the degrees separately. To be accepted into the program, a student must meet the admission requirements of the School of Law, the Graduate School, and the Department of Political Science.

Degree Requirements

Students must complete the following:

J.D. required courses - 44 credits

MAP required courses - 24 credits (18 credits core courses; 6 credits required electives)

Code	Title	Hours
Joint Law School/Political Science Course		
POLIT:655	Campaign and Election Law	3
or LAWX:655	Election Law	
J.D. Elective Courses		
Select at least three credits of the following:		3
LAWX:623	Administrative Law	
LAWX:642	Alternative Dispute Resolution	
LAWX:644	Supreme Court Seminar	
LAWX:645	Property	
LAWX:659	Negotiation	
LAWX:662	Law Firm Administration Seminar	
LAWX:664	Local Government Law	
LAWX:684	Seminar in Selected Legal Problems	
LAWX:698	Individual Studies & Research	
MAP Electives		
Select two from the following:		6
POLIT:502	Politics and the Media	
POLIT:540	Survey Research Methods	
POLIT:572	Campaign Finance, Fundraising, and Budgeting	
POLIT:574	Political Opinion, Behavior & Electoral Politics	
POLIT:577	Government Relations and Lobbying	
POLIT:620	Seminar in Comparative Politics	
POLIT:630	Seminar in National Politics	
POLIT:668	Seminar in Public Policy Agendas & Decisions	
POLIT:690	Special Topics in Political Science	
POLIT:695	Internship in Government & Politics	
COMM:575	Political Communication	
Total Hours		12

Prepare an applied politics portfolio containing:

- At least two major papers prepared for required courses.
- An applied politics capstone project assigned by the student's advisor.

Pass an oral defense of the applied politics portfolio.

Political Science, MA

Political Science, MA

Admission Requirements

Admission is open to students who have completed a four-year undergraduate degree with a minimum cumulative grade point average of 3.0 and who fulfill the admission requirements of the Graduate School. Three letters of recommendation (at least two from a faculty member who has worked with the student in the past two years, if applicable) and a personal statement outlining the expected fit between the student's

skills and objectives and the department's programs and resources are required.

Applications are accepted on a rolling basis.

The Master of Arts in Political Science allows students to focus their study in one of four concentrations: American Politics, Criminal Justice, Security Studies, or International Politics.

Students may also work toward certificates in Applied Politics in conjunction with their graduate studies in Political Science.

Political Science - Security Studies Track

Admission Requirements

Admission is open to students who have completed a four-year undergraduate degree with a minimum cumulative grade point average of 3.0 and who fulfill the admission requirements of the Graduate School. Three letters of recommendation (at least two from a faculty member who has worked with the student in the past two years, if applicable) and a personal statement outlining the expected fit between the student's skills and objectives and the department's programs and resources are required.

Applications are accepted on a rolling basis.

The Master of Arts in Political Science allows students to focus their study in one of four concentrations: American Politics, Criminal Justice, Security Studies, or International Politics.

Students may also work toward certificates in Applied Politics in conjunction with their graduate studies in Political Science.

Degree Requirements

Complete 30 credits of graduate work, including 24 credits at the 600 level, as follows

Code	Title	Hours
POLIT:600	Scope & Theories of Political Science	3
POLIT:601	Research Methods in Political Science	3
POLIT:603	Scholarly Writing & Professional Development in Political Science	3
Select two additional departmental seminars (neither Independent Study nor Internship credit counts as a graduate seminar)		6
Select two track-required seminars depending on the track chosen		6
Select nine additional graduate Political Science credits (500 or 600 level)		9
Total Hours		30

Pass a comprehensive written examination covering one concentration: American Politics, Criminal Justice, or International Politics.

Complete the following writing requirement:

- An Essay of Distinction is a single, article-length, scholarly research paper. This writing requirement will encourage our students to learn how to participate in the debates central to our discipline and complete the program with a superb writing sample that can serve as a foundation for continued graduate work, a conference presentation, a published article, or a deliverable policy analysis.

To complete an Essay of Distinction, students are also required to orally defend their paper to their Faculty Advisory Committee (FAC). All FAC members must approve the topic and pass the paper and oral defense.

Political Science - Security Studies Track Degree Requirements

Complete 30 credits of graduate work as follows

Code	Title	Hours
Department Required Courses		
POLIT:600	Scope & Theories of Political Science	3
POLIT:601	Research Methods in Political Science	3
POLIT:603	Scholarly Writing & Professional Development in Political Science	3
Track Required Seminars		
POLIT:610	Seminar in International Politics	3
POLIT:612	Seminar in Security Studies	3
Electives		
Select 15 credits of the following:		15
GEOG:505	Geographic Information Systems	
POLIT:500	Political Extremism & Violence	
POLIT:510	International Security Policy	
POLIT:513	Global Public Health Threats	
POLIT:514	Wealth and Power Among Nations	
POLIT:545	Al Qaeda and ISIS	
POLIT:546	National Security Intelligence	
POLIT:563	Human Rights in World Politics	
POLIT:611	Seminar in War and Insurgency	
POLIT:620	Seminar in Comparative Politics	
POLIT:622	Seminar in Alternatives to Violence at Home and Abroad	
POLIT:630	Seminar in National Politics	
PAUS:543	Introduction to Public Policy	
PAUS:573	Computer Applications in Public Organizations	
Total Hours		30

Complete an Essay of Distinction

Pass a Comprehensive Examination

Psychology

- Psychology, MA (p. 71)
- Psychology, PhD (p. 72)

Psychology (PSYC)

PSYC:500 Personality (4 Credits)

Prerequisite: Admission to the Graduate School. Consideration of current conceptualizations of the normal personality with emphasis on methods of measurement, experimental findings and research techniques. (Formerly 3750:500)

PSYC:510 Psychological Tests & Measurements (4 Credits)

Prerequisite: Admission to the Graduate School. Consideration of the nature, construction and use of tests and measurements in industry, government and education. Includes aptitude and achievement tests, rating scales, attitude and opinion analysis. (Formerly 3750:510)

PSYC:520 Abnormal Psychology (4 Credits)

Prerequisite: Admission to the Graduate School. Survey of syndromes, etiology, diagnoses and treatments of major psychological conditions ranging from transient maladjustments to psychoses. (Formerly 3750:520)

PSYC:530 Psychological Disorders of Children (4 Credits)

Prerequisite: Admission to the Graduate School. Survey of syndromes, etiologies and treatments of behavioral disorders in children from the standpoint of developmental psychology. Behavioral data and treatment approaches emphasized. (Formerly 3750:530)

PSYC:543 Human Resource Management (4 Credits)

Prerequisite: Admission to the Graduate School. The application of psychological theory to the effective management of human resources in an organization, including recruitment, selection, and retention of personnel. (Formerly 3750:543)

PSYC:544 Organizational Theory (4 Credits)

Prerequisite: Admission to the Graduate School. The application of psychological theory to macro-level processes in organizations including leadership, motivation, task performance, organizational theories and development. (Formerly 3750:544)

PSYC:545 Psychology of Small Group Behavior (4 Credits)

Prerequisite: Admission to the Graduate School. Intensive investigation of factors affecting behavior and performance in small groups including effects of personality, social structures, task, situation and social-cognitive variables. (Formerly 3750:545)

PSYC:550 Cognitive Development (4 Credits)

Prerequisite: Admission to the Graduate School. Theory and research on life-span changes in cognitive processes including concept formation/categorization, information processing and Piagetian assessment tasks. (Formerly 3750:550)

PSYC:560 History of Psychology (3 Credits)

Prerequisite: Admission to the Graduate School. Psychology in pre-scientific period and details of developmental or systematic viewpoints in 19th and 20th Centuries. (Formerly 3750:560)

PSYC:601 Psychological Research using Quantitative & Computer Methods I (4 Credits)

Sequential prerequisite: Graduate standing in psychology or the collaborative doctoral program in counseling psychology or special nondegree students with permission. Psychological research problem applying quantitative and computer methods. Topics include research design, sampling, controls, threats to validity, hypotheses testing, psychological measurement, error, robustness and power. (Formerly 3750:601)

PSYC:602 Psychological Research using Quantitative & Computer Methods II (4 Credits)

Sequential. Prerequisite: Graduate standing in psychology or the collaborative doctoral program in counseling psychology or special nondegree students with permission. Psychological research problem applying quantitative and computer methods. Topics include research design, sampling, controls, threats to validity, hypotheses testing, psychological measurement, error, robustness and power. (Formerly 3750:602)

PSYC:610 Core I: Social Psychology (2 Credits)

Prerequisite: Graduate standing in psychology or the collaborative doctoral program in counseling psychology or permission of instructor. Introduction to empirical research and theories on the psychological processes related to interpersonal behavior, focusing on topics like attitude change, social influence, and prosocial behavior. (Formerly 3750:610)

PSYC:620 Core II: Cognitive Psychology (2 Credits)

Prerequisite: graduate standing in psychology or the collaborative doctoral program in counseling psychology or permission of instructor. Survey of theories, concepts, empirical phenomena, and methodologies in human cognitive psychology. Topics include attention, cognitive capacity, learning, memory, categorization, skill acquisition/expertise, and training effectiveness. (Formerly 3750:620)

PSYC:630 Core III: Individual Differences (2 Credits)

Prerequisite: Graduate standing in psychology or the collaborative doctoral program in counseling psychology or permission of instructor. Survey of theoretical perspectives on individual differences in personality and behavior and of literature on between- and within-group cultural variables influencing personality development and assessment. (Formerly 3750:630)

PSYC:640 Core IV: Biopsychology (2 Credits)

Prerequisite: Graduate standing in psychology or the collaborative doctoral program in counseling psychology or permission of instructor. Survey of nervous system structure/function including neuroanatomy, neuron physiology, and synaptic transmission. Also overviews biological bases of learning, memory, consciousness, intelligence, psychopharmacology, behavior genetics. (Formerly 3750:640)

PSYC:650 Core V: Social-Cognitive Psychology (2 Credits)

Prerequisite: graduate standing in psychology or the collaborative doctoral program in counseling psychology or permission of instructor. Social and cognitive theory/research applied to the issue of how people understand their social experiences. Topics include: person perception, attribution, social categorization, social inference. (Formerly 3750:650)

PSYC:660 Science and Ethics of Industrial Psychology (4 Credits)

Survey of Industrial Psychology including coverage of selection and performance management. Also, discusses professional and scientific guidelines regarding the ethics of Industrial Psychology. (Formerly 3750:660)

PSYC:672 Counseling Practicum (4 Credits)

Prerequisites: Graduate standing in psychology and permission of instructor. Introduction to and development of therapeutic skills and intervention techniques via instruction, role play exercises, and case conference evaluations of actual clinical work samples. (May be repeated for a total of 8 credits.) Credit/Noncredit. (Formerly 3750:672)

PSYC:673 Counseling Practicum Lab (4 Credits)

Prerequisites: Graduate standing in psychology and instructor's permission. Corequisite: PSYC 672. Application of therapeutic skills and intervention techniques to work with clients in the Psychology Department Counseling Clinic, including small group supervision of clinical work. (May be repeated for a total of 8 credits.) Credit/Noncredit. (Formerly 3750:673)

PSYC:674 Personnel Practicum (1-4 Credits)

(May be repeated.) Prerequisites: PSYC 660, graduate standing in psychology, 14 credits of graduate psychology, and permission of the instructor. Supervised field experience in industrial/organizational psychology in settings including business, government or social organizations. The field experience requires the application of industrial/organizational psychological theories and techniques. Credit/Noncredit. (Formerly 3750:674)

PSYC:675 Applied Cognitive Aging Practicum (1-4 Credits)

(May be repeated.) Prerequisites: PSYC 727, graduate standing in psychology, 14 credits of graduate psychology and permission of the instructor. Supervised field experience in applied cognitive aging psychology to provide the student with the opportunity to apply skills and knowledge acquired in the academic setting and to obtain knowledge about community programs and agencies which focus on developmental processes. Credit/Noncredit. (Formerly 3750:675)

PSYC:680 External Special Topics (1-4 Credits)

(May be repeated for a maximum of 16 credits.) Prerequisite: permission of area chair. Graduate coursework taken at Kent State, Youngstown State, and/or Cleveland State universities to apply toward a UA degree either as a required or an elective course. (Formerly 3750:680)

PSYC:699 Master's Thesis (1-4 Credits)

(May be repeated.) Prerequisite: Permission of the instructor. Research analysis of data and preparation of thesis for master's degree. (Formerly 3750:699)

PSYC:700 Survey of Projective Techniques (4 Credits)

Prerequisite: PSYC 630. Introduction to rationale, assumptions and ethics, and research of projective testing. Elementary administration, scoring and interpretation of Rorschach; and survey of other important contemporary projective instruments. (Formerly 3750:700)

PSYC:701 Psychodiagnostics (4 Credits)

Prerequisite: PSYC 700. Application of psychological testing to problems of diagnosis and evaluation. Practical experience in administration, scoring and interpretation. Integration of projective data with other assessment techniques in variety of settings. (Formerly 3750:701)

PSYC:707 Supervision in Counseling Psychology I (4 Credits)

Prerequisite: Doctoral standing or permission of instructor. Instruction and experience in supervising a graduate student in counseling. (Formerly 3750:707)

PSYC:709 Introduction to Counseling Psychology (2 Credits)

Prerequisite: Graduate standing in the Collaborative Program in Counseling Psychology. Introduction to historical foundations of and recent developments in counseling psychology, with an emphasis on contemporary research literature in the field. (Formerly 3750:709)

PSYC:710 Theories of Counseling & Psychotherapy (4 Credits)

Prerequisite: PSYC 630. Major systems of individual psychotherapy explored within a philosophy of science framework: Freudian, behavioral, Rogerian, cognitive, and other. Includes research, contemporary problems and ethics. (Formerly 3750:710)

PSYC:711 Vocational Behavior (4 Credits)

Prerequisite: PSYC 630. Theories and research on vocational behavior and vocational counseling. Topics include major theories of vocational behavior, empirical research on these theories, applied work in vocational counseling and applied research. (Formerly 3750:711)

PSYC:712 Principles & Practice of Individual Intelligence Testing (4 Credits)

Prerequisite: PSYC 630 or graduate standing in school psychology, and instructor's permission. History, principles and methodology of intelligence testing, supervised practice in administration, scoring and interpretation of individual intelligence tests for children and adults. (Formerly 3750:712)

PSYC:713 Professional, Ethical & Legal Issues in Counseling Psychology (4 Credits)

Prerequisite: Doctoral standing or permission of the instructor. Examination of major issues in the field such as the counselor as a professional and as a person, and issues, problems and trends in counseling. (Formerly 3750:713)

PSYC:714 Objective Personality Evaluation (4 Credits)

Prerequisites: [PSYC 630 or PSYC 500], PSYC 520, and COUN 645. Study of the development, administration, and interpretation of objective instruments for personality assessment (MMPI, CPI, MBTI, 16PF and selected additional inventories). (Formerly 3750:714)

PSYC:715 Research Design in Counseling I (3 Credits)

Prerequisite: Doctoral standing or permission of the instructor. Study of research designs, evaluation procedures, and review of current research. (Formerly 3750:715)

PSYC:717 Issues of Diversity in Counseling Psychology (4 Credits)

Prerequisites: PSYC 630; one semester of practicum work. Critical examination and application of research and theory in counseling diverse populations, focusing on race/ethnicity, sex/gender, sexual orientation, age, disability, and spirituality. (Formerly 3750:717)

PSYC:718 History & Systems in Psychology (2 Credits)

Prerequisite: PSYC 630. Philosophical and scientific antecedents of psychology and details of the development of systematic viewpoints in the 19th and 20th centuries. (Formerly 3750:718)

PSYC:727 Psychology of Adulthood & Aging (4 Credits)

Prerequisite: Graduate standing in psychology or in the collaborative program in counseling psychology, or permission of the instructor. Aspects of development, aging with emphasis on life-span methodology and research design. Age-related changes in intelligence, personality, sensation, perception, learning, memory, socialization, and intervention approaches. (Formerly 3750:727)

PSYC:728 Social and Emotional Development Across the Lifespan (4 Credits)

Prerequisites: Graduate standing in psychology or permission of the instructor. An advanced course that introduces students to current theoretical perspectives and empirical findings regarding social and emotional development in adulthood. (Formerly 3750:728)

PSYC:729 Brain and Behavior in Adulthood (4 Credits)

Prerequisite: Permission of the department. This course focuses on principles of psychological and neuropsychological assessment in adulthood and later life including the assessment of memory processes, attention, executive functioning, language processes, and intelligence. (Formerly 3750:729)

PSYC:730 Health Psychology in Later Life (4 Credits)

Prerequisite: Permission of department. This course will introduce you to the theoretical and methodological issues of Health Psychology in Later Life, as well as allow for discussion of important psychological phenomena relating to the study and understanding of health-related issues within the framework of lifespan development and aging. (Formerly 3750:730)

PSYC:731 Sensorimotor Processes in Adulthood (4 Credits)

Prerequisite: Permission of department. Overview of theory, methods, and data on sensory and motor processes and how aging affects these phenomena. (Formerly 3750:731)

PSYC:732 Cognitive Aging (4 Credits)

Prerequisite: Permission of department. Survey of selected topics in cognitive aging including memory, problem-solving, decision-making, and expertise. (Formerly 3750:732)

PSYC:733 Mental Health and Aging (4 Credits)

Prerequisite: Permission of department. This course will introduce you to the theoretical and methodological issues of Mental Health and Aging as well as allow for discussion of important psychological phenomena relating to the study and understanding of mental health related issues within the framework of lifespan development and aging. (Formerly 3750:733)

PSYC:734 Diversity Across the Lifespan (4 Credits)

Prerequisite: Permission of department. The purpose of this course is to understand the diversity of aging. Although the broad framework for the course is lifespan development, there will be a strong emphasis on more specific identities in which older adults belong and the ways in which those identities impact aging. The main objective of this course is for the student to not only value the study of diversity, but to be able to incorporate diversity into his/her own research. (Formerly 3750:734)

PSYC:736 Psychopharmacology & Adulthood (4 Credits)

Prerequisite: PSYC 640. Psychopharmacology addresses a diverse range of drugs that act in the brain. Drug mechanisms are discussed in the context of emotional, cognitive, and behavioral effects. (Formerly 3750:736)

PSYC:740 Industrial Gerontology (4 Credits)

Prerequisites: PSYC 660, graduate standing in psychology, or permission of instructor. Study of age-related issues in work involving adult and older adult workers. Topics include personnel selection, training, motivating and appraising older employees; health and safety; job design, vocational guidance; and retirement. (Formerly 3750:740)

PSYC:750 Advanced Psychological Tests & Measurements (2 Credits)

Prerequisites: Graduate standing in psychology or in the collaborative program in counseling psychology, or permission of the instructor. Analysis of test construction techniques. Statistical analyses of tests with review of published tests and measurements used in psychology. Study of psychometric theory and principles. (Formerly 3750:750)

PSYC:751 Organizational Psychology (4 Credits)

Prerequisites: PSYC 660, graduate standing in psychology, or permission of the instructor. Applies the general systems theory framework to the study of the relationships between organizational characteristics and human behavior, the internal processes of organizations, and the relationships between organizations and their environment. (Formerly 3750:751)

PSYC:752 Personnel Selection and Advanced Applied Testing Issues (4 Credits)

Review of strategies employed by industrial/organizational psychologists for personnel selection, placement and promotion. Includes discussion of advanced testing issues. (Formerly 3750:752)

PSYC:753 Training (2 Credits)

Prerequisites: PSYC 660, graduate standing in psychology, or permission of the instructor. Review of industrial training methods and programs in terms of various theoretical orientations, as well as consideration of techniques to evaluate these programs. (Formerly 3750:753)

PSYC:754 Research Methods in Psychology (2-4 Credits)

Prerequisites: PSYC 660, graduate standing in psychology or permission of instructor. Scientific method and its specific application to psychology. Topics include data collection, validity, reliability, use of general linear model and its alternatives and power analysis. (Formerly 3750:754)

PSYC:755 Computer Applications in Psychological Research (4 Credits)

Prerequisite: Graduate standing in psychology or permission of instructor. Practicum in application of computers to psychological research including data collection, analysis and interpretation. Also covers computer simulation of decision making including use of different models. (Formerly 3750:755)

PSYC:756 Role of Attitudes & Values in Industrial/Organizational Psychology (4 Credits)

Prerequisites: PSYC 660, graduate standing in psychology, or permission of the instructor. Consideration of the role of attitudes and values in the prediction of behavior including consumer psychology, explaining attitude changes, measurement of attitudes and the use of survey methodology. (Formerly 3750:756)

PSYC:757 Organizational Motivation & Leadership (4 Credits)

Prerequisites: PSYC 660, graduate standing in psychology, or permission of instructor. Survey of theories of motivation specifying both the intrinsic and extrinsic determinants of worker motivation. The leadership process and its relation to motivation, group performance and attributions are also analyzed. (Formerly 3750:757)

PSYC:759 Job Evaluation & Equal Pay (4 Credits)

Prerequisite: PSYC 660. Major job evaluation systems will be reviewed and critiqued. Issues such as minimum qualifications for a job will be reviewed. Advantages and disadvantages of various job evaluation systems will be compared. Issues concerning federal regulation including the Equal Pay Act, comparable worth and other issues will be discussed. Regression approaches to job evaluation and applicable court cases will be reviewed. (Formerly 3750:759)

PSYC:760 Organizational Change & Transformation (4 Credits)

Prerequisites: PSYC 660 or permission of instructor. Survey of theories and introduction to practical methods of organizational change and transformation used to increase organizational effectiveness and improve employee quality of work life. (Formerly 3750:760)

PSYC:761 Information Processing & Industrial/Organizational Psychology (4 Credits)

Prerequisite: PSYC 660. Coverage of current theories in cognitive psychology is applied to traditional concerns of industrial/organizational psychology such as performance appraisal or motivation. (Formerly 3750:761)

PSYC:762 Personnel Psychology & the Law (4 Credits)

Prerequisite: PSYC 660. Issues in personnel psychology which have legal implications are reviewed. The impact of recent court decisions are evaluated in staffing and compensation. (Formerly 3750:762)

PSYC:763 Performance Feedback and Evaluation (4 Credits)

Prerequisites: PSYC 660, graduate standing in psychology, or permission of instructor. Examines current research and practice in the area of performance appraisal. Topics will include: criterion development, rater training, appraisal effectiveness, feedback processes, and performance measurement. (Formerly 3750:763)

PSYC:764 Cognitive Assessment (2 Credits)

Prerequisite: PSYC 750 and enrollment in the Collaborative Program in Counseling Psychology. History, principles and methodology of cognitive assessment, supervised practice in administration, scoring and interpretation of individual intelligence tests for children and adults. (Formerly 3750:764)

PSYC:765 Objective Personality Assessment (2 Credits)

Prerequisites: PSYC 750 and student must be enrolled in Collaborative Program in Counseling Psychology. Study of the development, administration, and interpretation of objective measures of personality assessment (MMPI, PAI and selected additional inventories). (Formerly 3750:765)

PSYC:766 Applications of Assessment (2 Credits)

Prerequisites: PSYC 764 and PSYC 765. Student must be enrolled in the Collaborative Program in Counseling Psychology. Corequisite: PSYC 777. Study of integrative report writing and other applications of assessment. (Formerly 3750:766)

PSYC:777 Psychopathology (4 Credits)

Prerequisites: PSYC 709, PSYC 630, and PSYC 713. This course sets out to understand mental conditions in terms of their historic roots and current nomenclature used to identify, diagnose, and treat psychopathology ranging from transient maladjustments to severe psychoses. (Formerly 3750:777)

PSYC:780 Graduate Seminar in Psychology (1-4 Credits)

(May be repeated.) Prerequisites: Graduate standing in psychology and permission of the instructor. Special topics in psychology. (Formerly 3750:780)

PSYC:795 Advanced Counseling Practicum (4 Credits)

(May be repeated.) Prerequisites: 3750:671, PSYC 672, PSYC 673 and permission of instructor. This course provides graduate students in counseling with actual client contacts and supervisory experiences under faculty supervision. Credit/Noncredit. (Formerly 3750:795)

PSYC:796 Counseling Psychology Practicum (4 Credits)

(May be repeated.) Prerequisite: PSYC 795 (eight hours) or COUN 675 (five hours). Advanced counseling psychology students will have supervised training with clients in a variety of settings and will focus on supervised development of specialized theoretical applications. Credit/Noncredit. (Formerly 3750:796)

PSYC:797 Independent Reading and/or Research: Psychology (1-3 Credits)

(May be repeated.) Prerequisite: Permission of the instructor. Individual readings and/or research on a topic under supervision of faculty member with whom specific arrangements have been made. (Formerly 3750:797)

PSYC:899 Doctoral Dissertation (1-12 Credits)

Prerequisite: Open to properly qualified students. Required minimum 12 credits; maximum subject to departmental approval. Supervised research on topic deemed suitable by the dissertation committee. (Formerly 3750:899)

Psychology, MA

Industrial/Organizational (Nonthesis)

Admission Requirements

Fulfill admission requirements of the Graduate School and the following departmental requirements:

- submission of official transcripts
- psychology major, or minimally, the equivalent of psychology undergraduate minor including a general or introductory course, statistics course, and experimental psychology course;
- GPA of 3.00 in psychology courses;
- Graduate Record Examination General Test;
- three letters of recommendation;
- personal statement of professional goals and reasons for choosing the field of Industrial/Organizational Psychology
- resume.

Application materials must be received by December 15.

Degree Requirements

Course Requirements

Completion of graduate psychology courses, including the M.A. core courses or equivalents, specialty area required courses, and electives as specified in the department's graduate student manual.

A student is required to maintain at least a 3.0 grade-point average in M.A. content courses as well as overall.

Other Requirements

Refer to the Department of Psychology Graduate Student Manual for additional guidelines.

Complete and fulfill general master's degree requirements of the Graduate School.

Completion of coursework, practicum and examinations (no thesis required), with a minimum of 41 credits of graduate work.

Psychology, PhD

Doctor of Philosophy in Psychology

The Department of Psychology offers a doctoral degree in psychology with specialization in either Industrial/Organizational Psychology, Counseling Psychology, or Adult Development and Aging.

Industrial Organizational Psychology

The I/O Psychology graduate program at The University of Akron is one of the highest rated and most respected programs in the nation.

Whether this evaluation is based on research productivity (Beiler, Doerr, Zimmerman & Clark, 2014; Oliver, Blair, Gohrman, & Woehr, 2005), reputational ratings (U.S. News and World Reports, 2005), attraction of high-caliber students, or the placement of our graduates, the University of Akron's program is consistently rated one of the top 10 I/O graduate programs in the nation.

The scientist-practitioner model allows graduate students to pursue a wide range of career and research options. Due to the emphasis on I/O coursework, students graduate with a strong background in all areas of I/O Psychology.

- Fulfill admission requirements of the Graduate School and department requirements as follows:
 - submission of official transcripts
 - completion of Graduate Record Examination General Test;

- securing of three letters of recommendation from persons familiar with applicant's academic work;
- submission of a brief personal statement of professional goals and reasons for choosing the field of Industrial/Organizational Psychology;
- submission of a vita outlining educational and professional experiences.

Application materials must be received by December 15.

- Major field:
 - a minimum of 90 graduate credits including a 30-credit master's program. A student may be required to complete additional credits beyond the 90 minimum credit requirement.
- Written comprehensive examinations:
 - satisfactory performance on doctoral written and oral comprehensive examinations in the student's major area of industrial/organizational psychology (refer to the department's Graduate Student Manual).
- Dissertation research:
 - completion of PSYC:899 Doctoral Dissertation; (minimum 12 credits);
 - satisfactory performance on final examination and defense of dissertation research.
- Other requirements:
 - refer to the department's programs or graduate student manual for other requirements or guidelines;
 - complete and fulfill general doctoral degree requirements of the Graduate School.

Counseling Psychology

The University of Akron offers a doctoral program in Counseling Psychology through the Department of Psychology in the Buchtel College of Arts and Sciences which is accredited by the American Psychological Association <http://www.apa.org/ed/accreditation/programs/index.aspx> (<http://www.apa.org/ed/accreditation/programs/>). Currently, students can enter the program with a bachelor's degree or with a master's degree in counseling (or a closely related field). Students are expected to attain a level of broad scientific competence in the core areas of psychology; the biological, social, cognitive-affective, and individual bases of human behavior. Practicum and internship experiences are required of all students and range from skill building in basic psychological assessment and psychotherapy, to actual work with clients, to a year-long, full-time internship in an applied service setting. Pertinent information regarding the emphasis, orientation, and coursework is provided below.

The Department of Psychology's Counseling Psychology program emphasizes the scientist-practitioner model of training. Beyond the basic core areas of psychology, students are expected to establish specific competencies in the theory, research, and practice of the specialty of Counseling Psychology. The program educates culturally competent, ethically reflective scientist-practitioners who are well-prepared generalists able to conduct research, plus provide preventative and clinical interventions. Academic preparation includes theories of psychotherapy, supervision, psychopathology, prevention, diversity issues in counseling psychology, vocational psychology, testing theory and practice, research and statistics, and ethical and professional issues. Research and publication are greatly encouraged. Graduates typically seek out academic teaching, research and training positions, as well as positions in counseling centers and other mental health agencies.

Students must fulfill both Departmental and Graduate School admission requirements. The following application materials must be submitted by the December 1 application deadline:

- Graduate School application.
- Official transcripts of all undergraduate and graduate (if applicable) coursework from each institution attended.
- Official reports of the GRE General Test.
- Brief statement of professional goals and reasons for choosing the field of counseling psychology and The University of Akron.
- Minimum of three letters of recommendation attesting to success in the field and probable academic success at the doctoral level.
- Resume/Vita.

Psychology of the Adult Development and Aging Program

The psychology departments at The University of Akron and Cleveland State University (<https://www.csuohio.edu/sciences/adult-development-aging/adult-development-aging/>) offer a joint doctoral program in the Psychology of Adult Development and Aging. Our unique program is one of only a handful of Adult Development and Aging doctoral programs in the country, and the only one in the state of Ohio.

By the end of doctoral training, our students are well-prepared to work in a number of roles including research, teaching, and applied settings.

Research Training

Given the dramatic shifts in global demographics toward an increasingly older society, the need for expert researchers in adult development and aging is at an all-time high. Our students are trained by experienced, full-time faculty using a mentor model. Each student works with his or her mentor to develop and carry out research projects of mutual interest. The faculty mentor serves as an expert guide, providing frequent, casual, and structured supervision to students as they gain research design and analysis skills. Students submit completed projects for presentation at regional and national conferences and for publication in peer-reviewed journals. Students are also encouraged to collaborate with other faculty and students on additional projects of interest.

Teaching Training

Students admitted through University of Akron receive formal training on best practices in teaching undergraduate students in a seminar provided in the summer prior to their first year. In addition, students continue to receive support, guidance, and supervision in hands-on teaching opportunities.

Curriculum

Students admitted to the program are required to take approximately equal amounts of coursework at each institution. The coursework covers the areas of research methods/design, foundation courses in adult biobehavioral functioning, adult psychosocial functioning, and advanced research seminars (e.g., cognitive functioning, advanced statistics).

Fulfill admission requirements of the Graduate School and department requirements as follows:

- submission of official transcripts
- completion of Graduate Record Examination General Test;
- securing of three letters of recommendation from persons familiar with applicant's academic work;
- submission of a brief personal statement of professional goals and reasons for choosing the field of Adult Development and Aging;

- submission of a vita outlining educational and professional experiences.

Application materials must be received by January 15.

Requirements

Industrial Organizational Psychology

Electives and sequencing of classes are to be planned along with the student's advisor.

- Psychology core courses
- Counseling psychology core courses
- Practicum sequence
- Statistics
- Thesis credits (for those entering with a bachelor's degree)
- Dissertation credits

A thesis waiver project completed as specified in the Graduate Student Manual of the Department of Psychology for students entering with a bachelor's degree.

The written and oral comprehensive examinations are prepared, administered, and graded by program faculty.

Dissertation – independent research project conducted under the supervision of dissertation chair and faculty committee.

Internship – a full-time APA accredited pre-doctoral internship over no more than two years.

Students must maintain a 3.50 GPA in their content courses to remain in good standing.

Counseling Psychology

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Adult Development and Aging Required Courses

Code	Title	Hours
PSYC:601	Psychological Research using Quantitative & Computer Methods I	4
PSYC:602	Psychological Research using Quantitative & Computer Methods II	4
PSYC:727	Psychology of Adulthood & Aging	4
PSYC:728	Social and Emotional Development Across the Lifespan	4
PSYC:729	Brain and Behavior in Adulthood	4
PSYC:730	Health Psychology in Later Life	4
PSYC:732	Cognitive Aging	4
PSYC:733	Mental Health and Aging	4
PSYC:780	Graduate Seminar in Psychology (Teaching of Psychology)	3
PSYC:699	Master's Thesis	1
PSYC:899	Doctoral Dissertation	12
<i>Complete 30 credits Reading/Research:</i>		30
PSYC:797	Independent Reading and/or Research: Psychology	
Total Hours		78

Electives

Code	Title	Hours
Choose one of the following:		
PSYC:731	Sensorimotor Processes in Adulthood	4
PSYC:734	Diversity Across the Lifespan	4
Total Hours		4

Language Requirements

Code	Title	Hours
PSYC:754	Research Methods in Psychology	4
PSYC:780	Graduate Seminar in Psychology (Multivariate & Computer Methods in Psych)	4
Total Hours		8

Public Administration & Urban Studies

Admissions to graduate programs in the Department of Public Administration and Urban Studies are currently suspended

- Juris Doctor, J.D./Public Administration, MPA (p. 77)
- Public Administration and Urban Studies, Certificate (p. 78)
- Public Administration, EMPA (p. 80)
- Public Administration, MPA (p. 80)

Public Administration & Urban Studies (PAUS)

PAUS:512 National Urban Policy (3 Credits)

Prerequisite: Permission. Examines major federal policies that relate to urban problems in regard to policy-making processes, implementation and impact on local governments. (Formerly 3980:512)

PAUS:516 Personnel Management in the Public Sector (3 Credits)

Fundamental issues and principles of public sector personnel administration, including recruitment, selection, training, motivation, supervision, evaluation, labor relations and affirmative action. (Formerly 3980:516)

PAUS:517 Leadership and Decision-Making (3 Credits)

Examines the context of public organizational management including relevant organizational theories, strategic management and planning and public sector leadership. (Formerly 3980:517)

PAUS:518 Citizen Participation (3 Credits)

This course considers the fundamental theory, background, techniques, and issues of citizen participation in urban management and policy-making. (Formerly 3980:518)

PAUS:519 Community Organizing (3 Credits)

The course examines the evolution and influence of neighborhood, community and "grass-roots" organizations on public policy-making in urban areas. (Formerly 3980:519)

PAUS:526 Grantsmanship (3 Credits)

Students will gain knowledge of the grant-seeking and awarding processes. Emphasis is on public funding opportunities and public organizations in the States. (Formerly 3980:526)

PAUS:527 Cultural Competence In the Public Sector (3 Credits)

Considers how public and non-profit managers can effectively communicate and provide services to culturally diverse individuals. Addresses management issues related to social stratification system. (Formerly 3980:527)

PAUS:543 Introduction to Public Policy (3 Credits)

Considers how public managers need to understand models of public policy formulation. Covers major policy issues and the analysis of policy implementation and policy impacts. (Formerly 3980:543)

PAUS:551 Introduction to City Management (3 Credits)

Prerequisite: PAUS 611. This course examines the historical role of city management in professionalizing local government operations; examines current responsibilities and trends in the practice of city management and leadership. (Formerly 3980:551)

PAUS:562 Fundraising & Resource Management (3 Credits)

Prerequisite: PAUS 563. Examines alternative methods of fundraising and unique resource management challenges and opportunities of non-profit organizations. (Formerly 3980:562)

PAUS:563 Non-Profit Management (3 Credits)

Presents a broad understanding of the operating environment, unique concerns of leadership, resource development, aspects of volunteerism, and management processes in non-profit organizations. (Formerly 3980:563)

PAUS:573 Computer Applications in Public Organizations (3 Credits)

Introduces microcomputer applications used in public organizations and includes data bases, data entry, web pages, report writing, graphical representation and spreadsheets. (Formerly 3980:573)

PAUS:590 Workshop in Urban Studies (1-3 Credits)

Prerequisite: Permission. (May be repeated for a maximum of six credits) Group studies of special topics in urban studies and public administration. May not be used to meet core graduate requirements. May be used for elective credit only. (Formerly 3980:590)

PAUS:600 Basic Quantitative Research (3 Credits)

Prerequisite: Permission. Examines basic framework of social science research methodologies and basic complementary statistical techniques, including probability and sampling. (Formerly 3980:600)

PAUS:601 Advanced Research & Statistical Methods (3 Credits)

Prerequisite: PAUS 600. Extends study of social science to include more advanced research designs and multivariate statistical techniques. (Formerly 3980:601)

PAUS:602 History of Urban Development (3 Credits)

Examination of major literature on processes of urbanization in United States and selected facets of urban institutional development. (Formerly 3980:602)

PAUS:605 Orientation to the Master of Public Administration (0 Credits)

Prerequisite: Admission to the MPA program. Corequisite: Take during the first semester in the MPA program. This orientation to the MPA program provides information and strategies for new students regarding classes, advising and career opportunities. (Formerly 3980:605)

PAUS:606 Foundations of Urban Public Administration and Policy (3 Credits)

Introduces theory and principles of public administration and policy. Considers local government management practices, along with policy issues and problems arising in urban settings. (Formerly 3980:606)

PAUS:609 Health Behavior: Theory and Application (3 Credits)

Prerequisite: Graduate standing/status. This course provides an overview of behavior change theories at the individual, interpersonal and community levels with an emphasis on application in health policy decision-making. (Formerly 3980:609)

PAUS:610 Legal Foundations of Public Administration (3 Credits)

Prerequisite: Permission. Introduction to the legal foundations and context of public administration, including the interaction of the course, public organizations, public administration and the public. (Formerly 3980:610)

PAUS:611 Introduction to the Profession of Public Administration (3 Credits)

Prerequisite: Permission. Introduction to the theory and practice of the field of public administration. Foundation course for later MPA study. (Formerly 3980:611)

PAUS:613 Intergovernmental Management (3 Credits)

Prerequisite: Permission. Examines the field of intergovernmental relations as it applies to urban administration and management. (Formerly 3980:613)

PAUS:614 Ethics & Public Service (3 Credits)

Prerequisite: Admission to the MPA program or permission. Corequisite: PAUS 606. Examines how public managers should consider ethics and public service in addressing problems; considers ethical implications of decisions and public policies and considers diversity. (Formerly 3980:614)

PAUS:615 Public Organization Theory (3 Credits)

Prerequisite: Permission. Examines the development of public organizational theory and the current status of theoretical developments in the field of public administration. (Formerly 3980:615)

PAUS:620 Social Services Planning (3 Credits)

Prerequisite: Permission. In-depth analysis of total social services requirements and various ways in which social services planning function is carried out in urban communities. (Formerly 3980:620)

PAUS:621 Urban Society & Service Systems (3 Credits)

Prerequisite: Permission. Analysis of social bases of urban society; hierarchies, social problems, relationships to planning, public services. (Formerly 3980:621)

PAUS:622 Health Planning & Public Policy (3 Credits)

Basic knowledge of the health service delivery system is provided for planners and administrators in the public sector. (Formerly 3980:622)

PAUS:623 Public Works Administration (3 Credits)

Prerequisite: Permission. Examines the building, maintenance and management of public works. (Formerly 3980:623)

PAUS:624 Emergency Management Policy Implementation & Analysis (3 Credits)

Examines the implementation of emergency management policy at the federal, state, and local level: Analyzes current policy initiatives in this emerging field. (Formerly 3980:624)

PAUS:625 Strategic Perspectives in Emergency Management (3 Credits)

Prerequisite: Permission. Public administration responsibilities in emergency management. Examines unfunded mandates and the optimal strategies for success in the four phases of emergency management. (Formerly 3980:625)

PAUS:640 Fiscal Analysis (3 Credits)

Prerequisite: Permission. Study of revenue and expenditure patterns of the city's government. (Formerly 3980:640)

PAUS:641 Urban Economic Growth & Development (3 Credits)

Prerequisite: Permission. Examination of urban economic unit and its susceptibility to social, economic, political and physical change. (Formerly 3980:641)

PAUS:642 Public Budgeting (3 Credits)

Prerequisite: Permission. Current professional practice and theoretical issues in public budgeting and management of capital and operating budgets. (Formerly 3980:642)

PAUS:644 Public Sector Fund Management (3 Credits)

Prerequisites: PAUS 640 and PAUS 642. Provides an overview of theoretical approaches for recording and reporting data related to public projects or programs and reviews methods for investing project funds. (Formerly 3980:644)

PAUS:645 Public Sector Labor Relations (3 Credits)

Prerequisite: PAUS 616. This course examines fundamental issues and principles of public sector labor relations with particular attention to collective bargaining processes and to administration of labor contracts. (Formerly 3980:645)

PAUS:647 Aging Policy (3 Credits)

In this course students will examine political institutions that impact the adoption and implementation of programs for the aged, including: Medicare, Medicaid, and Social Security. (Formerly 3980:647)

PAUS:650 Comparative Urban Systems (3 Credits)

Prerequisite: Permission. Conceptual schemes and methodology for comparative urban analysis among a number of major cities selected from each continent. (Formerly 3980:650)

PAUS:660 Strategic Management (3 Credits)

This course examines disciplined effort to produce fundamental decisions and actions that shape what public organizations are, what they do and why they do it. (Formerly 3980:660)

PAUS:661 Public Project Design & Management (3 Credits)

Prerequisites: PAUS 600 and PAUS 642. Provides in-depth theoretical overview of the public project cycle including hands-on approaches to design and management. Examines frameworks for implementation, monitoring and analysis of project impact. (Formerly 3980:661)

PAUS:664 Managing Information & Technology in the Public Sector (3 Credits)

Focus on issues that confront public managers in utilizing information as an organizational asset. (Formerly 3980:664)

PAUS:671 Program Evaluation in Urban Studies (3 Credits)

Prerequisite: PAUS 600 or equivalent. Major considerations appropriate for conducting evaluations of a wide variety of human service programs and policies affecting urban and metropolitan areas. (Formerly 3980:671)

PAUS:674 Analytic Techniques for Public Administrators (3 Credits)

Prerequisite: PAUS 600. Public sector applications of quantitative methods, including decision analysis, queuing theory, mathematical programming, and simulation. (Formerly 3980:674)

PAUS:675 Advanced Techniques in Policy Analysis (3 Credits)

Prerequisites: PAUS 600 and PAUS 601. Public Sector application of techniques for analyzing policy proposals including decision analysis and simulations. (Formerly 3980:675)

PAUS:680 Select Topics in Urban Studies (1-3 Credits)

(A maximum of 27 credits may be earned in PAUS 680 and PAUS 681)

Prerequisite: Permission. Selected topics in specific areas of urban planning, in various developmental processes of cities, or in various urban policy and administrative issues. (Formerly 3980:680)

PAUS:681 Select Topics in Urban Studies (1-3 Credits)

(A maximum of 27 credits may be earned in 680 and 681) Prerequisite: Permission. Selected topics in specific areas of urban planning, in various developmental processes of cities, or in various urban policy and administrative issues. (Formerly 3980:681)

PAUS:688 Capstone Seminar in Public Administration (3 Credits)

Prerequisite: Completed core or concurrent enrollment in core courses. 30 credit hours in program. Synthesizing experience at end of the MPA program where key program concepts are integrated and applied to contemporary issues. (Formerly 3980:688)

PAUS:690 Seminar in Urban Studies (3 Credits)

Prerequisites: 16 credits of urban studies core plus quantitative methods. Urban research methods applied to specific urban research area. Comprehensive paper required. (Formerly 3980:690)

PAUS:691 Master's Colloquium (1 Credit)

This course is required for masters' students on assistantships. The course reviews programmatic, research and curricula issues in the masters' programs. (Formerly 3980:691)

PAUS:695 Internship in Public Administration & Urban Studies (1-3 Credits)

Faculty-supervised work experience for "pre-service" students participating in policy planning and administration in public and non-profit organizations. (Formerly 3980:695)

PAUS:697 Individual Studies in Public Administration & Urban Studies (1-3 Credits)

Prerequisite: Permission. Directed individual readings or research on specific area or topic. (May be repeated) (Formerly 3980:697)

PAUS:699 Master's Thesis (1-9 Credits)

Prerequisite: Permission. Supervised thesis writing. May be repeated for a total of nine credits, however, only six credits apply toward degree. Replaces two courses in specialization. (Formerly 3980:699)

PAUS:700 Advanced Research Methods I (3 Credits)

Prerequisite: Master's level statistics or permission. Introduction to statistical techniques and methodologies in doctoral and postdoctoral research. Emphasis on conceptual and mathematical interrelationships. (Formerly 3980:700)

PAUS:701 Advanced Research Methods II (3 Credits)

Prerequisite: PAUS 700 or equivalent. Continuation of 700. Emphasis placed upon conceptual and mathematical interrelationships of multivariate statistical techniques as well as application of these techniques through computer analysis of urban data sets. (Formerly 3980:701)

PAUS:702 Urban Theory I (3 Credits)

Prerequisite: Permission. Review of major theoretical tradition examining urban problems; for students entering the doctoral program in urban studies (first in two-course sequence). (Formerly 3980:702)

PAUS:703 Urban Theory II (3 Credits)

Prerequisite: PAUS 702. Review of major professional disciplines dealing with urban problems; for students entering the doctoral program in urban studies (second in two-course sequence). (Formerly 3980:703)

PAUS:704 Public Bureaucracy (3 Credits)

Prerequisite: Permission. Analysis of bureaucratic operations in the implementation of public policy, including special attributes of human service organizations and the democratic theory debate. (Formerly 3980:704)

PAUS:705 Economics of Urban Policy (3 Credits)

Prerequisite: Master's level knowledge of macroeconomics and microeconomics or special permission. Use of research tools of economic analysis in seminar format to examine options available to urban policy makers in operation of public services and economic development of cities. (Formerly 3980:705)

PAUS:706 Program Evaluation (3 Credits)

Prerequisite: Permission. Advanced treatment of topics in program evaluation. (Formerly 3980:706)

PAUS:707 Urban Planning & Management Strategies (3 Credits)

Prerequisite: Permission. Analysis of urban planning policy issues and strategies for implementation in public policy formulation. Emphasis on use of planning process as integrative mechanism. (Formerly 3980:707)

PAUS:708 Urban Policy: The Historical Perspective (3 Credits)

Prerequisite: Permission. Critical examination of major ideas about the city from Aristotle to the 20th Century and of the impact on urbanization on society and public policy. (Formerly 3980:708)

PAUS:709 Systems & Processes of Policy Analysis (3 Credits)

Prerequisite: Permission. Analysis of administrative processes within public organizations, federal, state and local in the United States; emphasis on urban community. (Formerly 3980:709)

PAUS:710 Qualitative Research Methods (3 Credits)

Prerequisites: PAUS 700 and PAUS 701. Critical examination of Social Science Research methodologies such as content analysis. Open-ended survey techniques and other means of creating non-statistically generated data. (Formerly 3980:710)

PAUS:711 Seminar in Public Administration (3 Credits)

Prerequisite: Permission. In depth review and critique of major intellectual traditions, concepts and theories underlying public administration in the United States. (Formerly 3980:711)

PAUS:714 Seminar in Policy Analysis & Evaluation (3 Credits)

Prerequisite: Permission. In depth review and critique of major intellectual traditions, concepts and theories underlying policy analysis and evaluation in the United States. (Formerly 3980:714)

PAUS:715 Seminar in Urban & Regional Planning (3 Credits)

Prerequisite: Permission. In depth review and critique of major intellectual traditions, concepts and theories underlying urban and regional planning in the United States. (Formerly 3980:715)

PAUS:716 Theoretical Foundations for Public Affairs (3 Credits)

Prerequisite: Permission of instructor. This course critically considers the theoretical foundations for public affairs for scholarship and research. It contrasts traditional social and natural science inquiry and more recent alternative theories to PA theory. (Formerly 3980:716)

PAUS:720 Comparative Planning Strategies (3 Credits)

Prerequisite: PAUS 715. Review and analysis of alternative planning theories, institutions, and implementation strategies in a variety of national settings. (Formerly 3980:720)

PAUS:730 Ethics in Government (3 Credits)

This course will explore the differences between individual and collective responsibility, private and public morality and the nexus between democratic and moral development. (Formerly 3980:730)

PAUS:731 Theories of Public Budgeting & Finance (3 Credits)

Prerequisite: PAUS 711. Examines the theories and perspectives that have shaped how government uses and implements budgets. (Formerly 3980:731)

PAUS:732 Governance & Administration (3 Credits)

Governance and administration are interrelated activities, yet have been taught as distinct activities. This course explores the connections and interrelatedness of the concepts. (Formerly 3980:732)

PAUS:733 Theories of Public Sector Human Resource Management (3 Credits)

Prerequisite: Permission. Examination of the organizational behavior and administrative theories that support modern public personnel systems. (Formerly 3980:733)

PAUS:734 Conceptual & Legal Foundations of Public Administration (3 Credits)

Prerequisite: Permission. Theoretical examination of how constitutional and administrative law influence public sector decision-making. (Formerly 3980:734)

PAUS:735 Comparative Administration (3 Credits)

Prerequisite: Permission. Examination of the various political and administrative frameworks within which public administrators function. (Formerly 3980:735)

PAUS:736 Leading Public Organizations (3 Credits)

Prerequisite: Permission. Examination of the various theories of organizational leadership and their application in public organizations. (Formerly 3980:736)

PAUS:740 Survey/Research Methods in the Public Sector (3 Credits)

Prerequisite: Permission. Examination of the techniques and methods used by public organizations to enhance civic involvement. Critiques of methodologies based upon information needs and citizens surveyed. (Formerly 3980:740)

PAUS:741 Economic Analysis in Public Administration (3 Credits)

Review of analytical methods for urban socio-economic data gathering, modeling, analysis and reporting. (Formerly 3980:741)

PAUS:760 Seminar in Health Policy (3 Credits)

Comprehensive review of health policy using historical, political, and economic perspectives and contexts. Emphasizes frameworks for conducting health policy analyses. (Formerly 3980:760)

PAUS:780 PhD Colloquium (1 Credit)

This course introduces new doctoral students to the perspectives and practices of doctoral study. This is a credit/ non-credit course. (Formerly 3980:780)

PAUS:788 Urban Policy Studies (1-4 Credits)

(May be repeated for a maximum of 16 credits.) Prerequisite: Permission of instructor or chair. Selected topics for specialized instruction delivered at Kent, Youngstown, and/or Cleveland State universities to apply toward a UA degree either as a required or an elective course. (Formerly 3980:788)

PAUS:795 Pro-Seminar (3 Credits)

Prerequisite: Successfully pass all comprehensive examinations. Seminar to discuss approaches to researching and writing the dissertation. Discussion of alternative methodologies, styles and perspectives. Credit/ noncredit. 44.0401.

PAUS:798 Directed Research (3 Credits)

Prerequisite: Permission. Under the close supervision of a faculty member, a student will utilize social science methods in applied research. (Formerly 3980:798)

PAUS:799 Urban Tutorial (3 Credits)

Prerequisite: Permission. Intensive study of a particular approved field within urban studies and public affairs under supervision of tutor. (May be repeated once.) (Formerly 3980:799)

PAUS:899 Doctoral Dissertation (1-12 Credits)

Prerequisite: Advancement to Candidacy and PAUS 795. Open to properly qualified student accepted as candidate for Doctor of Philosophy degree. Student must register for at least one credit each semester until dissertation is accepted. Minimum of 12 credits required. (May be repeated.) Credit/noncredit. (Formerly 3980:899)

Juris Doctor, J.D./Public Administration, MPA

Admissions to J.D./Master of Public Administration are currently suspended

The University offers a joint J.D. and Public Administration program (JD/MPA). The MPA is a professional degree designed to prepare students for their public service careers in local government public management and administration as well as the management of non-profit organizations. One benefit of the JD/MPA is to prepare students for careers in the public sector where a law degree is useful. This program reduces the total existing credit hours of the School of Law from 88 to 77 and Public Administration from 42 to 33.

Admission Requirements

To be accepted into the program a student must meet the admission requirements of the School of Law, the Graduate School, and the Department of Public Administration and Urban Studies. The Public Administration admission requirements for this program are the same as for the MPA degree. Students must be admitted as a joint degree student by both programs.

Degree Requirements

Seventy-seven credits in law and 30 credits in public administration plus a three credit internship.

Under this program a student must take 43 credits of required law courses, 32 credits of law electives, 24 credits of required public administration courses, six credits of public administration electives, a three credit internship course, and a zero credit orientation. The required MPA courses for this program differ from the MPA.

Code	Title	Hours
Core Requirements		
PAUS:516	Personnel Management in the Public Sector	3
PAUS:600	Basic Quantitative Research	3
PAUS:605	Orientation to the Master of Public Administration	0
PAUS:606	Foundations of Urban Public Administration and Policy	3
PAUS:614	Ethics & Public Service	3
PAUS:615	Public Organization Theory	3
PAUS:642	Public Budgeting	3
PAUS:688	Capstone Seminar in Public Administration	3
Select one of the following:		3
PAUS:601	Advanced Research & Statistical Methods	
PAUS:640	Fiscal Analysis	
PAUS:671	Program Evaluation in Urban Studies	
Electives		
Select six hours of electives ¹		6
Internship		
PAUS:695	Internship in Public Administration & Urban Studies ²	1-3
Total Hours		31-33

¹ See the Public Administration and Urban Studies Master's Degree Handbook regarding what classes would be helpful in different career goals. A student may work with his or her adviser to determine what elective courses best fit his or her needs and interests.

² Students with sufficient work experience can petition for a waiver of this requirement.

Public Administration and Urban Studies, Certificate

Admissions to Public Administration and Urban Studies certificate programs are currently suspended

Public Management

To participate in the certificate program an applicant first must satisfy the requirements for entrance into the Graduate School, or have a bachelor's degree and the equivalent of five years experience in a professional, administrative, or leadership position. Only applicants for admission as non-degree graduate students within the department or students who are fully admitted to other graduate programs of the University and meet the experiential requirements are eligible for the certificates. Students admitted to the graduate programs of the department are not eligible for the certificate programs. Should a student wish to pursue additional coursework, the student must seek formal admission to either the MA in Urban Studies or MPA program. Participation in the certificate program in no way promotes or assures

admission to graduate programs of the department, nor does it alter the requirements for admission to those degree programs. Subject to the Graduate School's time limitation rule for degree completion, once a student has been admitted to a degree program, courses taken as part of a certificate program may be transferred into either of the department's master's programs.

Non-profit Management

To participate in the certificate program an applicant first must satisfy the requirements for entrance into the Graduate School, or have a bachelor's degree and the equivalent of five years experience in a professional, administrative, or leadership position. Only applicants for admission as non-degree graduate students within the department or students who are fully admitted to other graduate programs of the University and meet the experiential requirements are eligible for the certificates. Students admitted to the graduate programs of the department are not eligible for the certificate programs. Should a student wish to pursue additional coursework, the student must seek formal admission to either the MA in Urban Studies or MPA program. Participation in the certificate program in no way promotes or assures admission to graduate programs of the department, nor does it alter the requirements for admission to those degree programs. Subject to the Graduate School's time limitation rule for degree completion, once a student has been admitted to a degree program, courses taken as part of a certificate program may be transferred into either of the department's master's programs.

Local and Regional Development

To participate in the certificate program an applicant first must satisfy the requirements for entrance into the Graduate School, or have a bachelor's degree and the equivalent of five years experience in a professional, administrative, or leadership position. Only applicants for admission as non-degree graduate students within the department or students who are fully admitted to other graduate programs of the University and meet the experiential requirements are eligible for the certificates. Students admitted to the graduate programs of the department are not eligible for the certificate programs. Should a student wish to pursue additional coursework, the student must seek formal admission to either the MA in Urban Studies or MPA program. Participation in the certificate program in no way promotes or assures admission to graduate programs of the department, nor does it alter the requirements for admission to those degree programs. Subject to the Graduate School's time limitation rule for degree completion, once a student has been admitted to a degree program, courses taken as part of a certificate program may be transferred into either of the department's master's programs.

Policy Analysis

To participate in the certificate program an applicant first must satisfy the requirements for entrance into the Graduate School, or have a bachelor's degree and the equivalent of five years experience in a professional, administrative, or leadership position. Only applicants for admission as non-degree graduate students within the department or students who are fully admitted to other graduate programs of the University and meet the experiential requirements are eligible for the certificates. Students admitted to the graduate programs of the department are not eligible for the certificate programs. Should a student wish to pursue additional coursework, the student must seek formal admission to either the MA in Urban Studies or MPA program. Participation in the certificate program in no way promotes or assures admission to graduate programs of the department, nor does it alter the requirements for admission to those degree programs. Subject to the Graduate School's time limitation rule for degree completion, once a

student has been admitted to a degree program, courses taken as part of a certificate program may be transferred into either of the department's master's programs.

Program Evaluation

To participate in the certificate program an applicant first must satisfy the requirements for entrance into the Graduate School, or have a bachelor's degree and the equivalent of five years experience in a professional, administrative, or leadership position. Only applicants for admission as non-degree graduate students within the department or students who are fully admitted to other graduate programs of the University and meet the experiential requirements are eligible for the certificates. Students admitted to the graduate programs of the department are not eligible for the certificate programs. Should a student wish to pursue additional coursework, the student must seek formal admission to either the MA in Urban Studies or MPA program. Participation in the certificate program in no way promotes or assures admission to graduate programs of the department, nor does it alter the requirements for admission to those degree programs. Subject to the Graduate School's time limitation rule for degree completion, once a student has been admitted to a degree program, courses taken as part of a certificate program may be transferred into either of the department's master's programs.

Urban Affairs

To participate in the certificate program an applicant first must satisfy the requirements for entrance into the Graduate School, or have a bachelor's degree and the equivalent of five years experience in a professional, administrative, or leadership position. Only applicants for admission as non-degree graduate students within the department or students who are fully admitted to other graduate programs of the University and meet the experiential requirements are eligible for the certificates. Students admitted to the graduate programs of the department are not eligible for the certificate programs. Should a student wish to pursue additional coursework, the student must seek formal admission to either the MA in Urban Studies or MPA program. Participation in the certificate program in no way promotes or assures admission to graduate programs of the department, nor does it alter the requirements for admission to those degree programs. Subject to the Graduate School's time limitation rule for degree completion, once a student has been admitted to a degree program, courses taken as part of a certificate program may be transferred into either of the department's master's programs.

Requirements

The certificates will require the successful completion of 15 graduate credits of defined coursework in a single content or issue area within either public administration or urban affairs. Upon completion of the coursework a certificate will be issued.

Program

There are six variations of the Certificate Program in Public Administration and Urban Studies; a certificate in Public Management, a certificate in Non-profit Management, a certificate in Local and Regional Development Administration, a certificate in Policy Analysis, a certificate in Program Evaluation, and a certificate in Urban Affairs. Each certificate requires the successful completion of 15 credit hours of required and elective coursework offered by the Department of Public Administration and Urban Studies, as specified below.

Public Management

Code	Title	Hours
PAUS:517	Leadership and Decision-Making	3
PAUS:611	Introduction to the Profession of Public Administration	3
PAUS:615	Public Organization Theory	3
Select two of the following:		6
PAUS:516	Personnel Management in the Public Sector	
PAUS:518	Citizen Participation	
PAUS:526	Grantsmanship	
PAUS:660	Strategic Management	
PAUS:680	Select Topics in Urban Studies	
Total Hours		15

Non-profit Management

Code	Title	Hours
PAUS:526	Grantsmanship	3
PAUS:562	Fundraising & Resource Management	3
PAUS:563	Non-Profit Management	3
PAUS:660	Strategic Management	3
Select one of the following:		3
PAUS:517	Leadership and Decision-Making	
PAUS:519	Community Organizing	
PAUS:680	Select Topics in Urban Studies	
Total Hours		15

Local and Regional Development

Code	Title	Hours
PAUS:602	History of Urban Development	3
PAUS:641	Urban Economic Growth & Development	3
PAUS:661	Public Project Design & Management	3
Select six credits of the following:		6
PAUS:512	National Urban Policy	
PAUS:650	Comparative Urban Systems	
PAUS:681	Select Topics in Urban Studies	
Total Hours		15

Policy Analysis

Code	Title	Hours
PAUS:600	Basic Quantitative Research	3
PAUS:601	Advanced Research & Statistical Methods	3
PAUS:674	Analytic Techniques for Public Administrators	3
Select two of the following:		6
PAUS:543	Introduction to Public Policy	
PAUS:573	Computer Applications in Public Organizations	
PAUS:640	Fiscal Analysis	
PAUS:680	Select Topics in Urban Studies	
Total Hours		15

Program Evaluation

Code	Title	Hours
PAUS:600	Basic Quantitative Research	3
PAUS:601	Advanced Research & Statistical Methods	3

PAUS:671	Program Evaluation in Urban Studies	3
Select two of the following:		6
PAUS:573	Computer Applications in Public Organizations	
PAUS:640	Fiscal Analysis	
PAUS:674	Analytic Techniques for Public Administrators	
PAUS:680	Select Topics in Urban Studies	
Total Hours		15

Urban Affairs

Code	Title	Hours
PAUS:512	National Urban Policy	3
PAUS:602	History of Urban Development	3
Select three of the following:		9
PAUS:518	Citizen Participation	
PAUS:519	Community Organizing	
PAUS:621	Urban Society & Service Systems	
PAUS:650	Comparative Urban Systems	
PAUS:680	Select Topics in Urban Studies	
Total Hours		15

Public Administration, EMPA

Admissions to the Executive Master of Public Administration are currently suspended

The Executive Master of Public Administration is designed to advance the careers and develop skills of senior public and non-profit sector managers. The focus of the program is on student practitioners with a minimum of ten years professional administrative and managerial experience. The curriculum is offered to students organized as a cohort. A cohort begins only when there are sufficient students in the cohort to justify the use of resources for the degree (typically 20 students). Once the cohort is formed the courses are offered in a specific sequence and on a format which is designed to reflect the ongoing work demands of the students in the cohort. The classes are not offered on the same format as traditional courses, but, rather, rely on weekend, web-based, and web-enhanced courses. The cohort moves through that sequence as a group. A student may not take courses out of sequence nor can students drop in and out of the cohort. If a student drops out of a class the student must wait until a new cohort reaches that same point in the sequence to re-enter the program.

Admission Requirements

For the Executive MPA students must have ten years of professional administrative or managerial experience in government or non-profit sector as shown in their current resume.

Admission is open to students who have completed a bachelor's degree. No specific field or undergraduate major is required for admission.

The grade point average requirements for consideration for full admission is an overall undergraduate cumulative GPA of 2.8 or greater or 3.05 for the last 60 credit hours. Provisional admission may be granted to those with an overall GPA between 2.5 and 2.79; however, applicants with a GPA between 2.5 and 2.79 must also submit two letters of reference that speak to the applicants' goal and abilities.

Additionally, applicants must submit the following:

- A copy of their current resume to ascertain professional experience and eligibility for this program.
- A personal essay explaining why the study and completion of a MPA degree will help with personal and professional goals.

Admission decisions are made by the department committee as explained in the department handbook.

Degree Requirements

Satisfactory completion of 39 credit hours of graduate study.

Code	Title	Hours
Required Courses		
PAUS:516	Personnel Management in the Public Sector	3
PAUS:551	Introduction to City Management	3
PAUS:600	Basic Quantitative Research	3
PAUS:610	Legal Foundations of Public Administration	3
PAUS:613	Intergovernmental Management	3
PAUS:614	Ethics & Public Service	3
PAUS:615	Public Organization Theory	3
PAUS:624	Emergency Management Policy Implementation & Analysis	3
PAUS:640	Fiscal Analysis	3
PAUS:641	Urban Economic Growth & Development	3
PAUS:642	Public Budgeting	3
PAUS:671	Program Evaluation in Urban Studies	3
PAUS:688	Capstone Seminar in Public Administration	3
Total Hours		39

The cohort will have a distinct capstone project. In addition, there will be an exit questionnaire.

Public Administration, MPA

Admissions to the Master of Public Administration are currently suspended

The Master of Public Administration (MPA) is a professional degree designed to prepare students for their public service careers in local government public management and administration as well as the management of non-profit organizations. The program of study consists of a core of 27 credit hours, 12 credits hours of electives, and three credit hours of internship. Students with sufficient professional work experience in the public sector may petition for a waiver of the internship requirement.

Admission Requirements

Admission is open to students who have completed a bachelor's degree. No specific field or undergraduate major is required for admission. The GPA requirements for consideration for full admission is an overall bachelor GPA of 2.8 or greater or 3.05 for the last 60 credit hours. Provisional admission may be granted for those with an overall GPA between 2.5 and 2.79. Additionally, applicants must submit the following:

- For students who have an overall GPA below 3.0 a standardized test score from the GRE, GMAT, or LSAT.
- A copy of their current resume (especially important for in-service students to ascertain their professional experience).

- A personal essay explaining why the study and completion of a MPA degree will help with their personal or professional goals.

Admission decisions are made by the department committee considering the entire application file.

Applications are accepted on a rolling basis; however, all application materials should be received by the department three weeks before the start date of the term for the department to make admission decisions for that term.

Degree Requirements

Satisfactory completion of a minimum 42 credit hours of graduate study, including 27 credit hours of core classes, 12 credit hours of elective courses, and three credit hours of internship. Students with sufficient professional work experience may petition for a waiver of the internship requirement, and those students that are granted an internship waiver have a minimum of 39 credit hours for the degree. Procedures for an internship waiver are included in the student handbook. For more program details students should refer to the Public Administration and Urban Studies Master's Degree handbook that is available online.

Code	Title	Hours
Core requirements		
PAUS:516	Personnel Management in the Public Sector	3
PAUS:600	Basic Quantitative Research	3
PAUS:605	Orientation to the Master of Public Administration	0
PAUS:606	Foundations of Urban Public Administration and Policy	3
PAUS:610	Legal Foundations of Public Administration	3
PAUS:614	Ethics & Public Service	3
PAUS:615	Public Organization Theory	3
PAUS:642	Public Budgeting	3
PAUS:688	Capstone Seminar in Public Administration	3
Select one of the following:		3
PAUS:601	Advanced Research & Statistical Methods	
PAUS:640	Fiscal Analysis	
PAUS:671	Program Evaluation in Urban Studies	
Electives		
Select twelve hours of electives ¹		12
Internship		
PAUS:695	Internship in Public Administration & Urban Studies ²	1-3
Total Hours		40-42

¹ The selection of electives is a way a student can develop a program of study that addresses the student's career and academic interests. There is guidance in the Public Administration and Urban Studies Master's Degree Handbook regarding what classes would be helpful in different career goals, but there are no designated specializations for the program. A student may work with his or her adviser to craft a program of study with elective courses that fit his or her needs and interests.

² Students with sufficient work experience can petition for a waiver of this requirement.

Statistics

- Statistics, MS (p. 84)

Statistics (STAT)

STAT:550 Probability (3 Credits)

Prerequisite: Appropriate background is one semester of calculus or equivalent. Introduction to probability, random variables and probability distributions, expected value, sums of random variables, Markov processes. May not be used to meet graduate major requirements in statistics. (Formerly 3470:550)

STAT:551 Theoretical Statistics I (3 Credits)

Prerequisite: Three semesters of calculus or equivalent. Sequential (part 1 of 2). Elementary combinatorial probability theory, probability distributions (discrete and continuous), expectation and variance, moments and moment generating functions, bivariate and multivariate probability distributions, conditional distributions and independence, distributions of functions of random variables (univariate and bivariate), order statistics and their distributions (Formerly 3470:551)

STAT:552 Theoretical Statistics II (3 Credits)

Prerequisite: Three semesters of calculus or equivalent. Sequential (2nd of 2 parts). Sampling distributions, point estimation and properties of point estimators, sufficiency, Rao-Blackwell method and MVUE, methods of obtaining point estimators, interval estimation, hypothesis testing, power and sample size calculation, Neyman-Pearson theory of optimal tests (Formerly 3470:552)

STAT:553 Theoretical Statistics I Supplement (1 Credit)

Prerequisite: Appropriate background is at least one semester of calculus-based probability theory and mathematical statistics at the STAT 451 level. This course goes more in-depth on some of the material covered in STAT 451 but not emphasized. For ready reference, the topics covered in STAT 451 are elementary combinatorial probability theory, probability distributions (discrete and continuous), expectation and variance, bivariate and multivariate distributions and distributions of functions of random variables. Some study material and problems from outside the book will be included. (Formerly 3470:553)

STAT:554 Theoretical Statistics II Supplement (1 Credit)

Prerequisite: STAT 553 or permission. Topics in theoretical statistics that are a sequel to the coverage of STAT 451 and STAT 551 but are still not covered in STAT 452 (including a proof of the central limit theorem, large-sample properties of maximum likelihood estimators, convergence in probability and convergence in distribution, completeness and ancillarity). Some study material and problems from outside the book will be included. (Formerly 3470:554)

STAT:561 Applied Statistics (4 Credits)

Prerequisite: Appropriate background is two semesters of calculus or equivalent. Applications of statistical theory to natural and physical sciences and engineering, including probability distributions, interval estimation, hypotheses testing (parametric and nonparametric), and simple linear regression and correlation. May not be used to meet graduate major requirements in statistics. (Formerly 3470:561)

STAT:562 Applied Regression and ANOVA (4 Credits)

Prerequisite: Appropriate background is one semester of applied statistics or equivalent. Applications of the techniques of regression and multifactor analysis of variance. May not be used to meet graduate major requirements in statistics. (Formerly 3470:562)

STAT:565 Design of Sample Surveys (3 Credits)

(Appropriate background is one semester of applied statistics or equivalent.) Design and analysis of frequently used sample survey techniques. (Formerly 3470:565)

STAT:569 Reliability Models (3 Credits)

(Appropriate background is one semester of applied statistics or equivalent.) Selected topics in reliability modeling including parametric and nonparametric models, competing modes of failure, censored data and accelerated life models. (Formerly 3470:569)

STAT:570 Biostatistics and Epidemiology (3 Credits)

Prerequisite: Appropriate background is one semester of applied statistics (STAT 461 or STAT 561) or equivalent. Biostatistics and Epidemiological methods for biological and medical studies, including ANOVA, analysis of repeated measures, disease-related measures, log-linear models, and clinical trials. (Formerly 3470:570)

STAT:571 Introduction to Actuarial Science (3 Credits)

(Appropriate background is two semesters of calculus). Interest theory and financial mathematics used in actuarial science. Topics include time value of money, annuities, loans, bonds, cash flows and immunizations, interest rate swaps. (Formerly 3470:571)

STAT:572 Actuarial Models (3 Credits)

(Appropriate background is a course in theoretical statistics) Study of severity, frequency and aggregate models used in actuarial applications. Calibration and evaluation, credibility procedures, fundamental principles of pricing in short-term insurance coverage. (Formerly 3470:572)

STAT:573 Survival Analysis (3 Credits)

Prerequisite: Applied Statistics (STAT 461 or STAT 561) or equivalent. Basic concepts in survival analysis, censoring and data truncation, estimation of survival models, nonparametric hazard and survival function estimation, comparing survival times between groups (Formerly 3470:573)

STAT:575 Foundations of Statistical Quality Control (3 Credits)

(Appropriate background is one semester of applied statistics or equivalent.) Course provides a solid foundation in the theory and applications of statistical techniques widely used in industry. (Formerly 3470:575)

STAT:576 Bayesian Statistics (3 Credits)

(Appropriate background is one semester of applied statistics or equivalent). Basic concepts in Bayesian theory, sampling methods, MCMC, hierarchical modeling. Computer applications of Bayesian statistics to natural and physical sciences and engineering. (Formerly 3470:576)

STAT:577 Time Series Analysis (3 Credits)

Prerequisite: Appropriate background is one semester of probability, or one semester of theoretical statistics, or one semester of applied statistics or equivalent or permission. Stationarity. ARIMA modeling with seasonality. Parameter estimation, model diagnostics and forecasting. Regression with autocorrelated errors. Cointegration and multivariate ARMA models. Heteroscedasticity and long-memory models. (Formerly 3470:577)

STAT:580 Statistical Data Management (3 Credits)

(Appropriate background is one semester of applied statistics or equivalent.) Students learn data organization and structures, design of statistical databases, statistical software analysis, importing and exporting of data between software, and missing data analysis. (Formerly 3470:580)

STAT:582 Statistical Data Management Supplement (1 Credit)

Prerequisite: Appropriate background is one semester of familiarity with statistical software packages such as MINITAB, SPSS, SAS and R or permission. This course is solely intended to teach Master's students coming from the department's undergraduate curriculum how to manage (edit, search and manipulate with) data on the computer with a number of statistical software packages widely used in the academe and industry (above and beyond what they have learned at the undergraduate level). Homework assignments and data analysis projects are given. (Formerly 3470:582)

STAT:583 Advanced Statistical Computing (3 Credits)

Prerequisite: Appropriate background is one semester of applied statistics or equivalent. Topics include data management, random number generation, resampling methods, numerical optimization, Markov Chain Monte Carlo, smoothing methods, data mining: clustering and classification. (Formerly 3470:583)

STAT:584 Introduction to Machine Learning (3 Credits)

Prerequisite: Prior course in applied statistics. Methodologies for statistical learning, including generalized logistic regression, ridge regression, neural networks, support vector machines, principal components analysis, and K-means and hierarchical clustering (Formerly 3470:584)

STAT:585 Applied Analytics-Decision Trees (3 Credits)

Prerequisite: STAT 561. Selected topics in predictive modeling using CHAID, Classification and Regression Trees, Logistic Regression and Neural Networks. (Formerly 3470:585)

STAT:586 Spatial-temporal Statistics (3 Credits)

(Appropriate background is one semester of applied statistics or equivalent). Basic concepts of geostatistic, point pattern, area unit. Spatial-temporal modeling in high dimensional data. Computer applications to natural and physical sciences and engineering. (Formerly 3470:586)

STAT:589 Topics in Statistics (1-3 Credits)

(May be repeated for a total of six credits) Prerequisite: permission. Selected topics in advanced statistics, including quality control, reliability, sampling techniques, decision theory, advanced inference, stochastic processes and others. (Formerly 3470:589)

STAT:591 Workshop in Statistics (1-3 Credits)

(May be repeated with change of topic) Group studies of special topics in statistics. May not be used to meet undergraduate or graduate major requirements in mathematics and statistics. May be used for elective credit only. (Formerly 3470:591)

STAT:594 High-Dimensional High-Throughput Data Analysis (3 Credits)

Prerequisite: Regression and ANOVA and statistical data management, or instructor's permission. This course provides exposure to a variety of advanced statistical methods (beyond the ones taught in our undergraduate curriculum) for handling the challenges of high-dimensional high-throughput data, along with their software implementation and applications. Topics include multiple hypothesis testing and multiplicity adjustment, curse of dimensionality, sparsity, high-dimensional data visualization, dimension reduction methods, model selection and estimator selection, machine learning methods, aggregation of estimators and classifiers, graphical and network models. (Formerly 3470:594)

STAT:595 Statistical Consulting (1-3 Credits)

Prerequisite: STAT 580 or permission. Students will be assigned to work with an instructor on current projects in the Center for Statistical Consulting. May be repeated for a total of 4 credits; however, only 2 credits will count toward major requirements. Does not count for elective credit for math science department majors. (Formerly 3470:595)

STAT:596 Advanced Statistical Methods for Modern Data Analysis (3 Credits)

Prerequisites: Regression and ANOVA and statistical data management, or instructor's permission. This course provides exposure to a variety of advanced statistical methods (beyond the ones taught in our undergraduate curriculum) for handling the challenges of modern-day data analysis, along with their software implementation and applications. Topics include distribution-free statistical methods, modern regression methods (robust, penalized, nonparametric), generalized linear models, random effects models, generalized linear mixed models, generalized additive models, some machine learning methods, some data mining methods, graphical/network models and an introduction to biostatistics. (Formerly 3470:596)

STAT:650 Advanced Probability & Stochastic Processes (3 Credits)

Prerequisite: STAT 651. Random walk, distributions, unlimited sequence of trials, laws of large numbers, convolutions, branching processes, renewal theory, Markov chains, time-dependent stochastic processes. (Formerly 3470:650)

STAT:651 Probability & Statistics (4 Credits)

(Appropriate background is three semesters of Calculus or equivalent.) Probability, random variables, moments and generating functions, random vectors, special distributions, limit theorems, sampling, point estimation, hypothesis testing, confidence estimation. (Formerly 3470:651)

STAT:652 Advanced Mathematical Statistics (3 Credits)

Prerequisite: STAT 651. Convergence of random variables, the Central Limit Theorem; theory of estimation; theory of hypothesis testing; the multivariate normal density; introduction to linear models; Bayesian statistics. (Formerly 3470:652)

STAT:655 Linear Models (3 Credits)

(Appropriate background is Linear Algebra or STAT 651 or equivalent.) General linear model in matrix notation, general linear hypothesis, regression models, experimental design models, analysis of variance and covariance, variance components. (Formerly 3470:655)

STAT:661 Statistics for the Life Sciences (3 Credits)

Prerequisite: college level algebra or equivalent. Data description and presentation, probability applications in the life sciences (including sensitivity, specificity, relative risk), principles and application of statistical inference, ANOVA, correlation and regression. May not be used to meet graduate major requirements in statistics. (Formerly 3470:661)

STAT:663 Experimental Design (3 Credits)

(Appropriate background is one semester of applied statistics or equivalent.) Selected topics in experimental design including random and fixed effects, nested designs, split plot designs, confounding, fractional factorials, Latin squares, and analysis of covariance. (Formerly 3470:663)

STAT:665 Regression (3 Credits)

(Appropriate background is one semester of applied statistics or equivalent.) Correlation, simple and multiple linear regression: least squares, matrix notation, model building and checking estimation, hypothesis testing, outliers, influence, multicollinearity, transformations, categorical regressors; logistic regression. (Formerly 3470:665)

STAT:666 Nonparametric Statistics - Methods (3 Credits)

(Appropriate background is one semester of applied statistics or equivalent.) Theory and practice using techniques requiring less restrictive assumptions. Nonparametric analogues to t- and F-tests, ANOVA, regression and correlation. Computer applications. (Formerly 3470:666)

STAT:667 Factor Analysis (3 Credits)

(Appropriate background is one semester of applied statistics or equivalent.) Theory and techniques for identifying variables through use of principal components and factor analysis. Identification of groups using cluster analysis. Computer applications. (Formerly 3470:667)

STAT:668 Multivariate Statistical Methods (3 Credits)

(Appropriate background is two semesters of applied statistics or equivalent.) Multivariate techniques including distance concept, Hotelling T², multivariate ANOVA, regression and correlation, linear contrasts, factorial experiments, nested and repeat measure designs, Bonferroni X² tests, linear discrimination analysis, canonical correlations, application. (Formerly 3470:668)

STAT:669 Regression Encore (1 Credit)

Prerequisite: STAT 462 or STAT 562. Some advanced topics in regression analysis (beyond those covered in STAT 462 and STAT 562) that are usually included in the graduate-level regression analysis course. (Formerly 3470:669)

STAT:670 Advanced Biostatistics (3 Credits)

Prerequisite: STAT 570. Statistical issues and methods for biological, medical and health sciences including: clinical trials, sample size, power, log-linear models, survival analysis, and bioassay. Computer applications. (Formerly 3470:670)

STAT:675 Response Surface Methodology (3 Credits)

(Appropriate background is two semesters of applied statistics or equivalent.) First and second order response designs, efficient experimental plans, methods for the analysis, and optimization of response functions. (Formerly 3470:675)

STAT:689 Advanced Topics in Statistics (1-3 Credits)

(May be repeated for a total of six credits) Prerequisite: STAT 651. Selected topics in statistics including concepts in order, statistics, advanced inference, sequential analysis, stochastic processes, reliability theory, Bayesian statistics and regression. (Formerly 3470:689)

STAT:692 Statistics Masters Paper (2-3 Credits)

Prerequisite: permission of advisor. Supervised writing of paper based on a terminal project and its presentation in front of an audience. For Masters of Science in Statistics (Non-thesis Option). A minimum of 2 credit-hours and a maximum of 3 credit-hours. (Formerly 3470:692)

STAT:695 Practicum in Statistics & Mathematics (1-3 Credits)

Prerequisite: graduate teaching assistant or permission. Training and experience in college teaching of statistics. May not be used to meet degree requirements. Credit/non-credit. (Formerly 3470:695)

STAT:697 Individual Reading: Statistics (1-3 Credits)

Prerequisites: graduate standing and permission of the graduate academic adviser and the department chair. Directed studies in statistics under the guidance of a selected faculty member. (May be repeated for a total of four credits) (Formerly 3470:697)

STAT:698 Master's Research (1-6 Credits)

(May be repeated) Prerequisite: permission of advisor. Research in suitable topics in statistics culminating in a research paper. No more than 2 credits applicable to major requirements. (Formerly 3470:698)

STAT:699 Master's Thesis (2 Credits)

Prerequisite: Permission. (May be repeated for a total of 4 credits)

Properly qualified candidates for master's degree may obtain 2-4 credits for research experience which culminates in the presentation of faculty-supervised thesis. (Formerly 3470:699)

Statistics, MS

Admission Requirements

Entrance into the M.S. Statistics program requires a minimum undergraduate GPA of 2.75 and completion of the following prerequisites prior to starting the program:

- Three semesters of calculus or equivalent
- One semester of Applied Statistics or equivalent

Applicants must also submit three current letters of recommendation.

Core Curriculum

Code	Title	Hours
STAT:551 or STAT:651	Theoretical Statistics I Probability & Statistics	3
STAT:552 or STAT:652	Theoretical Statistics II Advanced Mathematical Statistics	3
STAT:580	Statistical Data Management	3
STAT:663	Experimental Design	3
STAT:665	Regression	3
Total Hours		15

Thesis Option

(30 credits of graduate work)

Code	Title	Hours
Core Curriculum		15
STAT:595	Statistical Consulting	1-3
STAT:699	Master's Thesis	2
Select 12 credits of approved graduate electives		12
Total Hours		30-32

Upon approval of the thesis by the student's adviser and reader the thesis must be presented in a colloquium to faculty and students.

Nonthesis Option

(30 credits of graduate work)

Code	Title	Hours
Core Curriculum		15
STAT:595	Statistical Consulting	1-3
STAT:692	Statistics Masters Paper	2-3
Select 12 credits of approved graduate electives		12
Total Hours		30-33

Upon approval of the Statistics Master's Paper by the student's adviser and reader, the paper must be presented in a colloquium to faculty and students.

The LeBron James Family Foundation School of Education

The LeBron James Family Foundation School of Education is a learning and teaching community that prepares educational professionals across varied organizations, who are committed to diversity, equity, and excellence, and who conduct, utilize, and critique research through scholarship, leadership, collaboration, inclusive education, innovation, and professionalism.

The aim of the LeBron James Family Foundation School of Education is to meet the comprehensive charge of our mission through initial and advanced teacher education programs as well as programs in administration and several teacher education programs housed outside the school. Programs include a balanced offering of a foundation in general education, intensive study in the content area, and those professional courses and other learning experiences which attempt to combine theory and practice.

School Website (<https://www.uakron.edu/education/>)

- Curriculum and Instruction with Licensure Options, MS (p. 94)
- Curriculum and Instruction, MA (p. 95)
- Educational Administration and Leadership, MA (p. 96)
- Elementary Education with Literacy Option, MA (p. 96)

Curricular and Instructional Studies (EDCI)

EDCI:503 Global Education and Technology (3 Credits)

Theories, materials, and methods for teaching global education through e-learning and web-based tools. The focus will be on opportunities and challenges in using technology to teach about the world, its people, and issues. (Formerly 5500:611)

EDCI:520 Advanced Instructional Techniques (3 Credits)

Methods of teaching a particular area of the middle and secondary school curriculum for students in the Master's with Licensure program. (Formerly 5500:520)

EDCI:521 Advanced Instructional Techniques II (3 Credits)

Prerequisite: EDCI 520. Instructional experience in the 7-12 classroom to apply theory and research to practice. (Formerly 5500:521)

EDCI:522 Content Area Literacy (3 Credits)

Examines instructional strategies for constructing meaning in content subjects (e.g., science, social studies, mathematics) using print and electronic texts. (Formerly 5500:522)

EDCI:524 Teaching Reading to Culturally Diverse Learners (3 Credits)

Knowledge, skills, and attitudes to employ effective methods of teaching reading to diverse populations and/or learners whose language patterns are nonstandard. (Formerly 5500:524)

EDCI:530 Clinical Teaching I (3 Credits)

Prerequisites: EDCI 619, EDCI 629, EDIS 605. Corequisite: EDCI 520. Filed application to observe and apply education methodologies and theories in a school/classroom setting. (Formerly 5500:530)

EDCI:531 Clinical Teaching II (3 Credits)

Prerequisite: EDCI 530. Corequisite: EDCI 521. Full-time field application to apply education methodologies and theories in a classroom environment. Follows Clinical Teaching I. (Formerly 5500:531)

EDCI:539 Engineering for Educators (3 Credits)

Engineering design concepts and their applications course for teachers. Students will engage in engineering problem solving activities and design lesson plans. (Formerly 5500:539)

EDCI:540 Principles of Bilingual/Multicultural Education (3 Credits)

An introduction to the theoretic, cultural, sociolinguistic bases of bilingual/multicultural education. Legislation, court decisions, program implementation included. (Formerly 5500:540)

EDCI:541 Teaching Literacy to English Learners (3 Credits)

Course applies methods for teaching literacy to English learners, assessment of literacy skills, & development of materials. 12 required field experience. (Formerly 5500:541)

EDCI:542 Teaching Mathematics, Social Studies & Science to Bilingual Students (3 Credits)

Prerequisites: elementary education majors, 5500:333, 5500:336, 5500:338; secondary education majors, 5500:311 (science, social studies in the bilingual/multicultural classroom. Course applies methodologies for teaching mathematics, science, social studies in the bilingual multicultural classroom. The bilingual student's native language stressed. (Formerly 5500:542)

EDCI:543 Techniques of Teaching English as a Second Language (3 Credits)

Course includes teaching language skills to Limited English Proficient students in grades K-12, administration of language assessment tests, selection and evaluation of materials. (10 field hours) (Formerly 5500:543)

EDCI:555 Literacy for Multiage Licensure (3 Credits)

Organizing instruction, use of oral language development protocols, strategies for word skill development, comprehension and assessment as they relate to content areas. (Formerly 5500:555)

EDCI:556 Scaffolding Language and Content Learning for English Learners (3 Credits)

Prerequisite: ENGL 573. This course introduces and explains quality, research-based sheltered instruction to accelerate academic achievement for English learners. (Formerly 5500:556)

EDCI:558 Inclusive Field Experience (1 Credit)

Corequisite: EDIS 457 or EDIS 557. In this inclusive field based experience, teacher candidates explore the challenges and best practices in providing quality educational services for all learners. (Formerly 5500:558)

EDCI:575 Instructional Technology Applications (3 Credits)

Focus on developing learner competencies in the use of instructional technologies to enhance both the instructor's personal and professional productivity. (Formerly 5500:575)

EDCI:588 Practicum: Teaching English as a Second Language (2 Credits)

Prerequisites: EDCI 541 and EDCI 543. A practical experience for teacher candidates to practice teaching an English as a second language classroom supervised by a TESOL-endorsed teacher. 50 hours. (Formerly 5500:588)

EDCI:590 Workshop: Curriculum & Instruction (1-3 Credits)

Workshop for educators to improve teaching skills in a specific area of the curriculum. (May be repeated for a maximum of 6 credits.) (Formerly 5500:590)

EDCI:591 Workshop: Curriculum & Instruction (1-3 Credits)

Workshop for educators to improve teaching skills in a specific area of the curriculum. (May be repeated for a maximum of 6 credits.) (Formerly 5500:591)

EDCI:592 Workshop: Curriculum & Instruction (1-3 Credits)

Workshop for educators to improve teaching skills in a specific area of the curriculum. (May be repeated for a maximum of 6 credits.) (Formerly 5500:592)

EDCI:594 Educational Institutes (1-4 Credits)

Special courses designed as in-service upgrading programs. Frequently provided with support of national foundations. (Formerly 5500:594)

EDCI:600 Concepts of Curriculum & Instruction (3 Credits)

An analysis of the philosophies, theories, and ideologies of curricula and their influences on programs, schools, and instruction. (3 field hours) (Formerly 5500:600)

EDCI:605 Seminar in Trends & Issues in Curriculum & Instruction (3 Credits)

A study of recent research and theory in curriculum and instruction with special attention to educational decision making. (Formerly 5500:605)

EDCI:609 Global Education (3 Credits)

This course focuses on theories, materials and methods for teaching global education through e-learning and web-based tools. (Formerly 5500:609)

EDCI:612 Models of Epistemology and Inquiry (3 Credits)

An exploration of various epistemological and methodological frameworks that are the foundation of systematic and complex educational inquiry. Doctoral level status is preferred but Master's level students are encouraged to enroll in consult with the instructor. (Formerly 5500:612)

EDCI:615 Philosophy & Organization of Middle Schools (3 Credits)

Philosophy, theory, research, and exemplary organizational, assessment, and evaluation components of middle level education. (Formerly 5500:615)

EDCI:616 Middle School Curriculum & Instruction (3 Credits)

Theories, research, and exemplary practices focusing on middle school curriculum and instruction. (Formerly 5500:616)

EDCI:617 Seminar: Licensure in Curricular and Instructional Studies (3 Credits)

This course should be taken at the beginning of the Master's with Licensure Program as an introduction to curriculum and pragmatics of teaching. (Formerly 5500:617)

EDCI:619 Instructional & Management Practices (3 Credits)

This course addresses the practical interpretation and application of the theoretical foundations for the development of standards-based instruction and the organization of the learning environment. Teacher candidates learn to use teaching models and management strategies for effective instruction. Field experience in local school required. (Formerly 5500:619)

EDCI:621 Advanced Instructional Techniques: Modern Language P-8 (3 Credits)

Prerequisite: EDCI 617 or permission of instructor. Focus is on theories of language acquisition, models of instruction suited to teaching foreign languages and cultures in the elementary school (P-8), and strategies that promote appropriate levels of language competence and proficiency for young learners. (35 field hours) (Formerly 5500:621)

EDCI:622 Children's Literature in the Curriculum (3 Credits)

Examination of literary genre with emphasis on methods and techniques for presenting literature to children in preschool, elementary, and middle grades. (Formerly 5500:622)

EDCI:625 Contemporary Issues in Literacy Instruction and Phonics (3 Credits)

Survey course exploring current research in reading and writing as constructive processes of meaning-making. (Formerly 5500:625)

EDCI:626 Assessment of Reading Difficulties (3 Credits)

Examines formal and informal assessments and intervention strategies for students grades K - 12 with reading difficulties. (Formerly 5500:626)

EDCI:627 Special Topics in Curricular & Instructional Studies (3 Credits)

(3-9 credits; may be repeated with a change in topic). Prerequisite: permission of instructor. Groups study of special topics of critical, contemporary concern in professional education. (Formerly 5500:627)

EDCI:628 Literacy Assessment Practicum (3 Credits)

Laboratory experience within classroom, small groups and individuals. A student diagnoses, implements procedures, and follows prescribed reading improvement. (Formerly 5500:628)

EDCI:629 Reading Programs in Secondary Schools (3 Credits)

For all subject teachers both with and without previous study in the teaching of reading. Materials, class organization and procedures for developing reading improvement programs, for all secondary school and college students. (Formerly 5500:629)

EDCI:631 Advanced Behavioral Strategies for the Educator (3 Credits)

This course provides the educator with an advanced examination of strategies designed to improve student behavior in the school setting. (Formerly 5500:631)

EDCI:635 Seminar in Teaching Foreign Languages (3 Credits)

(May be repeated for a total of six credits.) Issues and subjects related to research in foreign language education and language learning theories. Different topics will be offered from section to section. (Formerly 5500:635)

EDCI:637 Seminar: Research & Theory in Foreign Language Education (3 Credits)

(May be repeated for a total of six credits.) Issues and subjects related to research in foreign language education and language learning theories. Different topics will be offered from section to section. (Formerly 5500:637)

EDCI:639 Introduction to Teacher Leadership (3 Credits)

This course philosophically, scientifically, and historically explores contemporary teacher leadership in the United States through scholarly, critical and practical inquiry in addition to reflective action in diverse learning ecologies. (Formerly 5500:639)

EDCI:640 Development of Children: Grades Four and Five (3 Credits)

Prerequisite: Course is only open to candidates who hold an Early Childhood P-3 teaching license. Course focuses on nature/needs of grades 4-5 adolescents; development including physical, cognitive-intellectual, moral, psychological and social-emotional. Explore related issues in home, school and community contexts. (Formerly 5500:640)

EDCI:641 Fourth Grade Curriculum and Instruction (3 Credits)

Prerequisite/Corequisite: EDCI 640. The language arts, mathematics, science and social studies, the arts and technology content and the knowledge of inquiry and problem-based instruction necessary for fourth-grade learners. (Formerly 5500:641)

EDCI:642 Fifth Grade Curriculum and Instruction (3 Credits)

Prerequisite/Corequisite: EDCI 640. Models an inquiry-based format that integrates math, science, social studies, and technology standards where students learn to create, implement, manage, and evaluate student-centered learning environments. (Formerly 5500:642)

EDCI:644 Collaboration and Consultation Skills for Teacher Leadership (3 Credits)

Prerequisites: EDFN 643 and EDIT 639. This course provides teachers in the leadership endorsement with skills in communication, collaboration, and team process to facilitate a collaborative learning culture. (Formerly 5500:644)

EDCI:645 Theory & Practice in Elementary School Mathematics (3 Credits)

Focuses on the development of mathematics education, current trends in the teaching of elementary school mathematics, and future directions in mathematics education. (Formerly 5500:645)

EDCI:650 Elementary Science Curriculum & Instruction (3 Credits)

A critical analysis of contemporary science curriculum and instructional methods for the young learner with particular attention to constructivism and national standards. (Formerly 5500:650)

EDCI:651 Secondary Science Curriculum & Instruction (3 Credits)

A critical analysis of the theory and practice of curriculum and instructional methods in science for early adolescent and adolescent learners. (Formerly 5500:651)

EDCI:652 Nature, History, and Philosophy of STEM (3 Credits)

This course examines the historical evolution of STEM disciplines, and the philosophical assumptions that distinguishes ways of knowing in these disciplines. Applications to educational research are examined. (Formerly 5500:652)

EDCI:660 Coaching in Diverse Classrooms (2 Credits)

This course focuses on the preparation of literacy specialists to coach teachers in the implementation of culturally responsive literacy instruction for diverse learners. (Formerly 5500:660)

EDCI:661 Coaching for Effective Assessment Practice (2 Credits)

Designed for reading specialists, this course teaches knowledge, skills and dispositions in school-based professional development and coaching on classroom-based literacy assessment concepts and skills. (Formerly 5500:661)

EDCI:662 Pedagogy of Effective Literacy Instruction (2 Credits)

The course enables candidates to demonstrate knowledge of a wide range of instructional practices, methods, and curriculum materials, including technology, that support effective literacy instruction. (Formerly 5500:662)

EDCI:663 Professional Development in Literacy (2 Credits)

An introduction to research and knowledge bases related to teacher professional development with an examination of coaching as one venue of supporting teacher professional development. (Formerly 5500:663)

EDCI:664 Advanced Literacy Research (2 Credits)

This course is an introduction to literacy research as an integral part of professional development and supports engagement in inquiry that advances candidates' understanding of literacy instruction. (Formerly 5500:664)

EDCI:665 Literacy Specialist Internship (4 Credits)

The internship is a school-based practicum that integrates the accomplishment of the Literacy Specialist Endorsement Standards and focuses on data-based decision making to inform coaching. (Formerly 5500:665)

EDCI:690 Educational Inquiry I (3 Credits)

Prerequisite: Admission to the M.A. program in Curricular and Instructional Studies. The implementation of a research design for an inquiry into a curricular and/or instruction problem within an educational setting. (Formerly 5500:690)

EDCI:691 Educational Inquiry II (3 Credits)

Prerequisite: EDCI 690 and admission to the program. Students implement a research design for an inquiry into a curricular and/or instruction problem inside or outside of an educational setting. (Formerly 5500:691)

EDCI:692 Field Experience: Colloquium (1 Credit)

Prerequisite: admission to student teaching. Corequisite: EDCI 694. Instructional experience in the 7-12 classroom to apply theory and research to practice. (Formerly 5500:692)

EDCI:693 Field Experience: Masters with Licensure (1-3 Credits)

Instructional experience in the 7-12 classroom to apply theory and research to practice. (May be repeated for a maximum of 6 credits.) 1-3 credits (50 field hours per credit hour) (Formerly 5500:693)

EDCI:694 Field Experience: Classroom Instruction (1-12 Credits)

Prerequisites: Admission to Student Teaching. Corequisite: EDCI 692. Planned teaching experience in schools selected and supervised by Office of Field Experience. (Formerly 5500:694)

EDCI:695 Field Experience: Masters (1-6 Credits)

Prerequisites: permission of advisor and department chair. Experience in an educational setting to apply educational theory and research to practice. (Formerly 5500:695)

EDCI:696 Masters Project (1-6 Credits)

In-depth investigation of specific problem pertinent to student's area of concentration in education. (Formerly 5500:696)

EDCI:697 Independent Study (1-3 Credits)

Selected areas of independent investigation as determined by advisor and related to student's academic needs. (Formerly 5500:697)

EDCI:699 Masters Thesis (4-6 Credits)

In-depth study of research problem in education. Student must be able to demonstrate necessary competencies to deal with research problem in education. (Formerly 5500:699)

EDCI:750 Current Research & Theory in STEM Education (3 Credits)

Intensive examination of contemporary theory and research literature in STEM teaching and learning for preschool through senior high school students. (Formerly 5500:750)

EDCI:780 Seminar: Curricular & Instructional Studies (1-3 Credits)

(May be repeated.) Intensive examination of a particular area of curriculum and instruction. (Formerly 5500:780)

EDCI:800 Professional Seminar in STEM Education (3 Credits)

Prerequisite: admission to the Ph.D. in Integrative STEM Education program. Learners will develop individualized programs of study and plan their doctoral studies. An overview of process and procedures will be addressed. (Formerly 5500:800)

EDCI:820 Advanced Study & Research in Reading Instruction (3 Credits)

Survey of research, comparison and evaluation of programs, design and development of projects in reading through group or individual study. (Formerly 5500:820)

EDCI:880 Doctoral Seminar in Curricular & Instructional Studies (1-3 Credits)

Prerequisite: Admission to the Ph.D. program in either Elementary Education or Secondary Education, or department consent. Intensive examination of a particular area of teacher education. (May be repeated with change of topic and for a total of 9 credits.) (Formerly 5500:880)

EDCI:895 Doctoral Field Experience (1-6 Credits)

(May be repeated for a total of 6 hours.) Intensive job-related experience pertinent to student's needs. Student must be able to demonstrate skills and leadership abilities in an on-the-job situation. (Formerly 5500:895)

EDCI:898 Independent Study (1-3 Credits)

(May be repeated for a total of 6 hours.) Area of study determined by student's needs. (Formerly 5500:898)

EDCI:899 Doctoral Dissertation (1-20 Credits)

Study and in-depth analysis of a research problem in curriculum and instruction. (Formerly 5500:899)

Educational Leadership (EDLP)

EDLP:590 Workshop: General Administration (1-3 Credits)

Individual work under staff guidance on curriculum problems, utilization of community resources, planning of curriculum units. (Formerly 5170:590)

EDLP:591 Workshop: General Administration (1-3 Credits)

Individual work under staff guidance on curriculum problems, utilization of community resources, planning of curriculum units. (Formerly 5170:591)

EDLP:592 Workshop: General Administration (1-3 Credits)

Individual work under staff guidance on curriculum problems, utilization of community resources, planning of curriculum units. (Formerly 5170:592)

EDLP:593 Workshop: General Administration (1-3 Credits)

Individual work under staff guidance on curriculum problems, utilization of community resources, planning of curriculum units. (Formerly 5170:593)

EDLP:594 Educational Institutions: General Administration (1-4 Credits)

Special course designed as in-service upgrading programs, frequently provided with the support of curriculum units. (Formerly 5170:594)

EDLP:601 Organizational Leadership (3 Credits)

A perspective of educational leadership and the context in which it operates, with emphasis on the processes, tasks, roles and relationships involved. Field based research required. (Formerly 5170:601)

EDLP:602 Management of Physical Resources (3 Credits)

A comprehensive view of the principles, practices, and new dimensions involved in the planning and management of educational facilities. (Formerly 5170:602)

EDLP:603 Management of Human Resources (3 Credits)

An orientation to the major dimensions of the personnel function. (Formerly 5170:603)

EDLP:604 School Contexts and Community Involvement (3 Credits)

The course is for graduate students interested in P-12 school leadership. It focuses on understanding strategies for collaborating with members of the school community. (Formerly 5170:604)

EDLP:606 Evaluation in Educational Organizations (3 Credits)

Prerequisites: EDLP 601 and EDFN 640. An examination of the general concepts, models, practical applications and considerations involved in the evaluation of educational organizations. (Formerly 5170:606)

EDLP:607 School Law (3 Credits)

An examination of the legal principles underlying education in the United States as reflected in statutory provisions, court decisions and administrative orders. Field based research required. Course also available fully online. (Formerly 5170:607)

EDLP:608 School Finance & Economics (3 Credits)

A study of financial operations of school systems, including taxes, other sources of revenue, expenditures, budgeting and effects of economic factors. (Formerly 5170:608)

EDLP:609 Principles of Curriculum Development (3 Credits)

Prerequisites: EDLP 601 and EDFN 640. This course is intended to help the student develop the performance competencies necessary to engage in curriculum decision making. (Formerly 5170:609)

EDLP:610 Supervision of Instruction (3 Credits)

An introduction to the school function that improves instruction through direct assistance, curriculum, staff and group development and action research. (Formerly 5170:610)

EDLP:613 Student Services and Interagency Collaboration (3 Credits)

Overview of pupil services including analysis of the nature and development of each component and program and discussion of current issues and trends. Field based research required. (Formerly 5170:613)

EDLP:615 Student Services and Disability Law (3 Credits)

The course examines the statutory and case laws and regulations affecting students with disabilities. Laws are reviewed, policy implications identified, and legally compliant practices proposed. (Formerly 5170:615)

EDLP:620 School Culture and Governance (3 Credits)

An examination of leadership as it relates to the development and maintenance of a school climate and culture conducive to teaching and learning. (Formerly 5170:620)

EDLP:695 Principal Internship (3 Credits)

Students are required to successfully complete a two-semester internship in a school district chosen by the student and his/her advisor. (Formerly 5170:695)

EDLP:696 Principal Internship (3 Credits)

Students are required to successfully complete a two-semester internship in a school district chosen by the student and his/her advisor. (Formerly 5170:696)

EDLP:697 Independent Study (1-3 Credits)

Prerequisites: permission of advisor and supervisor of the independent study. Area of study determined by student's needs. (May be repeated for a total of six credits.) (Formerly 5170:697)

EDLP:704 Advanced Organizational Leadership (3 Credits)

Study of organizations and strengths and weaknesses of common methods of administering them. Practical means by which overcoming bureaucratic weaknesses of bureaucracies are offset or lessened by educational institutions. (Formerly 5170:704)

EDLP:705 Decision Making in Educational Administration (3 Credits)

Decision making is portrayed as a central function of the educational administrator with a united presentation of the theory, research and practice of decision making. (Formerly 5170:705)

EDLP:707 The Superintendency (3 Credits)

An orientation to the superintendent's role and an examination of the strategies for dealing with the major relational and functional aspects of the superintendency. (Formerly 5170:707)

EDLP:708 Economics in Education (3 Credits)

Issues related to the changing marketplace of public, private schooling and higher education institutions as they relate to an urban environment. (Formerly 5170:708)

EDLP:709 Advanced Principles of Curriculum Development (3 Credits)

A second course in curriculum development with an emphasis on the performance competencies needed to engage in curriculum planning and decision making. (Formerly 5170:709)

EDLP:710 Advanced School Law (3 Credits)

An in-depth study of the law as it pertains to the function and role of the administrator as instructional leader; disciplinarian; building, facilities, and auxiliary services manager. (Formerly 5170:710)

EDLP:716 Advanced Evaluation of Educational Organization (3 Credits)

An evaluation course to help educational leaders plan and assess educational priorities and outcomes. (Formerly 5170:716)

EDLP:720 Topical Seminar: Educational Administration (1-3 Credits)

(May be repeated.) Prerequisite: permission of instructor. Topical studies in selected areas of concern to students, practicing administrators in public, private educational institutions, organizations. (Formerly 5170:720)

EDLP:730 Residency Seminar (3 Credits)

Focus on recent research in administration and educational administration theory. (Formerly 5170:730)

EDLP:731 Residency Seminar (3 Credits)

Prerequisite: EDLP 601. Focus on recent research in administration and educational administration theory. (Formerly 5170:731)

EDLP:732 Public & Media Relations in Educational Organizations (3 Credits)

A course in educational public relations intended to help educational leaders facilitate the development of common perceptions about school issues with multiple constituencies. (Formerly 5170:732)

EDLP:740 Theories of Educational Supervision (3 Credits)

Extends EDLP 610, including supervisory models, staff development, and the organizational environment's impact on the climate for effective supervision. (Formerly 5170:740)

EDLP:745 Seminar: Urban Educational Issues (3 Credits)

A study of the linkages between educational organizations and their social contexts, particularly as they relate to educational change. Research project required. (Formerly 5170:745)

EDLP:746 Politics of Education (3 Credits)

Emphasis given to recent efforts to bring about reform at all levels of the educational enterprise and to conceptual perspectives and research findings. (Formerly 5170:746)

EDLP:795 Internship in Educational Administration (1-5 Credits)

Students are required to successfully complete a two-semester internship in a school district chosen by the student and his/her advisor. (Formerly 5170:795)

EDLP:796 Internship in Educational Administration (1-5 Credits)

Students are required to successfully complete a two-semester internship in a school district chosen by the student and his/her advisor. (Formerly 5170:796)

EDLP:895 Doctoral Internship (1-6 Credits)

Candidates for the doctoral degree in educational administration must prepare and complete a research proposal that includes research questions, a literature review, and a research design. They must collect, analyze, and interpret data. (Formerly 5170:895)

EDLP:896 Doctoral Internship (1-6 Credits)

Candidates for the doctoral degree in educational administration must prepare and complete a research proposal that includes research questions, a literature review, and a research design. They must collect, analyze, and interpret data. (Formerly 5170:896)

EDLP:897 Independent Study (1-3 Credits)

Prerequisites: permission of advisor. In-depth study of a research problem in education. Student must be able to demonstrate critical and analytical skills in dealing with a problem in education. (May be repeated for a total of six credits.) (Formerly 5170:897)

EDLP:898 Research Project in Special Areas (1-2 Credits)

Prerequisite: permission of advisor. Critical and in-depth study of specific problem in educational administration. (Formerly 5170:898)

EDLP:899 Doctoral Dissertation (1-20 Credits)

Prerequisite: permission of advisor. Specific research problem that requires student to apply research skills and techniques to the problem being studied. (Formerly 5170:899)

Educational Foundations and Leadership (EDFN)

EDFN:520 Introduction to Instructional Computing (3 Credits)

Prepares the student in the use of instructional technologies in educational and business settings. Segments of the course are offered in an online format. (Formerly 5100:520)

EDFN:590 Workshop in Educational Foundations & Leadership (1-3 Credits)

Individual work under staff guidance on curriculum problems, utilization of community resources, planning of curriculum units. (Formerly 5100:590)

EDFN:591 Workshop in Educational Foundations & Leadership (1-3 Credits)

Individual work under staff guidance on curriculum problems, utilization of community resources, planning of curriculum units. (Formerly 5100:591)

EDFN:592 Workshop in Educational Foundations & Leadership (1-3 Credits)

Individual work under staff guidance on curriculum problems, utilization of community resources, planning of curriculum units. (Formerly 5100:592)

EDFN:594 Educational Institutes: Educational Foundations & Leadership (1-4 Credits)

Special course designed as in-service upgrading programs, frequently provided with the support of curriculum units. (Formerly 5100:594)

EDFN:600 Philosophies of Education (3 Credits)

Examination of basic philosophical problems underlying broad educational questions that confront society. Provides foundation for understanding of questions of modern society and education. (Formerly 5100:600)

EDFN:602 Comparative & International Education (3 Credits)

Comparative study of selected national school systems with reference to forces that shape their characteristics. Different theoretical approaches used in study of comparative education also investigated. (Formerly 5100:602)

EDFN:604 Topical Seminar in the Cultural Foundations of Education (3 Credits)

(May be repeated for a total of six credits) Issues and subjects related to study of educational institutions, theories and/or ideas. Different topics will be offered from section to section. Delivered in face to face web enhanced format and fully online format. (Formerly 5100:604)

EDFN:610 Introduction to Statistics in Human Services (3 Credits)

Applying basic statistical concepts and use statistics to address real world problems in social science. (Formerly 5100:610)

EDFN:620 Psychology of Instruction for Teaching & Learning (3 Credits)

Current theories and research in the areas of cognition and learning, development, and motivation that underlay approaches to teaching in any context. (Formerly 5100:620)

EDFN:624 Seminar in Educational Psychology (3 Credits)

In-depth study of research in selected areas of learning, development, evaluation, and motivation. Offered in face-to-face and online formats. (Formerly 5100:624)

EDFN:629 Fundamentals of E-Learning (1 Credit)

The nature, purpose, history and philosophy of e-learning will be explored through examination of associated trends and issues. Establishment of a learning community will be addressed in the face-to-face course component. E-learning course/certificate overviews will be discussed. (Formerly 5100:629)

EDFN:630 Topical Seminar in Computer-Based Education (3 Credits)

(May be repeated for a total of six credits. Advanced topics related to development, implementation, research and evaluation in C.B.E. Student involvement emphasized, required. Knowledge of programming language recommended. (Formerly 5100:630)

EDFN:637 Philosophies of Educational Technology (3 Credits)

To introduce students to the many philosophies of educational technologies and the manner in which information technology especially influences our pedagogy. (Formerly 5100:637)

EDFN:640 Using Research to Inform Practice (3 Credits)

Research methods and techniques commonly used in education and behavioral sciences; preparation of research reports. Includes library, historical, survey and experimental research and data analysis. Delivered in face to face web enhanced format and fully online format. (Formerly 5100:640)

EDFN:642 Introduction to Classroom Assessment for Teachers (3 Credits)

The focus of this class is on the practical classroom assessment skills future and practicing teachers need for decision-making about student learning. (Formerly 5100:642)

EDFN:643 Vision, Goal Planning and Professional Practice for Teacher Leaders (3 Credits)

This course reviews the main research, theories, and practices that make for effective organizational leadership and professional practice for teacher leaders. (Formerly 5100:643)

EDFN:646 Multicultural Counseling (3 Credits)

Prerequisites: COUN 643 or permission of instructor. An examination of multicultural counseling theory and research necessary to work with culturally diverse people. (Formerly 5100:646)

EDFN:647 Data and Evidence-based Practice for Teacher Leaders (3 Credits)

An examination of applied research techniques for school leadership and improvement efforts. (Formerly 5100:647)

EDFN:648 Individual & Family Development Across the Lifespan (3 Credits)

An exploration of individual and family development. Emphasis will be placed on understanding the relationship between the individual and his/her family. (Formerly 5100:648)

EDFN:650 Data Collection Methods for Educators (3 Credits)

Students will develop, implement and evaluate various data collection methods such as achievement tests, commercially published instruments, surveys, and individual and group interviews. (Formerly 5100:650)

EDFN:651 Data-Driven Decision Making for Educators (3 Credits)

The purpose of this course is to facilitate the understanding and utilization of data to identify classroom/school improvement needs and make informed decisions in effecting change. (Formerly 5100:651)

EDFN:652 Introduction to Educational Evaluation (3 Credits)

Introduction to core concepts of educational evaluation including; the purpose, process, standards, and models of evaluation. Students will develop skills in interpreting and critiquing evaluation reports. (Formerly 5100:652)

EDFN:653 Practical Applications of Educational Evaluation (3 Credits)

Prerequisite: EDFN 652. This course is designed as the second part of educational evaluation with a focus on the application of evaluation concepts and theory to real world situations. (Formerly 5100:653)

EDFN:654 Master's Project in Assessment & Eval - Part I (3 Credits)

Prerequisite: Permission of advisor This capstone course is the culminating learning experience for the Masters Degree in Assessment and Evaluation. Students complete a comprehensive evaluation project of their choice. (Formerly 5100:654)

EDFN:655 Master's Project in Assessment & Eval Part 2 (3 Credits)

Prerequisite: EDFN 654. This capstone course is the culminating learning experience for the Masters Degree in Assessment and Evaluation. Students complete a comprehensive evaluation project of their choice. (Formerly 5100:655)

EDFN:695 Field Experience: Masters (1-3 Credits)

Prerequisites: permission of department chair and instructor. Area determined in accordance with student's program and professional goals. (Formerly 5100:695)

EDFN:697 Independent Study (1-3 Credits)

(May be repeated for a total of six credits) Prerequisites: permission of department chair and instructor. Specific area of study determined in accordance with student's program and professional goals. (Formerly 5100:697)

EDFN:698 Masters Problem (2-4 Credits)

Prerequisite: permission of advisor. In-depth study of a research problem in education. Student must be able to demonstrate critical and analytical skills in dealing with problems in educational foundations. (Formerly 5100:698)

EDFN:699 Masters Thesis (4-6 Credits)

Prerequisites: permission of department chair and instructor. In-depth study of research problem within humanistic and behavior foundation. (Formerly 5100:699)

EDFN:701 History of Education in American Society (3 Credits)

Historical development of education in American social order, with special emphasis on social, political and economic setting. (Formerly 5100:701)

EDFN:703 Seminar: History & Philosophy of Higher Education (3 Credits)

Prerequisite: EDFN 600 or equivalent. History and philosophy related to genesis and development of higher education in the Western world, with special emphasis given to higher education's development in United States. Delivered in face to face web enhanced format and fully online format. (Formerly 5100:703)

EDFN:705 Seminar: Social-Philosophical Foundations of Education (3 Credits)

(May be repeated for a total of six credits) Prerequisite: EDFN 600 or equivalent. Inquiry into selected ideological social, economic and philosophical factors affecting educational development in United States and other countries. (Formerly 5100:705)

EDFN:710 Adult Learning, Development & Motivation (3 Credits)

Emerging theories of intelligence; theories of adult learning; stage theories of adult cognitive, conceptual and moral development; life cycle development; adult life transitions. (Formerly 5100:710)

EDFN:721 Learning Processes (3 Credits)

Study of principles underlying classroom learning processes with particular emphasis on teaching as means of modifying pupil behavior; cognitive, motor, social and affective. (Formerly 5100:721)

EDFN:723 Teacher Behavior & Instruction (3 Credits)

Prerequisite: EDFN 600. Intensive survey of theoretical and empirical literature involving teacher and conceptions of instruction. A student reports on theory, empirical research and applications in areas of individual interests. (Formerly 5100:723)

EDFN:740 Research Design (3 Credits)

Topics include problem statement, research questions, literature review, choosing a sample, selecting an appropriate research design and data collection method, and ethical and legal issues. (Formerly 5100:740)

EDFN:741 Data Collection Methods (3 Credits)

Prerequisite: EDFN 740. Emphasis on developing, selecting, and administering common data collection methods in education and social science research including standardized tests, inventories, questionnaires, focus groups, and content analysis. (Formerly 5100:741)

EDFN:742 Statistics in Education (3 Credits)

Statistical methods and techniques used in educational measurement and in educational research. Emphasis on hypothesis testing. (Formerly 5100:742)

EDFN:743 Advanced Educational Statistics (3 Credits)

Prerequisite: EDFN 741. Emphasis on interpreting advanced statistics in education and the social sciences. (Formerly 5100:743)

EDFN:744 Qualitative Methods I (3 Credits)

Provides an overview of theory about and hands-on experience with methods of qualitative research. Techniques of participant-observation, interviewing, and document collection will be covered. (Formerly 5100:744)

EDFN:745 Qualitative Methods II (3 Credits)

Prerequisite: EDFN 744. Provides more advanced experience with theory and methods of qualitative research. Data collection and analysis will focus on students' research interests and possible dissertation topics. (Formerly 5100:745)

EDFN:798 Research Project in Special Areas (1-3 Credits)

Prerequisite: permission of department chair and instructor. Critical and in-depth study of specific problem in educational foundations. (Formerly 5100:798)

EDFN:801 Research Seminar: Educational Foundations & Leadership (3 Credits)

Prerequisites: EDFN 640 and EDFN 740; permission of department chair and instructor. Intensive study of research methods applicable to education. Emphasis on developing a dissertation proposal. (Formerly 5100:801)

EDFN:897 Independent Study (1-4 Credits)

(May be repeated for a total of eight credits.) Prerequisites: permission of department chair and instructor. Specific area of inquiry within humanistic and behavioral foundations of education determined in advance by student and faculty advisor. (Formerly 5100:897)

Educational Foundations - Higher Education (EDHE)

EDHE:515 Administration in Higher Education (3 Credits)

In-depth study of administrative roles, functions, knowledge and skills requirements, and administrative behavior. Trends in administrative theory and application will also be explored. Delivered in face-to-face web enhanced format and fully online format. (Formerly 5190:515)

EDHE:521 Law & Higher Education (3 Credits)

Legal aspects of higher education, sources of law and authority presented; impact on, interaction with, and implications of the administration of higher education will be discussed. Delivered in face-to-face, web-enhanced format, and fully online format. (Formerly 5190:521)

EDHE:525 Topical Seminar: Higher Education (3 Credits)

(May be repeated.) Topical study in a variety of areas related to public and/or private higher education institutions, organizations. Maximum of six credits applied to degree. Delivered in face-to-face web enhanced format and fully online format. (Formerly 5190:525)

EDHE:526 Student Services & Higher Education (3 Credits)

Examination of issues related to the delivery and evaluation of student services in higher education. Delivered in face-to-face web enhanced format and fully online format. (Formerly 5190:526)

EDHE:527 American College Student (3 Credits)

Introduction to the sociopsychological literature concerning the impact of college on students and student development theory. Delivered in face-to-face web enhanced format and fully online format. (Formerly 5190:527)

EDHE:530 Higher Education Curriculum & Program Planning (3 Credits)

Study of curriculum planning at the college and university level, factors influencing curriculum design, theories and practices of curricular change and innovation are also explored. Delivered in face-to-face web enhanced format and fully online format. (Formerly 5190:530)

EDHE:590 Workshop: Higher Education Administration (3-6 Credits)

(May be repeated for a total of six credits.) Emphasizing the development and demonstration of leader behavior appropriate to the college or university setting. (Formerly 5190:590)

EDHE:600 Advanced Administrative Colloquium in Higher Education (3 Credits)

Prerequisite: permission of instructor. Examination of higher education administration perspectives and issues, including those that pose particular concern to students. Capstone experience for students poised for program completion. Delivered in face-to-face web enhanced format and fully online format. (Formerly 5190:600)

EDHE:601 Internship in Higher Education (1-3 Credits)

(May be repeated for a total of six credits) Prerequisite: permission. Corequisite: EDHE 602. Opportunity for administrative work experience in a higher education setting. Delivered in face-to-face, web-enhanced format, or fully online format. (Formerly 5190:601)

EDHE:602 Internship in Higher Education Seminar (1 Credit)

(May be repeated for a total of three credits) Prerequisite: permission. Corequisite: EDHE 601. To be taken in conjunction with internship for synthesis of problems encountered in internship experience and to provide the opportunity to share ideas and experiences from various areas of higher education internship placement. Delivered in face-to-face web enhanced format and fully online format. (Formerly 5190:602)

EDHE:610 Diversity Issues in Higher Education (3 Credits)

Examination of psychosocial literature and theories related to diverse groups and issues within higher education. Theoretical application and perspectives to administrative practice emphasized. (Formerly 5190:610)

EDHE:615 Historical Foundations of American Higher Education (3 Credits)

Overview of the historical foundations, academic history, and educational traditions emerging from its European roots into American higher education to inform contemporary practice. (Formerly 5190:615)

EDHE:620 Finance & Higher Education (3 Credits)

Facilitates student's understanding of how American Higher Education is financed, identifies various methodologies used, and political and economic impacts and processes involved. Delivered in face-to-face web enhanced format and fully online format. (Formerly 5190:620)

EDHE:626 Policy, Assessment, and Accountability in Higher Education (3 Credits)

Familiarizes student with assessment, policy-making, and accountability in higher education. Theoretical approaches explored, internal and external policy actors identified and implementation issues are examined. Delivered in face-to-face web enhanced format and fully online format. (Formerly 5190:626)

EDHE:635 Instructional Strategies & Techniques for the College Instructor (3 Credits)

Selected topics in instruction theory, techniques and strategies which are appropriate to instructional planning and development of college-level courses. Delivered in face-to-face web enhanced format and fully online format. (Formerly 5190:635)

EDHE:645 Independent Study in Higher Education (1-3 Credits)

Selected areas of independent investigation in an area of higher education as determined by the advisor and student in relation to student's academic needs and career goals. Delivered in face-to-face web enhanced format and fully online format. (Formerly 5190:645)

Educational Foundations - Instructional Technology (EDIT)

EDIT:590 Workshop (1-3 Credits)

Individual work under staff guidance on curriculum problems, utilization of community resources, planning of curriculum units. Delivered in face-to-face, web-enhanced format and fully on-line format. (Formerly 5150:590)

EDIT:610 Introduction to Instructional Technology (3 Credits)

Course will provide the learner with foundational understanding of technology standards will provide the conceptual framework for the study of technology's impact on teaching and learning in the 21st Century. (Formerly 5150:610)

EDIT:614 Technology Leadership and Planning (3 Credits)

Prerequisite: Admission to a graduate program in the Buchtel College of Arts & Sciences. Pre/Corequisite: EDIT 610. Emphasizes the leadership and process of planning for the use of technology in schools, businesses, and institutions. Includes plans for instructor/faculty support and alternative management of technology integration. (Formerly 5150:614)

EDIT:631 Instructional Design (3 Credits)

Corequisite: EDIT 610. The theory and practice of instructional design (ID) involves a systematic approach to the analysis, design, development, evaluation, and implementation of effective instruction. (Formerly 5150:631)

EDIT:632 Designing Online Learning (3 Credits)

Prerequisite: Admission to a graduate program in the Buchtel College of Arts & Sciences. Pre/Corequisite: EDIT 610. Help students become proficient in the design, development, and evaluation of online learning modules/courses for training and education. Students will be prepared to design online courses and online learning modules. (Formerly 5150:632)

EDIT:633 Interactive Web Design and Development (3 Credits)

Prerequisite: Admission to a graduate program in the Buchtel College of Arts & Sciences. Pre/Corequisite: EDIT 610. Introduces students to design and develop an interactive website through integrating a variety of digital media (i.e. image, audio, video, and authoring tutorials) in a web-based format to support learning. (Formerly 5150:633)

EDIT:634 Visual Literacy (3 Credits)

This course will combine a basic understanding of design principles and concepts with research findings on the use of visuals in the learning process. (Formerly 5150:634)

EDIT:635 Emerging Technologies for Instruction (3 Credits)

This course examines emerging technologies (hardware, software, systems) that support teaching/learning, and methods for assessing the utility of any technology used for instructional purposes. (Formerly 5150:635)

EDIT:636 Topical Seminar in Educational Technology (3 Credits)

(Repeatable for up to nine credits.) Current trends and practices in educational technology: computer authoring software, tools and processes for instructional video production, presentation systems. (Formerly 5150:636)

EDIT:638 Integrating and Implementing Technology (3 Credits)

Designed to equip teachers with tools, resources, and strategies to support the integration and implementation of effective use of technology in the classroom. (Formerly 5150:638)

EDIT:639 Strategies for Online Teaching & Learning (3 Credits)

Corequisite: EDIT 610. Prepare instructors to make the transition from teaching in a physical classroom to facilitating learning in virtual classroom. Delivered in a fully-online format. (Formerly 5150:639)

EDIT:696 Master Technology Project (2-3 Credits)

Prerequisite: permission of advisor. Prepare and test a technology learning package that includes any combination of text, graphics, sound, color, motion, and the provision for interaction by the target students. (Formerly 5150:696)

EDIT:697 Independent Study (1-3 Credits)

(May be repeated for a total of six credits) Prerequisites: permission of department chair and instructor. Specific area of study determined in accordance with student's program and professional goals. (Formerly 5150:697)

Intervention Specialist (EDIS)

EDIS:540 Developmental Characteristics of Exceptional Individuals (3 Credits)

A survey course covering the identification, developmental characteristics, and intervention strategies for exceptional children and youth across education and community settings. (1 field hour) (Formerly 5610:540)

EDIS:544 Developmental Characteristics of Intellectually Gifted Individuals (3 Credits)

Prerequisite: EDIS 540. Survey of etiology, diagnosis, classification and developmental characteristics of intellectually gifted individuals. (Formerly 5610:544)

EDIS:547 Individuals with Mild/Moderate Educational Needs: Characteristics and Implications (4 Credits)

Survey of the etiology, identification, classification, developmental characteristics of, and intervention strategies for individuals with mild/moderate educational needs. (Formerly 5610:547)

EDIS:548 Individuals with Moderate/Intensive Educational Needs: Characteristics and Implications (3 Credits)

Prerequisites: EDIS 540. Survey of the etiology, identification, classification, and developmental characteristics of individuals with moderate/intensive educational needs. (Formerly 5610:548)

EDIS:550 Special Education Programming: Early Childhood (3 Credits)

Prerequisite: EDIS 540. Developmental patterns of young children with disabilities and developmentally/exceptionally appropriate practices with respect to programming and adaptations. (50 field hours) (Formerly 5610:550)

EDIS:551 Special Education Programming: Mild/Moderate I (3 Credits)

Prerequisites: EDIS 540 or EDIS 547. Educational implications regarding assessment, teaching strategies, and adaptive materials necessary to meet the needs of school age students with mild/moderate educational needs. (20 field hours) (Formerly 5610:551)

EDIS:552 Special Education Programming: Secondary/Transition (3 Credits)

Study of diagnostic prescriptive service delivery systems designed to accommodate developmental patterns of secondary level students with exceptionalities. (20 field hours) (Formerly 5610:552)

EDIS:553 Special Education Programming: Moderate/Intensive I (3 Credits)

Prerequisite: EDIS 548. Development of the programming strategies including assessment, inter/transdisciplinary models, family involvement, IFSP/IEP/IP development, instructional practices based upon legal/ethical principles for individuals with moderate/intensive educational needs. (20 field hours) (Formerly 5610:553)

EDIS:554 Special Education Programming: Moderate/Intensive II (3 Credits)

Prerequisites: EDIS 448/548, EDIS 453/553. Advanced program for providing educational planning and intervention for individuals with moderate to intensive educational needs. Focus is on developing a comprehensive educational program which will facilitate optimum functioning and independence. (20 field hours) (Formerly 5610:554)

EDIS:556 Inclusive Field Experience: Moderate/Intensive (1 Credit)

Corequisite: EDIS 554. In this inclusive field experience, teacher candidates explore the challenges and best practices in providing quality educational services for all learners (Formerly 5610:556)

EDIS:557 Special Education Programming: Mild/Moderate (5 Credits)

Prerequisite: EDIS 540. Corequisite: EDIS 558. Special educational implications regarding assessment, teaching strategies, and adaptive materials necessary to meet the needs of school age students with mild/moderate educational needs. (Formerly 5610:557)

EDIS:559 Collaboration & Consultation in Schools & Community (3 Credits)

Prerequisites: EDIS 540 and EDIS 547 or EDIS 548, or permission of instructor. Provides professional educators/intervention specialists with skills in collaboration and consultation for working with parents of exceptional individuals and other professionals within school/community settings. (Formerly 5610:559)

EDIS:560 Family Dynamics & Communication in the Educational Process (3 Credits)

Prerequisites: EDIS 440/540, EDIS 447/547 or EDIS 448/548. A study of family theory and structure along with beginning techniques for working with families of students with exceptionalities, in educational and community settings. (Formerly 5610:560)

EDIS:561 Special Education Programming: Early Childhood Moderate/Intensive (3 Credits)

Prerequisites: EDIS 440/540, EDIS 448/548. Developmental patterns of young children with moderate/intensive needs (ages 3-8) and developmentally appropriate practices in programming and adaptations. (20 field hours) (Formerly 5610:561)

EDIS:563 Assessment in Special Education (3 Credits)

Prerequisites: EDIS 440/540, EDIS 447/547 or EDIS 448/548. Prepares student to select, administer and interpret formal and informal assessment procedures and use resulting data in planning educational programs for exceptional individuals. (Formerly 5610:563)

EDIS:564 Assessment & Evaluation in Early Childhood Special Education (3 Credits)

Prerequisites: EDIS 440/540, EDIS 448/548. The assessment of children (three to eight) and their environment who are at risk for disabilities or currently in special education. (Formerly 5610:564)

EDIS:567 Management Strategies in Special Education (3 Credits)

Prerequisites: EDIS 440/540 and [EDIS 447/547 or EDIS 448/548]. Content emphasizing the development of application strategies with a variety of behavior management models for mediation of behaviors with exceptional individuals (Formerly 5610:567)

EDIS:568 Advanced Behavior Management (3 Credits)

Prerequisites: EDIS 567. Advanced techniques for remediating problematic behavior, establishing effective repertoires and evaluating research relevant to classroom management will be covered. Behavioral theory will be stressed. (Formerly 5610:568)

EDIS:569 Inclusive Education for English Learners (2 Credits)

This class prepares teachers to use evidence based strategies, accommodations, and instruction to enhance the curriculum for the English Learners with special education needs. (Formerly 5610:569)

EDIS:570 Clinical Practicum in Special Education (3 Credits)

Prerequisite: Departmental Consent Required. Provides a pre-student teaching experience for students in the areas of assessment, program planning, instructional planning and presentation, classroom management, adaptations, and collaboration with parents and other educational professionals. (Formerly 5610:570)

EDIS:579 Seminar: Invitational Studies in Special Education (1-2 Credits)

(May be repeated for a total of four credits) Topical study with a varied array of disciplinary input. Staffing will be invited members of allied and contributing professions active in management of exception children. (Formerly 5610:579)

EDIS:590 Workshop: Special Education (1-3 Credits)

See department for course description. (Formerly 5610:590)

EDIS:591 Workshop: Special Education (1-3 Credits)

See department for course description. (Formerly 5610:591)

EDIS:592 Workshop: Special Education (1-3 Credits)

See department for course description. (Formerly 5610:592)

EDIS:593 Workshop: Special Education (1-3 Credits)

See department for course description. (Formerly 5610:593)

EDIS:601 Seminar: Special Education Curriculum Planning (3 Credits)

Prerequisite: certification in an area of special education. Study of curriculum planning practices unique to special education classes and services. Appropriate curriculum objectives for selected areas of instruction as well as effective organizational programs examined. (Formerly 5610:601)

EDIS:602 Supervision of Instruction (3 Credits)

Study of administration and supervisory practices unique to special education classes and services. (Formerly 5610:602)

EDIS:604 Collaboration & Consultation Skills for Special Educators (3 Credits)

Advanced consideration of the roles and responsibilities of parents, professionals and individuals with disabilities in the development and implementation of educational interventions and related issues. (Formerly 5610:604)

EDIS:605 Inclusion Models & Strategies (3 Credits)

History, theory, philosophy, legislative mandates, models, strategies, curriculum modifications, methods/materials adaptations which support the inclusion of students with disabilities. Emphasis on collaboration and teaming. (3 field hours) (Formerly 5610:605)

EDIS:606 Research Applications in Special Education (3 Credits)

Prerequisites: admission to graduate program in special education and EDFN 640. An examination of quantitative and qualitative research/methodology and its application to the field of special education. Applied research is an essential component of the course. (Formerly 5610:606)

EDIS:607 Characteristics and Needs of Individual Demonstrating Pervasive Developmental Disorders (3 Credits)

This course provides a survey of the etiology, diagnoses, characteristics and needs of individuals with pervasive developmental disorders. (Formerly 5610:607)

EDIS:608 Sem: Legal, Social and Ethical Issues in Special Education (3 Credits)

A seminar course for graduate students in special education designed to study, examine and reflect upon legal, social and ethical aspects of historical and current trends, issues and practices, and developing skills needed to analyze own practices in the classroom as they relate to legal, social and ethical issues. (Formerly 5610:608)

EDIS:609 Programming Issues for Individuals with Pervasive Developmental Disorders (3 Credits)

This course provides the educator with a comprehensive examination of the educational practices and intervention strategies necessary when providing interventions for individuals demonstrating pervasive developmental disorders. (Formerly 5610:609)

EDIS:610 Characteristics and Needs of Individuals with Behavioral and Emotional Disorders (3 Credits)

This course provides a survey of the etiology, diagnoses, classification, and developmental (birth through adult) characteristics of individuals in need of behavioral support. (Formerly 5610:610)

EDIS:611 Seminar: Legal Issues in Special Education (3 Credits)

Prerequisites: admission to graduate program in special education and EDLP 720 or permission of instructor. A culminating seminar for graduate students in special education designed to study, examine and reflect upon the legal aspects of historical and current trends, issues and practices. (Formerly 5610:611)

EDIS:612 Seminar: Social/Ethical Issues in Special Education (3 Credits)

A culminating seminar for graduate students in special education designed to study, examine and reflect upon the social and ethical aspects of historical and current trends, issues and practices. (Formerly 5610:612)

EDIS:627 ST: Special Education (1-4 Credits)

Prerequisite: permission of advisor or department chair. In-depth examination of current critical research on issues in Special Education. (Formerly 5610:627)

EDIS:690 Student Teaching: Special Education (9 Credits)

Prerequisite: Permission of advisor or department chair. Corequisite: EDIS 570. Directed teaching under supervision of a special teacher and a university supervisor. (Formerly 5610:690)

EDIS:692 School-based Externship: School Audiology (6 Credits)

Directed professional experience under the supervision of a licensed and certified Audiologist and a University supervisor. (Formerly 5610:692)

EDIS:694 Research Project in Special Area (3 Credits)

An in-depth study of an identified topic in a scholarly paper. (Formerly 5610:694)

EDIS:695 Field Experience: Masters (1-4 Credits)

(May be repeated for a total of eight credits) Designed to provide on-the-job experience in a special education program on an individual basis. (Formerly 5610:695)

EDIS:697 Independent Study: Special Education (1-3 Credits)

(May be repeated for a total of nine credits) Specific area of investigation determined in accordance with student's needs. (Formerly 5610:697)

EDIS:698 Masters Problem (2-4 Credits)

In-depth study of a research problem in education. Student must be able to demonstrate critical and analytical skills in dealing with a problem in special education. (Formerly 5610:698)

EDIS:699 Masters Thesis (4-6 Credits)

Thorough study and analysis in depth of an educational problem, field projects in special areas; synthesis of existing knowledge in relationship to a specific topic. (Formerly 5610:699)

Special Educational Programs (EDSP)

EDSP:590 Workshop in Economic Education or in Social Studies (1-3 Credits)

Individual work under staff guidance on curriculum problems; utilization of community resources; planning of curriculum units. (Formerly 5800:590)

Curriculum and Instruction with Licensure Options, MS

This program is a Master of Science degree, which leads to licensure in a chosen teaching field and is open to highly qualified students who hold an undergraduate degree. It is designed to give the student concentrated study in one of the licensure areas listed for high school (grades 7-12). All teacher education programs require a 16-week student teaching experience.

The University of Akron offers adolescent/young adult licensure (grades 7-12) in the following fields:

- Integrated Social Studies
- Integrated Language Arts
- Integrated Mathematics

- Science (Life Science, Chemistry, Physics, Earth Science, Dual Science or Integrated Science)

Multi-Age (P-12) specializations:

- Visual Arts

Admission Requirements

- Completed application for Graduate School.
- Students must have an overall 2.75 grade point average to be fully admitted.
- Provisional admission may be granted to a student who has a grade point average of 2.50 or higher. Full admission is granted after the student obtains a 3.0 or higher in the first 15 credit hours of the graduate program.

School of Education Teacher Education Program:

- Completed teacher education program application
- Competency in reading comprehension, writing, and mathematics as evidenced by an earned bachelor's degree from an accredited college or university.
- BCI (Bureau of Criminal Investigation) and FBI Acknowledgement Form

Options in Adolescent to Young Adult (AYA)

The requirements listed below apply to the following Adolescent to Young Adult (AYA) Licensure Options:

- Integrated Social Studies
- Integrated Language Arts
- Integrated Mathematics
- Science (Life Science, Chemistry, Physics, Earth Science, Dual Science, or Integrated Science)

Code	Title	Hours
EDCI:617	Seminar: Licensure in Curricular and Instructional Studies	3
EDFN:620	Psychology of Instruction for Teaching & Learning	3
EDCI:539	Engineering for Educators	3
or EDCI:503	Global Education and Technology	
EDCI:619	Instructional & Management Practices	3
EDIS:605	Inclusion Models & Strategies	3
EDCI:522	Content Area Literacy	3
EDFN:642	Introduction to Classroom Assessment for Teachers	3
EDCI:520	Advanced Instructional Techniques	3
EDCI:521	Advanced Instructional Techniques II	3
EDCI:530	Clinical Teaching I	3
EDCI:531	Clinical Teaching II	3
EDCI:694	Field Experience: Classroom Instruction	1-12
Total Hours		34-45

Minimum credits required for degree: 36

Option in Multi-Age (Grades P-12) Education: Visual Arts Licensure

Code	Title	Hours
Education Coursework		
EDFN:620	Psychology of Instruction for Teaching & Learning	3
EDCI:522	Content Area Literacy	3
EDCI:619	Instructional & Management Practices	3
EDIS:605	Inclusion Models & Strategies	3
ART:510	Methods of Teaching Elementary Art	3
ART:511	Methods of Teaching Secondary Art	3
ART:528	Elementary Field Exp: Art Licensure	1
ART:529	Secondary Field Exp: Art Licensure	1
Area of Concentration		
ART:524	Middle School Materials & Techniques	3
ART:523	Art Bomb Brigade: Methods for Creating Public Art	3
ART:530	Professional Practices for Creative Careers	3
Field Experience (Student Teaching)		
EDCI:694	Field Experience: Classroom Instruction	1-12
ART:512	Student Teaching Colloquium	3
Total Hours		33-44

Minimum credits required for degree is 36.

Option in Multi-Age (Grades P-12) Education: Physical Education Licensure

Code	Title	Hours
Educational Foundations Courses		
Select 10 credits		10
Curricular and Instructional Studies		
EDCI:575	Instructional Technology Applications	3
EDCI:617	Seminar: Licensure in Curricular and Instructional Studies	3
EDCI:619	Instructional & Management Practices ¹	3
EDCI:693	Field Experience: Masters with Licensure	1-3
EDCI:555	Literacy for Multiage Licensure	3
Area of Concentration		
PHED:547	Instructional Techniques for Children in Physical Education	3
PHED:546	Instructional Techniques in Secondary Physical Education	3
PHED:552	Foundations of Sport Science, Physical and Health Education	3
or PHED:550	Organization & Administration of Physical Education, Intramurals and Athletics	
Electives		
Select six credits of the following:		6
PHED:xxx		
EDCI:600	Concepts of Curriculum & Instruction	
EDCI:605	Seminar in Trends & Issues in Curriculum & Instruction	
Field Experience (Student Teaching)		
PHED:595	Practicum: Student Teaching	8

PHED:594	Student Teaching Colloquium (for Master's Plus Initial Lic.)	2
Total Hours		48-50

¹ Taken in conjunction with EDCI:693

Minimum credits required for degree: 48

Clinical and Field-Based Experiences

All teacher education candidates, including those in the master's with licensure programs, are required to participate satisfactorily in clinical and field-based experiences prior to recommendation for licensure. These integrated and developmental clinical and field-based experiences are designed to provide teacher education students with opportunities to apply theory and skills related to their areas of licensure. Field-based experiences are planned in diverse settings and provide comprehensive early and ongoing field-based opportunities in which candidates may observe, assist, tutor, instruct, and/or conduct research. Field experiences may occur in off-campus educational settings.

Student teaching is a full-time opportunity that provides candidates with an intensive and extensive culminating clinical experience in an approved public or private school for 16 weeks. Candidates are immersed in the learning community and are provided opportunities to develop and demonstrate competence in the professional roles for which they are preparing. Placements are made in appropriate sites at the discretion of the School of Education in consultation with program faculty and district leaders. All students must have approval of the Student Teaching Committee to be placed for student teaching.

Curriculum and Instruction, MA

The 30 credit hour graduate program in Curriculum and Instruction is designed for educators who are interested in broadening their skills in teaching and learning in K-12, higher education, and other settings. Completion of the master's degree does not lead to licensure.

Admissions Requirements

Applications to the master's program in Curriculum and Instruction must be completed and submitted at least six weeks (domestic) or six months (international) before the beginning of term for which admission is sought in order to allow for adequate processing time. Students must have a 2.75 or higher undergraduate cumulative grade point average to be fully admitted.

Degree Requirements

Code	Title	Hours
Educational Foundations Courses		
EDFN:624	Seminar in Educational Psychology	3
Curriculum and Instructional Studies Courses		
EDCI:600	Concepts of Curriculum & Instruction	3
Select one of the following:		3
EDCI:605	Seminar in Trends & Issues in Curriculum & Instruction	
EDCI:5xx/6xx	Course selected in consultation with adviser	
EDIS:5xx/6xx	Course selected in consultation with adviser	
Area of Concentration		
Select 15 credits - Course within Curriculum and Instruction as approved by adviser		15

Master's Project

EDCI:690	Educational Inquiry I	3
EDCI:691	Educational Inquiry II	3
Total Hours		30

Educational Administration and Leadership, MA

The LeBron James Family Foundation School of Education offers a 30 hour master's degree Program in Educational Administration and Leadership. With the help of an adviser and approval of the Graduate School courses may be waived and/or substituted to create specialized options in different educational tracks to match the needs and academic goals of the students.

Admission Requirements

Applications to the master's program in the LeBron James Family Foundation School of Education must be completed and submitted at least six weeks (domestic) or six months (international) before the beginning of the term for which admission is sought in order to allow for adequate processing time. Applicants must have a 2.75 or higher undergraduate cumulative grade point average to be fully admitted.

Applicants who wish to pursue the Ohio Principal Licensure must also hold a valid Ohio teaching license for a minimum of two years.

Degree Requirements

Code	Title	Hours
EDLP:601	Organizational Leadership	3
EDLP:602	Management of Physical Resources	3
EDLP:603	Management of Human Resources	3
EDLP:604	School Contexts and Community Involvement	3
EDLP:607	School Law	3
EDLP:608	School Finance & Economics	3
EDLP:610	Supervision of Instruction	3
EDLP:615	Student Services and Disability Law	3
EDLP:695	Principal Internship	3
EDLP:696	Principal Internship	3
Total Hours		30

The Educational Administration & Leadership master's degree program courses have been aligned with the National Educational Leadership Preparation (NELP) and Ohio Standards for Principals (OSP) standards specific key assessments embedded in coursework and must be completed to demonstrate that students meet these standards.

Students who wish to pursue the Ohio Principal Licensure will have to complete The Educational Administration & Leadership Program and to apply for the State Principal Licensure.

To obtain a license to practice the work of a school principal through the LeBron James Family Foundation School of Education, the candidate will have a total of 30 post-baccalaureate hours, a master's degree, completion of a supervised two semester internship in the area in which the candidate seeks the license, and successful passage of the state licensing examination.

Elementary Education with Literacy Option, MA

This program leading to a Master of Arts in Elementary Education is designed for elementary school teachers. Students complete foundations courses in education and in curriculum and instruction and courses for an area of concentration in literacy education.

Admission Requirements

Applications to the master's program in Elementary Education with Literacy Option must be completed and submitted at least six weeks (domestic) or six months (international) before the beginning of the term for which admission is sought in order to allow for adequate processing time. Students must have a 2.75 or higher undergraduate cumulative grade point average to be fully admitted.

Degree Requirements

Code	Title	Hours
Educational Foundations		
EDFN:600	Philosophies of Education	3
EDFN:624	Seminar in Educational Psychology	3
EDFN:640	Using Research to Inform Practice	3
Curricular and Instructional Studies		
EDCI:600	Concepts of Curriculum & Instruction	3
EDCI:625	Contemporary Issues in Literacy Instruction and Phonics	3
Area of Concentration/Literacy		
Select 15 credits of the following: ¹		15
EDCI:522	Content Area Literacy	
EDCI:524	Teaching Reading to Culturally Diverse Learners	
EDCI:622	Children's Literature in the Curriculum	
EDCI:626	Assessment of Reading Difficulties	
EDCI:627	Special Topics in Curricular & Instructional Studies	
EDCI:628	Literacy Assessment Practicum	
Master's Project/Thesis Options		
Select one of the following options:		6
<i>Option 1</i>		
EDCI:690	Educational Inquiry I	
EDCI:691	Educational Inquiry II	
<i>Option 2</i>		
EDCI:696	Masters Project (with advisor's permission)	
<i>Option 3</i>		
EDCI:699	Masters Thesis (with advisor's permission)	
Total Hours		36

¹ If seeking a reading endorsement, a valid teaching license, completion of 18 credit hours in reading, and a passing score on OAE Test 038/039: Subtests 1 and 2 are required.

Women's Studies

- Women's Studies, Certificate (p. 97)

Women's Studies (WMST)

WMST:580 Feminist Theory (3 Credits)

A summary of feminist theory to familiarize students with the main currents in contemporary feminist theory and the origins and evolution of that thought. (Formerly 3001:580)

WMST:585 Special Topics in Women's Studies (1-3 Credits)

Specialized topics and current issues in Women's Studies. Covers content and issues not currently addressed in other academic courses. Emphases will be on original source materials, critical analyses and the synthesis of empirical and theoretical aspects. (May be repeated) (Formerly 3001:585)

WMST:589 Internship in Women's Studies (1-4 Credits)

Prerequisite: Permission. This class provides supervised experience and on-the-job training in an organization, agency, corporation or group dealing with women's issues. (May be repeated for a maximum of four credits) (Formerly 3001:589)

WMST:590 Workshop: Women's Studies (1-3 Credits)

Group experiential study of special issues in Women's Studies. (May be repeated) (Formerly 3001:590)

WMST:593 Individual Studies on Women (1-3 Credits)

Directed study of selected topics related to women. Projects are chosen by student in consultation with instructor and approval of Director of Women's Studies. (Formerly 3001:593)

Women's Studies, Certificate

Interdisciplinary and specialized, the Women's Studies graduate program fosters a critical approach to knowledge about women. By focusing on cultural practices that have largely excluded and devalued differences in gender, sexual orientation, ethnicity, race, and class, Women's Studies prepares students to appreciate and act in a pluralistic world. The Women's Studies graduate certificate integrates scholarship and research on women and gender from multiple disciplines. Students are challenged to explore diverse viewpoints and to expand the scope of their intellectual endeavors to include gender issues and debates.

For information, contact Women's Studies, located in Kolbe Hall 108, (330) 972-6222.

Admission

Hold a Bachelor's Degree with a minimum 2.75 grade point average.

Program

Code	Title	Hours
Required Courses		
WMST:580 or PHIL:555	Feminist Theory Philosophy of Feminism	3
WMST:589 or WMST:593	Internship in Women's Studies Individual Studies on Women	1-4
Electives		
Select nine credits of the following:		9
WMST:585	Special Topics in Women's Studies	
ANTH:516	Anthropology of Sex and Gender	
ENGL:553	American Women Poets	
ENGL:589	Seminar in English	
HIST:569	African-Amer Women's History	

HIST:599	Women and Gender in Middle Eastern Societies
CHFD:501	American Families in Poverty
CHFD:546	Culture, Ethnicity & Family
SOCIO:547	Sociology of Sex and Gender
SOCIO:555	Family Violence
SOCIO:639	Sociology of Gender
COMM:508	Women, Minorities & News
COMM:546	Women, Minorities & Media
SOWK:656	Social Work Practice with Gays & Lesbians
Total Hours	13-16

College of Business

Established as a professional college of The University of Akron in 1953, the College of Business (CoB) prepares students to become competent and responsible business professionals and leaders.

The College of Business offers nationally recognized graduate programs that are convenient and flexible to fit students' busy schedules. The college's approach to business education is focused on strategic, critical thinking and real-world experience and prepares students for professions that are in high demand.

College Website (<https://www.uakron.edu/cba/>)

Departments:

- George W. Daverio School of Accountancy (<https://www.uakron.edu/cba/departments/accountancy/>)
- Department of Finance (<https://www.uakron.edu/cba/departments/finance/>)
- Department of Management (<https://www.uakron.edu/cba/departments/management/>)
- Department of Marketing (<https://www.uakron.edu/cba/departments/marketing/>)
- Accounting, Accelerated BS/Master of Taxation (p. 100)
- Accounting, Accelerated BS/MSA (p. 102)
- Accounting, MSA (p. 103)
- Business Administration, Interdisciplinary, MBA (p. 109)
- Business Certificate for Health Care Professionals (p. 112)
- Business Dual Enrollment, Certificate (p. 112)
- Financial Management, Certificate (p. 114)
- Global Innovation and Technology Management, Certificate (p. 118)
- Information Systems Management, Accelerated MSM (p. 119)
- Joint Degree Programs (p. 114)
- Management, Business Analytics - Information Systems Concentration, MSM (p. 120)
- Management, Business Analytics - Supply Chain Concentration, MSM (p. 122)
- Risk Management and Insurance, Certificate (p. 114)
- Taxation Online, MTax (p. 105)
- Taxation, MTax (p. 107)

Accountancy

- Accounting, Accelerated BS/Master of Taxation (p. 100)
- Accounting, Accelerated BS/MSA (p. 102)

- Accounting, MSA (p. 103)
- Taxation Online, MTax (p. 105)
- Taxation, MTax (p. 107)

Accountancy (ACCT)

ACCT:520 Advanced Financial Reporting and Analysis (3 Credits)

Prerequisites: ACCT 622 or ACCT 322 or equivalent. Examination of accounting theory and financial reporting practices for business combinations, partnerships, foreign operations, nonprofit entities and consolidated statements. Covers U.S. GAAP, IFRS, SEC reporting, and corporate financial reporting policy. Emphasizes professional accounting research. Includes a research component. (Formerly 6200:520)

ACCT:524 Business Law (3 Credits)

Understand business law and concepts dealing with the legal environment of business and their applications, including: business ethics, the American legal system, tort law, contracts, secured transactions, bankruptcy, real property, business entities, environmental law, antitrust. (Formerly 6200:524)

ACCT:531 Business Entity Taxation (3 Credits)

Prerequisite: A minimum of 3 credits of tax. Federal income tax law related to partnerships, corporations, trusts and estates; also includes an overview of federal estate and gift tax law. Includes a research component. Master of Taxation students will not be able to take this course to satisfy tax electives in the Master of Taxation program. (Formerly 6200:531)

ACCT:540 Assurance Services and Professional Responsibilities (3 Credits)

Prerequisite: ACCT 621 or ACCT 321 or equivalent. Examine assurance services including external auditing and professional responsibilities. Focuses on standards, professional ethics, and independence requirements, and procedures used in conducting assurance services. Includes a research component. (Formerly 6200:540)

ACCT:541 Information Systems Audit & Control (3 Credits)

Prerequisite: ACCT 540 or permission of instructor. Learn the fundamental concepts and practices of information systems audit control. Use control objectives and standards by information systems control, audit and security organizations. (Formerly 6200:541)

ACCT:550 Advanced Applied Analytics & Decision Analysis (3 Credits)

Prerequisites: Admission to a major in the College of Business. Study advanced topics in data analytics and decision analysis in the context of accounting and business. Topics may include advanced Excel techniques, PowerBI, and other applied analytics software. (Formerly 6200:550)

ACCT:554 Information Systems Security (3 Credits)

Prerequisite: ACCT 603 or equivalent. Focus on information systems risk and security in distributed business environments; develop policies, practices, and systems for security of computers and data in business. Includes a research component. (Formerly 6200:554)

ACCT:570 Governmental Accounting (3 Credits)

Prerequisite: ACCT 621 or ACCT 321 or equivalent. Theory and procedures involved in application of fund accounting, budgetary control, appropriations and various accounting systems to governmental units, educational, medical and other non-profit institutions. Covers financial reporting for government and not for profit entities and GASB standards. Includes a research component. (Formerly 6200:570)

ACCT:575 Experiential Learning in Tax (3 Credits)

Prerequisite: ACCT 330 or equivalent with grade of C- or better or permission of the instructor. Students focus on the application of tax law to specific transactions. Students learn to communicate with low-income and nonresident alien clients and work to achieve the best tax outcome when preparing tax returns. Students learn to use tax software and learn to review their own work prior to submitting to the professor for review. (Formerly 6200:575)

ACCT:580 Accounting Problems (3 Credits)

Prerequisite: ACCT 322. Independent research on advanced accounting problem in student's specific area of interest. (Formerly 6200:580)

ACCT:591 Workshop in Accounting (1-3 Credits)

(May be repeated) Prerequisite: permission of instructor. Group study of accounting under faculty guidance. May not be used to meet undergraduate or graduate accounting major requirements, but may be used for elective credit only with permission of instructor or department. (Formerly 6200:591)

ACCT:601 Financial Accounting (3 Credits)

Introductory course for student with no accounting background. Examines accounting principles as applied to financial problems of firm. (Formerly 6200:601)

ACCT:603 Accounting Decision Support Systems (3 Credits)

Introduction to basic financial statement information; coverage of databases, electronic spreadsheets, and other information technology tools that support accounting and assurance services. (Formerly 6200:603)

ACCT:607 Financial Data Communications & Enterprise Integration (3 Credits)

Prerequisites: ACCT 601 and MGMT 601. In-depth study of contemporary methodologies, technologies, and standards used to integrate business processes and systems, including XML and XBRL. (Formerly 6200:607)

ACCT:610 Process Analysis & Cost Management (3 Credits)

Prerequisites: ACCT 601, ACCT 621, ACCT 321 or equivalent, or permission of instructor. Investigates management accounting and control systems and the use of accounting information in cost management, risk assessment, planning, decision making, and performance evaluation. (Formerly 6200:610)

ACCT:615 Professional Colloquium I (3 Credits)

Prerequisite: ACCT 628. Prepare students for professional and licensure exams on topics related to financial accounting reporting. (Formerly 6200:615)

ACCT:621 Corporate Accounting & Financial Reporting I (3 Credits)

Prerequisite: 601 or graduate accounting status. An examination of generally accepted accounting principles in theory and application, as well as financial statement preparation. Not open to students who have taken Intermediate Accounting I. (Formerly 6200:621)

ACCT:622 Corporate Accounting & Financial Reporting II (3 Credits)

Prerequisite: ACCT 621 or ACCT 321 or equivalent. A continuation of ACCT 621 which examines generally accepted accounting principles in theory and practice, as well as financial statement preparation. Not open to students who have taken Intermediate Accounting II. (Formerly 6200:622)

ACCT:623 Managerial Accounting for Decision Making (3 Credits)

Prerequisite: FIN 620. This course will discuss the functional-based managerial accounting system as well as activity- and strategic-based systems used in the U.S, Germany and Japan, providing flexibility and depth of understanding of concepts and methods of management accounting. (Formerly 6750:621)

ACCT:627 Federal Taxation (3 Credits)

Survey of federal taxation of entities, tax research, and individual taxation. Tax cases, projects, and problems will be assigned. (Formerly 6200:627)

ACCT:628 Tax Research (3 Credits)

Designed to develop basic research competence involving federal income, estate, and gift tax laws. (Formerly 6200:628)

ACCT:629 Tax Crimes and Forensics (3 Credits)

Prerequisite: ACCT 531 or permission of the director of the school. In-depth study of tax and tax related crimes charged under provisions of the IRS code and titles 18 and 31 of the U.S. code. (Formerly 6200:629)

ACCT:631 Corporate Taxation I (3 Credits)

Prerequisite: ACCT 531 or permission of the director of the school. Detailed examination of tax problems of corporations and their shareholders. Formation, distribution, redemption, and liquidation. (Formerly 6200:631)

ACCT:632 Taxation of Transactions in Property (3 Credits)

Prerequisite: admission to Master of Tax program or special permission. Explores federal tax implications of gains and losses derived from sales, exchanges and other dispositions of property. (Formerly 6200:632)

ACCT:633 Estate and Gift Taxation (3 Credits)

Prerequisite: admission to Master of Tax program or special permission. Analyzes provisions of federal estate and gift tax laws and tax consequences of testamentary and lifetime transfers. (Formerly 6200:633)

ACCT:637 Business Analysis and Valuation (3 Credits)

Prerequisite: ACCT 601 or equivalent or permission. Recent global accounting standards has increased the use of fair value to measure assets and liabilities for financial reporting purposes. In this class, we will discuss the recent issues affecting the accounting profession, as well as the principles and methods used in valuation and fair value measurement. (Formerly 6200:637)

ACCT:640 Advanced Auditing (3 Credits)

Prerequisite: ACCT 540 or equivalent or permission. Conceptual foundations and current research on professional and internal auditing. Includes government regulation and litigation, statistics, computer systems as well as current and prospective developments in auditing. (Formerly 6200:640)

ACCT:641 Taxation of Partnerships (3 Credits)

Prerequisite: ACCT 531 or permission of the director of the school. Examines intensively provisions of subchapters K and S of Internal Revenue Code and uses of partnerships for tax planning. (Formerly 6200:641)

ACCT:642 Corporate Taxation II (3 Credits)

Prerequisite: ACCT 631 or special permission. Focuses on corporate reorganization; covers A, B, C, D, and E reorganizations, corporate split-offs and spin-offs; carryovers of tax attributes; and limitations on carryovers. (Formerly 6200:642)

ACCT:643 Tax Accounting (3 Credits)

Prerequisite: ACCT 531 or permission of the director of the school. Attention focused on timing of income and expenses for individual businesses and its relation to tax planning. (Formerly 6200:643)

ACCT:644 Income Taxation of Decedents, Estates & Trusts (3 Credits)

Prerequisite: ACCT 633. An in-depth examination of the decedent's last income tax return along with the analysis of income taxation of trusts and estates and their creators, fiduciaries and beneficiaries. (Formerly 6200:644)

ACCT:645 Advanced Individual Taxation (3 Credits)

Prerequisite: ACCT 531 or permission of the director of the school. In-depth study of some of the more involved areas of individual income taxation. (Formerly 6200:645)

ACCT:646 Consolidated Tax Returns (3 Credits)

Prerequisite: ACCT 631. Intensive study of tax provisions concerning use of consolidated tax returns. (Formerly 6200:646)

ACCT:647 Qualified Pensions & Profit Sharing (3 Credits)

Prerequisite: Permission of the department. Nature, purpose and operation of various forms of deferred compensation examined with much emphasis on pension and profit-sharing plans. (Formerly 6200:647)

ACCT:648 Tax Policy & Ethics (3 Credits)

Prerequisite: ACCT 531 or permission of the director of the school. In-depth study of administration and procedures of Internal Revenue Service and responsibilities of tax practitioner. (Formerly 6200:648)

ACCT:649 State & Local Taxation (3 Credits)

Prerequisite: ACCT 531 or permission of the director of the school. Examines common types of taxes imposed by state and local governments and includes taxation of multistate businesses. (Formerly 6200:649)

ACCT:650 Estate Planning (3 Credits)

Prerequisite: ACCT 633. Considers entire process of planning the estate with due regard for disposition of property, tax minimization, liquidity requirements and administrative costs. (Formerly 6200:650)

ACCT:651 International Taxation (3 Credits)

Prerequisite: ACCT 531 or permission of the director of the school. Examines United States taxation of foreign income of domestic corporations, citizens and residents, as well as United States income of nonresident aliens and foreign corporations. (Formerly 6200:651)

ACCT:652 Tax-Exempt Organizations (3 Credits)

Prerequisite: admission to Master of Tax program or special permission. Analysis of tax aspect of tax-exempt organizations, including nature of and limitations of its exemption. (Formerly 6200:652)

ACCT:654 Independent Study in Taxation (1-3 Credits)

Prerequisite: permission of instructor. Intensive study of particular topic or limited number of topics not otherwise offered in curriculum. (May be repeated for a total of six credits.) (Formerly 6200:654)

ACCT:655 Advanced Information Systems (3 Credits)

Prerequisites: ACCT 603 or equivalent and ACCT 610. Advanced study of accounting information system theory, elements, principles, design and implementation. Practical data processing and networks to control flow of information. (Formerly 6200:655)

ACCT:658 Enterprise Risk (3 Credits)

Prerequisite: ACCT 540. An examination of the risks, controls, and assurance services in contemporary organizations. (Formerly 6200:658)

ACCT:659 Data Analysis and Assurance Services (3 Credits)

Introductory programming and statistical learning techniques with an emphasis on assurance services. Topics include basic data management, visualization, pattern recognition, and decision making. Projects emphasize both oral and written communication of results and recommendations. (Formerly 6200:659)

ACCT:660 Professional Colloquium II (3 Credits)

Prerequisite: ACCT 628. Prepare students for professional and licensure exams on topics related to regulation, auditing, and attestation. (Formerly 6200:660)

ACCT:661 Advanced Tax Research & Policy (3 Credits)

Prerequisite: ACCT 628 and completion of four other tax courses in Phase II. Extensive research involving federal income, estate, trust and gift taxes as well as tax policy. (Formerly 6200:661)

ACCT:662 S Corp Taxation (3 Credits)

Prerequisite: ACCT 631 or special permission. This course involves an in depth study of Subchapter S of the Internal Revenue Code. (Formerly 6200:662)

ACCT:664 Research & Quantitative Methods in Accounting (3 Credits)

Prerequisites: ACCT 610 and MGMT 601 or equivalent. Survey of research techniques, statistical methods, and data bases with applications to accounting and business functional areas. (Formerly 6200:664)

ACCT:665 Fraud and Financial Forensics (3 Credits)

Prerequisite: ACCT 540 or permission of the department chair. Provides students with a comprehensive background in fraud risk assessment and financial forensics. (Formerly 6200:665)

ACCT:670 Corporate Performance Evaluation & Control Systems (3 Credits)

Prerequisite: ACCT 610. Investigation of the role of financial information systems in developing strategy, planning, measuring results, and motivating managers to define and pursue organizational goals and objectives. (Formerly 6200:670)

ACCT:680 International Accounting (3 Credits)

Prerequisite: ACCT 610. Examination of accounting theory and practice from international perspective with emphasis on multinational investment, business and auditing activities and reporting problems. (Formerly 6200:680)

ACCT:690 Seminar in Taxation (3 Credits)

(May be repeated for a total of six credits.) Prerequisites: completion of M.Tax foundation courses. Program of studies in the tax area of student's choice, in which a finished report is required. (Formerly 6200:690)

ACCT:693 Selected Topics in Taxation (1-3 Credits)

(May be repeated for a total of six credits.) Prerequisites: ACCT 631 or special permission. Provides study in contemporary issues in taxation that are not covered in current courses. (Formerly 6200:693)

ACCT:695 Graduate Internship in Accounting (3 Credits)

Prerequisites: [ACCT 621 or ACCT 321 or equivalent] and ACCT 610. This course provides an opportunity for graduate accounting students to apply classroom instruction to practice problems in a professional working environment. (Formerly 6200:695)

ACCT:697 Independent Study in Accounting (1-3 Credits)

(May be repeated for a total of six credits) Focus on special topics of study and research in accounting on an independent basis. (Formerly 6200:697)

Accounting, Accelerated BS/Master of Taxation

The Accelerated BS Accounting/Master of Taxation program offers students the opportunity to complete both the BS Accounting (BSA) and Master of Taxation (MTax) in a shorter period of time by taking dual-credit courses that count toward both the undergraduate and graduate degrees. In addition to a broad undergraduate degree in accounting, Accelerated BSA/MTax students develop substantive technical and professional knowledge needed to function as taxation specialists in the United States.

The University of Akron also offers a highly attractive joint JD/MTax degree. This means that students with an interest in law will have the option to combine the Accelerated BSA/MTax with the JD. With careful planning, students may be able to complete the JD/MTax in as little as three years beyond the BS Accounting degree. An outline of the Accelerated BSA/MTax curriculum appears below. Because graduate taxation courses are offered only once per academic year, students must follow that outline in order to graduate in a timely manner.

The MTax program is taught by experts with significant tax experience and emphasizes on tax practice. Graduates of the program are highly recruited.

Eligibility requirements for the graduate portion of BSA/MTax:

- Completion of an internship in taxation or equivalent.
- Earn an overall GPA of 3.3 and a 3.0 or higher in accounting courses.
- Apply and be accepted into Graduate School.
- The GMAT is not required for students who satisfy the other Accelerated BSA/MTax admission requirements.

Admission Requirements

- Graduate School application and fee
- Official transcripts from each institution attended
- GMAT (<https://www.mba.com/>) (score of 500 or better preferred), GRE (<https://www.ets.org/gre/>), LSAT (<https://www.lsac.org/lstat/>), PCAT (<http://pcatweb.info/>), or MCAT (<https://students-residents.aamc.org/applying-medical-school/taking-mcat-exam/>) score. The GMAT is not required for students who satisfy the other Accelerated BSA/MTax admission requirements.
- Letter of Intent
- Resume

Application Deadline

- August 1 for Fall enrollment
- December 1 for Spring enrollment
- May 1 for Summer enrollment

International Student Applications

I-20 forms used for visa approval are processed by UA student immigration services in the International Center: <https://www.uakron.edu/international/>. Proof of English Language Proficiency is required by producing an acceptable TOEFL or IELTS score.

Students currently admitted to this program may have different course requirements than those listed here. Refer to your official Program Checklist and DPR in My Akron for your program requirements.

Degree Offered: MTax Master of Taxation

Program Contact: gradbusiness@uakron.edu

Code	Title	Hours
Required Dual Credit Courses. These are the dual credit courses for the accelerated program students take during their final year of undergraduate study.		
ACCT:520	Advanced Financial Reporting and Analysis	3
ACCT:531	Business Entity Taxation	3
ACCT:540	Assurance Services and Professional Responsibilities	3

Required		
ACCT:628	Tax Research	3
ACCT:631	Corporate Taxation I	3
ACCT:641	Taxation of Partnerships	3
ACCT:642	Corporate Taxation II	3
ACCT:643	Tax Accounting	3
ACCT:651	International Taxation	3
Elective: Choose one of the following		
ACCT:575	Experiential Learning in Tax	3
ACCT:615	Professional Colloquium I	3
ACCT:629	Tax Crimes and Forensics	3
ACCT:633	Estate and Gift Taxation	3
ACCT:645	Advanced Individual Taxation	3
ACCT:648	Tax Policy & Ethics	3
ACCT:649	State & Local Taxation	3
ACCT:654	Independent Study in Taxation	3
ACCT:660	Professional Colloquium II	3
ACCT:661	Advanced Tax Research & Policy	3
ACCT:662	S Corp Taxation	3
ACCT:690	Seminar in Taxation	3
ACCT:693	Selected Topics in Taxation	3
ACCT:697	Independent Study in Accounting	3

Admission Policy

To be considered for acceptance to one of the graduate programs in the College of Business (CoB) at The University of Akron, the following admission criteria are examined:

- A preferred minimum of 3.0 GPA, on a 4.0 scale, from an accredited undergraduate program.
- For those that have lower than a 3.0 GPA, individual consideration may be made based upon the GMAT, GRE, or equivalent scores.
- For those that have a 3.0 GPA or higher, but lack three years of work experience, a GMAT score of 500 or higher is preferred to indicate potential success in the graduate program.
- Admittance without a GMAT test requirement may be granted to those holding a graduate degree from an accredited university or those with three or more years of professional work experience beyond the earned bachelor's degree.
- Applicants holding a degree from outside the United States and with an academic standing of first or high second class, satisfactory evidence of competence in English (i.e., TOEFL score of 79 or above or IELTS score of 6.5 or above) is required.
- In all situations, when the graduate committee has reservations about the potential success of a candidate, a GMAT score may be required.
- For those that are admitted on a provisional basis (less than complete acceptance), the course grades and overall GPA will be examined to determine if the student may continue with graduate coursework.

Even though an applicant is eligible for consideration, an offer of admission is not guaranteed. Since staff, facilities, and resources are limited, a determination will be made as to the number of applicants that can be adequately served among those eligible for admission. As a

result, offers of admission may be limited to only the most qualified of eligible applicants as determined by the College of Business Graduate Committee. The committee considers the following factors: difficulty of the applicant's undergraduate program; length of time and activities since graduation; and the percentile ranking on standardized entrance exams (e.g., GMAT, GRE, etc.).

Those applicants previously denied admission may, upon presentation of new information, be reconsidered. The applicant must petition the College of Business Graduate Committee in writing and provide those reasons relevant to the situation which demonstrate the likelihood of success. In all cases, the burden of proof is on the applicant.

Under the regulations of the Graduate School, eligible applicants who have been extended an offer of admission by the CoB Graduate Admissions Committee are recommended to the Dean of the Graduate School for either "full" or "provisional" graduate status. Students admitted with "provisional" status who have not attained an overall 3.0 GPA upon completion of 12 graduate credits will be dismissed from the program. Official admission decisions will come from the Dean of the Graduate School.

Procedure

All official test score reports should be sent to the Graduate School. The GMAT is administered world-wide and the applicant should register for it sufficiently in advance to the filing of the graduate application to avoid delay of evaluation of the application for admission. Those who have test scores more than five years old are normally required to retake the exam. GRE and other tests scores should also be sent to the Graduate School as outlined above.

The CoB Graduate Admissions Committee meets monthly and considers all completed applications on hand at the time of each meeting. Applicants will be informed of admission decisions once the Dean of the Graduate School has acted upon the recommendation of the CoB Admissions Committee.

Degree Requirements

To be awarded any master's degree from the College of Business, a student must (<https://bulletin.uakron.edu/graduate/masters-degree-requirements> (<https://bulletin.uakron.edu/graduate/masters-degree-requirements/>)):

- Meet the time and grade-point requirements of the Graduate School.
- Complete the minimum credits in each of the degree program descriptions.
- Complete all course and program requirements of applicable master's program.

Questions regarding these Policies, Procedures, and Requirements may be sent via e-mail to gradbusiness@uakron.edu (grad.cba@uakron.edu). Further information may be found at the College of Business website: <https://www.uakron.edu/cba/>.

Transfer Policy

The College of Business will permit will permit up to one-third of program credits of comparable graduate credits to be transferred in a graduate business program. These credits must be pre-approved by the CoB Director of Graduate Programs. This policy also applies to those students pursuing additional graduate degrees.

Additional Degrees

For a student who has already obtained one master's degree in business, it is possible to pursue another degree in the college provided that:

1. The program must be unique from the earlier degree program(s).
2. The desired program (degree requirements) is specifically approved in advance by the CoB Director of Graduate Programs; and
3. No fewer than 20 new credits are earned for the second degree.

Graduate Internships

It is preferred that all full-time CoB graduate students without extensive work experience participate in an internship to gain practical experience in the field of study. The internship may be paid or unpaid. Students admitted to programs requiring internships must participate in an internship as outlined in the program requirements.

Accounting, Accelerated BS/MSA

The Accelerated BS/MS Accounting (BS/MSA) offers students the opportunity to complete both the BS Accounting (BSA) and Master of Accounting (MSA) in a shorter period of time by taking dual-credit courses that count toward both the undergraduate and graduate degrees.

To receive official acceptance into the program, students must satisfy the following requirements:

- Provide two letters of recommendation from CBA faculty
- Earn an overall GPA of 3.3 or higher and a 3.0 or higher GPA in accounting courses.
- Apply and be accepted into Graduate School.

BS/MSA students will be monitored closely and be given professional accounting advice through the School of Accountancy. Students must earn and maintain a 3.0 or better GPA (accounting and overall) to stay in the program. Students who are not able to do so will complete the regular bachelor's program instead of the accelerated BS/MSA program.

Admission Requirements

- Graduate School application and fee
- Official transcripts
- GMAT (<https://www.mba.com/>) (score of 500 or better preferred), GRE (<https://www.ets.org/gre/>), LSAT (<https://www.lsac.org/lstat/>), PCAT (<http://pcatweb.info/>), or MCAT (<https://students-residents.aamc.org/applying-medical-school/taking-mcat-exam/>) score. The GMAT may be waived based on course requirements.
- Letter of Intent
- Resume

Application Deadline

- August 1 for Fall enrollment
- December 1 for Spring enrollment
- May 1 for Summer enrollment

International Student Applications

I-20 forms used for visa approval are processed by UA student immigration services in the International Center: <https://www.uakron.edu/international/>. Proof of English Language Proficiency is required by producing an acceptable TOEFL or IELTS score.

Students currently admitted to this program may have different course requirements than those listed here. Refer to your official Program Checklist and DPR in My Akron for your program requirements.

Degree Offered: MS Accountancy

Program Contact: gradbusiness@uakron.edu

All students in the program will complete 30 credits of graduate courses to fulfill the requirements for the masters degree. They will complete nine credits of 500-level graduate courses during their fourth (senior) year and the remaining 21 credits of 600-level graduate courses during their fifth year. The nine credits of 500-level graduate courses will count toward both their graduate and undergraduate degree programs. A total of 150 credits of graduate and undergraduate courses are required to complete the Accelerated BS/MSA program.

BS/MSA students must complete a total of 30 graduate credits from the following groups of courses listed below. No more than nine credits can be 500-level (ACCT:5xx) courses. At least 12 credits must be 600-level accounting (ACCT:6xx) courses.

Code	Title	Hours
Required Accelerated Courses (9 credits)		
ACCT:520	Advanced Financial Reporting and Analysis	3
ACCT:531	Business Entity Taxation	3
ACCT:540	Assurance Services and Professional Responsibilities	3
Required Courses (21 credits)		
ACCT:615	Professional Colloquium I	3
ACCT:628	Tax Research	3
ACCT:637	Business Analysis and Valuation	3
ACCT:658	Enterprise Risk	3
ACCT:659	Data Analysis and Assurance Services	3
ACCT:660	Professional Colloquium II	3
ACCT:665	Fraud and Financial Forensics	3
Electives		
ACCT:550	Advanced Applied Analytics & Decision Analysis	3
ACCT:575	Experiential Learning in Tax	3

Admission

Policy

To be considered for acceptance to one of the graduate programs in the College of Business (CoB) at The University of Akron, the following admission criteria are examined:

- A preferred minimum of 3.0 GPA, on a 4.0 scale, from an accredited undergraduate program.
- For those that have lower than a 3.0 GPA, individual consideration may be made based upon the GMAT, GRE, or equivalent scores.
- For those that have a 3.0 GPA or higher, but lack three years of work experience, a GMAT score of 500 or higher is preferred to indicate potential success in the graduate program.
- Admittance without a GMAT test requirement may be granted to those holding a graduate degree from an accredited university or those with three or more years of professional work experience beyond the earned bachelor's degree.
- Applicants holding a degree from outside the United States and with an academic standing of first or high second class, satisfactory

evidence of competence in English (i.e., TOEFL score of 79 or above or IELTS score of 6.5 or above) is required.

- In all situations, when the graduate committee has reservations about the potential success of a candidate, a GMAT score may be required.
- For those that are admitted on a provisional basis (less than complete acceptance), the course grades and overall GPA will be examined to determine if the student may continue with graduate coursework.

Even though an applicant is eligible for consideration, an offer of admission is not guaranteed. Since staff, facilities, and resources are limited, a determination will be made as to the number of applicants that can be adequately served among those eligible for admission. As a result, offers of admission may be limited to only the most qualified of eligible applicants as determined by the College of Business Graduate Committee. The committee considers the following factors: difficulty of the applicant's undergraduate program; length of time and activities since graduation; and the percentile ranking on standardized entrance exams (e.g., GMAT, GRE, etc.).

Those applicants previously denied admission may, upon presentation of new information, be reconsidered. The applicant must petition the College of Business Graduate Committee in writing and provide those reasons relevant to the situation which demonstrate the likelihood of success. In all cases, the burden of proof is on the applicant.

Under the regulations of the Graduate School, eligible applicants who have been extended an offer of admission by the CoB Graduate Admissions Committee are recommended to the Dean of the Graduate School for either "full" or "provisional" graduate status. Students admitted with "provisional" status who have not attained an overall 3.0 GPA upon completion of 12 graduate credits will be dismissed from the program. Official admission decisions will come from the Dean of the Graduate School.

Procedure

All official test score reports should be sent to the Graduate School. The GMAT is administered world-wide and the applicant should register for it sufficiently in advance to the filing of the graduate application to avoid delay of evaluation of the application for admission. Those who have test scores more than five years old are normally required to retake the exam. GRE and other tests scores should also be sent to the Graduate School as outlined above.

The CoB Graduate Admissions Committee meets monthly and considers all completed applications on hand at the time of each meeting. Applicants will be informed of admission decisions once the Dean of the Graduate School has acted upon the recommendation of the CoB Admissions Committee.

Degree Requirements

To be awarded any master's degree from the College of Business, a student must (<https://bulletin.uakron.edu/graduate/masters-degree-requirements> (<https://bulletin.uakron.edu/graduate/masters-degree-requirements/>)):

- Meet the time and grade-point requirements of the Graduate School.
- Complete the minimum credits in each of the degree program descriptions.

- Complete all course and program requirements of applicable master's program.

Questions regarding these Policies, Procedures, and Requirements may be sent via e-mail to gradbusiness@uakron.edu (grad.cba@uakron.edu). Further information may be found at the College of Business website: <https://www.uakron.edu/cba/>.

Transfer Policy

The College of Business will permit up to one-third of program credits of comparable graduate credits to be transferred in a graduate business program. These credits must be pre-approved by the CoB Director of Graduate Programs. This policy also applies to those students pursuing additional graduate degrees.

Additional Degrees

For a student who has already obtained one master's degree in business, it is possible to pursue another degree in the college provided that:

1. The program must be unique from the earlier degree program(s).
2. The desired program (degree requirements) is specifically approved in advance by the CoB Director of Graduate Programs; and
3. No fewer than 20 new credits are earned for the second degree.

Graduate Internships

It is preferred that all full-time CoB graduate students without extensive work experience participate in an internship to gain practical experience in the field of study. The internship may be paid or unpaid. Students admitted to programs requiring internships must participate in an internship as outlined in the program requirements.

Accounting, MSA

The Master of Science in Accountancy is an advanced professional degree that offers students the opportunity to develop substantive knowledge, skills, and abilities in accounting. It allows students without undergraduate degrees in accounting to combine their diverse backgrounds with a graduate degree in accounting.

Program Learning Goals

Consistent with the School's mission, students in the program will:

- Develop advanced knowledge and understanding of accounting concepts, the regulatory environment, and professional practice issues and challenges;
- Enhance their critical thinking skills and develop the ability to apply advanced knowledge of accounting concepts, principles and practices in innovative ways;
- Develop the ability to research accounting issues and write research reports that incorporate qualitative and quantitative data analysis and integrate information from multiple sources;
- Demonstrate effective written and oral communication skills;
- Understand and appreciate the role of information technology in contemporary accounting, research, and decision-making; and
- Understand and appreciate the significance of ethics, professionalism, and social responsibility in accounting.

Admission Requirements

- Graduate School application and fee
- Official transcripts from each institution attended

- GMAT (<https://www.mba.com/>) (score of 500 or better preferred), GRE (<https://www.ets.org/gre/>), LSAT (<https://www.lsac.org/lSAT/>), PCAT (<http://pcatweb.info/>), or MCAT (<https://students-residents.aamc.org/applying-medical-school/taking-mcat-exam/>) score. A test waiver may be approved based on prior advanced degree or three or more years of work experience. Consult with the CoB advising office for more information.
- Letter of Intent
- Resume

Application Deadline

- August 1 for Fall enrollment
- December 1 for Spring enrollment
- May 1 for Summer enrollment

International Student Applications

I-20 forms used for visa approval are processed by UA student immigration services in the International Center: <https://www.uakron.edu/international/>. Proof of English Language Proficiency is required by producing an acceptable TOEFL or IELTS score.

Students currently admitted to this program may have different course requirements than those listed here. Refer to your official Program Checklist and DPR in My Akron for your program requirements.

Degree Offered: MS Accountancy

Program Contact: gradbusiness@uakron.edu

The Program

Individuals with a non-business undergraduate degree from a regionally accredited institution or international equivalent must take the Pre-MSA Foundation Courses and the Pre-MSA Financial Reporting Courses. Individuals with a non-accounting business undergraduate degree from a regionally accredited institution or international equivalent must take the Pre-MSA Financial Reporting Courses. Students who have completed similar courses at the undergraduate or graduate level may apply for waivers.

Pre-MSA Foundation Courses

All foundation courses must be taken prior to courses in the MSA program. An exception to this policy may be made for students who have received waivers from foundation courses.

Code	Title	Hours
ACCT:524	Business Law	3
ACCT:550	Advanced Applied Analytics & Decision Analysis	3
FIN:602	Managerial Finance	3
MGMT:601	Business Analytics and Information Strategy	3
Total Hours		12

Pre-MSA Financial Reporting Courses

All Pre-MSA Financial Reporting Courses with the exception of ACCT:540 Assurance Services and Professional Responsibilities must be completed prior to taking courses in the MSA program.

Code	Title	Hours
ACCT:621 or ACCT:321	Corporate Accounting & Financial Reporting I Financial Reporting and Analysis I	3

ACCT:622 or ACCT:322	Corporate Accounting & Financial Reporting II Financial Reporting and Analysis II	3
ACCT:610 or ACCT:301	Process Analysis & Cost Management Cost Management and Control	3
ACCT:540	Assurance Services and Professional Responsibilities	3
Total Hours		12

Students in the MSA must complete a total of 30 credits from the groups of courses listed below. At least 21 credits must be at the 600-level; a minimum of 15 credits must be graduate accounting courses, and at least 12 credits must be 600-level accounting courses.

Code	Title	Hours
Required Courses (24 credits)		
ACCT:520	Advanced Financial Reporting and Analysis ¹	3
ACCT:615	Professional Colloquium I	3
ACCT:628	Tax Research	3
ACCT:637	Business Analysis and Valuation	3
ACCT:658	Enterprise Risk	3
ACCT:659	Data Analysis and Assurance Services	3
ACCT:660	Professional Colloquium II	3
ACCT:665	Fraud and Financial Forensics	3
Elective Courses - Choose two of the following (6 credits)		6
ACCT:570	Governmental Accounting	
ACCT:575	Experiential Learning in Tax	
ACCT:629	Tax Crimes and Forensics	
ACCT:631	Corporate Taxation I	
ACCT:641	Taxation of Partnerships	
ACCT:643	Tax Accounting	
ACCT:645	Advanced Individual Taxation	
ACCT:662	S Corp Taxation	
ACCT:693	Selected Topics in Taxation	
ACCT:690	Seminar in Taxation	
SCM:678	Project Management	
FIN:674	Strategic Financial Decision Making	
FIN:678	Capital Budgeting	
Total Hours		30

¹ All courses in this group are required except for ACCT:520. Students who have completed a similar advanced accounting course at the undergraduate level must take a different course.

Admission Policy

To be considered for acceptance to one of the graduate programs in the College of Business (CoB) at The University of Akron, the following admission criteria are examined:

- A preferred minimum of 3.0 GPA, on a 4.0 scale, from an accredited undergraduate program.
- For those that have lower than a 3.0 GPA, individual consideration may be made based upon the GMAT, GRE, or equivalent scores.

- For those that have a 3.0 GPA or higher, but lack three years of work experience, a GMAT score of 500 or higher is preferred to indicate potential success in the graduate program.
- Admittance without a GMAT test requirement may be granted to those holding a graduate degree from an accredited university or those with three or more years of professional work experience beyond the earned bachelor's degree.
- Applicants holding a degree from outside the United States and with an academic standing of first or high second class, satisfactory evidence of competence in English (i.e., TOEFL score of 79 or above or IELTS score of 6.5 or above) is required.
- In all situations, when the graduate committee has reservations about the potential success of a candidate, a GMAT score may be required.
- For those that are admitted on a provisional basis (less than complete acceptance), the course grades and overall GPA will be examined to determine if the student may continue with graduate coursework.

Even though an applicant is eligible for consideration, an offer of admission is not guaranteed. Since staff, facilities, and resources are limited, a determination will be made as to the number of applicants that can be adequately served among those eligible for admission. As a result, offers of admission may be limited to only the most qualified of eligible applicants as determined by the College of Business Graduate Committee. The committee considers the following factors: difficulty of the applicant's undergraduate program; length of time and activities since graduation; and the percentile ranking on standardized entrance exams (e.g., GMAT, GRE, etc.).

Those applicants previously denied admission may, upon presentation of new information, be reconsidered. The applicant must petition the College of Business Graduate Committee in writing and provide those reasons relevant to the situation which demonstrate the likelihood of success. In all cases, the burden of proof is on the applicant.

Under the regulations of the Graduate School, eligible applicants who have been extended an offer of admission by the CoB Graduate Admissions Committee are recommended to the Dean of the Graduate School for either "full" or "provisional" graduate status. Students admitted with "provisional" status who have not attained an overall 3.0 GPA upon completion of 12 graduate credits will be dismissed from the program. Official admission decisions will come from the Dean of the Graduate School.

Procedure

All official test score reports should be sent to the Graduate School. The GMAT is administered world-wide and the applicant should register for it sufficiently in advance to the filing of the graduate application to avoid delay of evaluation of the application for admission. Those who have test scores more than five years old are normally required to retake the exam. GRE and other tests scores should also be sent to the Graduate School as outlined above.

The CoB Graduate Admissions Committee meets monthly and considers all completed applications on hand at the time of each meeting. Applicants will be informed of admission decisions once the Dean of the Graduate School has acted upon the recommendation of the CoB Admissions Committee.

Degree Requirements

To be awarded any master's degree from the College of Business, a student must (<https://bulletin.uakron.edu/graduate/masters-degree-requirements> (<https://bulletin.uakron.edu/graduate/masters-degree-requirements/>)):

- Meet the time and grade-point requirements of the Graduate School.
- Complete the minimum credits in each of the degree program descriptions.
- Complete all course and program requirements of applicable master's program.

Questions regarding these Policies, Procedures, and Requirements may be sent via e-mail to gradbusiness@uakron.edu (grad.cba@uakron.edu). Further information may be found at the College of Business website: <https://www.uakron.edu/cba/>.

Transfer Policy

The College of Business will permit will permit up to one-third of program credits of comparable graduate credits to be transferred in a graduate business program. These credits must be pre-approved by the CoB Director of Graduate Programs. This policy also applies to those students pursuing additional graduate degrees.

Additional Degrees

For a student who has already obtained one master's degree in business, it is possible to pursue another degree in the college provided that:

1. The program must be unique from the earlier degree program(s).
2. The desired program (degree requirements) is specifically approved in advance by the CoB Director of Graduate Programs; and
3. No fewer than 20 new credits are earned for the second degree.

Graduate Internships

It is preferred that all full-time CoB graduate students without extensive work experience participate in an internship to gain practical experience in the field of study. The internship may be paid or unpaid. Students admitted to programs requiring internships must participate in an internship as outlined in the program requirements.

Taxation Online, MTax

Through the MTax Online, the George W. Daverio School of Accountancy will offer its Master of Taxation degree directly to students' desktop computers with courses delivered live via a modern, highly efficient and robust synchronous tool. The tool provides the capability to deliver highly interactive classes with video. The program, referred to for administrative purposes as the MTax Online, will serve professional development and graduate education needs of individuals with an interest in taxation in professional accounting and consulting firms, law firms, corporations, and government agencies. Students will complete the entire program (30 credits) in 15 to 18 months (in ten-week terms) and receive the same Master of Taxation degree as students attending the program on campus. Students will be required to attend and participate in at least 65% of classes to receive credit and must take examinations under faculty supervision. All final examinations will be proctored by a reputable center.

To be admitted to the MTax Online, students must have at least an undergraduate degree in accounting or a J.D. Students without either of these qualifications must complete ACCT:601 Financial Accounting and ACCT:627 Federal Taxation with grades of B or better prior to admission.

Students may be permitted to substitute a comprehensive individual taxation course or a comprehensive business entity tax course for ACCT:627. The GMAT is not required for attorneys and students who have passed all four parts of the CPA exam or similar professional examinations. All other applicants must submit a satisfactory GMAT, GRE, or LSAT score.

Admission Requirements

- Graduate School application and fee
- Official transcripts from each institution attended
- The GMAT is not required for graduates of accredited law schools or students who have passed all four parts of the CPA exam or similar professional examinations. All other applicants must submit a satisfactory GMAT (<https://www.mba.com/>) (score of 500 or better preferred), GRE (<https://www.ets.org/gre/>), or LSAT (<https://www.lsac.org/lSAT/>), score. A test waiver may be approved based a prior advanced degree or three or more years of work experience. Consult with the CoB advising office for more information on waivers.
- Letter of Intent
- Resume

Application Deadline

- August 1 for Fall enrollment
- December 1 for Spring enrollment
- May 1 for Summer enrollment

International Student Applications

I-20 forms used for visa approval are processed by UA student immigration services in the International Center. <https://www.uakron.edu/international/>. Proof of English Language Proficiency is required by producing an acceptable TOEFL or IELTS score.

Students currently admitted to this program may have different course requirements than those listed here. Refer to your official Program Checklist and DARS in My Akron for your program requirements.

Degree Offered: MTax Master of Taxation

Program Contact: gradbusiness@uakron.edu

Code	Title	Hours
Required Master of Taxation Courses		
ACCT:628	Tax Research	3
ACCT:631	Corporate Taxation I	3
ACCT:641	Taxation of Partnerships	3
ACCT:642	Corporate Taxation II	3
ACCT:643	Tax Accounting	3
ACCT:648	Tax Policy & Ethics	3
ACCT:649	State & Local Taxation	3
ACCT:651	International Taxation	3
Electives		
Select 6 credits (to be determined)		6
ACCT:575	Experiential Learning in Tax	
ACCT:615	Professional Colloquium I	
Total Hours		30

Admission Policy

To be considered for acceptance to one of the graduate programs in the College of Business (CoB) at The University of Akron, the following admission criteria are examined:

- A preferred minimum of 3.0 GPA, on a 4.0 scale, from an accredited undergraduate program.
- For those that have lower than a 3.0 GPA, individual consideration may be made based upon the GMAT, GRE, or equivalent scores.
- For those that have a 3.0 GPA or higher, but lack three years of work experience, a GMAT score of 500 or higher is preferred to indicate potential success in the graduate program.
- Admittance without a GMAT test requirement may be granted to those holding a graduate degree from an accredited university or those with three or more years of professional work experience beyond the earned bachelor's degree.
- Applicants holding a degree from outside the United States and with an academic standing of first or high second class, satisfactory evidence of competence in English (i.e., TOEFL score of 79 or above or IELTS score of 6.5 or above) is required.
- In all situations, when the graduate committee has reservations about the potential success of a candidate, a GMAT score may be required.
- For those that are admitted on a provisional basis (less than complete acceptance), the course grades and overall GPA will be examined to determine if the student may continue with graduate coursework.

Even though an applicant is eligible for consideration, an offer of admission is not guaranteed. Since staff, facilities, and resources are limited, a determination will be made as to the number of applicants that can be adequately served among those eligible for admission. As a result, offers of admission may be limited to only the most qualified of eligible applicants as determined by the College of Business Graduate Committee. The committee considers the following factors: difficulty of the applicant's undergraduate program; length of time and activities since graduation; and the percentile ranking on standardized entrance exams (e.g., GMAT, GRE, etc.).

Those applicants previously denied admission may, upon presentation of new information, be reconsidered. The applicant must petition the College of Business Graduate Committee in writing and provide those reasons relevant to the situation which demonstrate the likelihood of success. In all cases, the burden of proof is on the applicant.

Under the regulations of the Graduate School, eligible applicants who have been extended an offer of admission by the CoB Graduate Admissions Committee are recommended to the Dean of the Graduate School for either "full" or "provisional" graduate status. Students admitted with "provisional" status who have not attained an overall 3.0 GPA upon completion of 12 graduate credits will be dismissed from the program. Official admission decisions will come from the Dean of the Graduate School.

Procedure

All official test score reports should be sent to the Graduate School. The GMAT is administered world-wide and the applicant should register for it sufficiently in advance to the filing of the graduate application to avoid delay of evaluation of the application for admission. Those who have test

scores more than five years old are normally required to retake the exam. GRE and other tests scores should also be sent to the Graduate School as outlined above.

The CoB Graduate Admissions Committee meets monthly and considers all completed applications on hand at the time of each meeting. Applicants will be informed of admission decisions once the Dean of the Graduate School has acted upon the recommendation of the CoB Admissions Committee.

Degree Requirements

To be awarded any master's degree from the College of Business, a student must (<https://bulletin.uakron.edu/graduate/masters-degree-requirements> (<https://bulletin.uakron.edu/graduate/masters-degree-requirements/>)):

- Meet the time and grade-point requirements of the Graduate School.
- Complete the minimum credits in each of the degree program descriptions.
- Complete all course and program requirements of applicable master's program.

Questions regarding these Policies, Procedures, and Requirements may be sent via e-mail to gradbusiness@uakron.edu (grad.cba@uakron.edu). Further information may be found at the College of Business website: <https://www.uakron.edu/cba/>.

Transfer Policy

The College of Business will permit will permit up to one-third of program credits of comparable graduate credits to be transferred in a graduate business program. These credits must be pre-approved by the CoB Director of Graduate Programs. This policy also applies to those students pursuing additional graduate degrees.

Additional Degrees

For a student who has already obtained one master's degree in business, it is possible to pursue another degree in the college provided that:

1. The program must be unique from the earlier degree program(s).
2. The desired program (degree requirements) is specifically approved in advance by the CoB Director of Graduate Programs; and
3. No fewer than 20 new credits are earned for the second degree.

Graduate Internships

It is preferred that all full-time CoB graduate students without extensive work experience participate in an internship to gain practical experience in the field of study. The internship may be paid or unpaid. Students admitted to programs requiring internships must participate in an internship as outlined in the program requirements.

Taxation, MTax

The Master of Taxation (MTax) Program is a professional degree designed to provide intensive training for individuals with an interest in developing specialized skills in the area of taxation. The program is intended for accountants and attorneys who wish to further or pursue a career in taxation. However, other individuals with a four-year degree in business or accounting from a regionally accredited institution of higher learning (or international equivalent) may also find the program valuable and manageable. The program offers substantive technical

and professional knowledge, skills, and abilities needed to function as a taxation specialist in the United States. Students in the program will:

- develop substantive and comprehensive knowledge of federal taxation;
- understand the state and local taxation regimes of selected states, including the State of Ohio;
- develop abilities to research taxation issues, identify and solve taxation problems, and plan taxation strategies;
- develop the ability to contribute as a taxation specialist to strategic planning and decision-making in organizations;
- demonstrate effective written and oral presentation skills; and
- demonstrate ability to use information technology for researching and solving taxation problems.

The MTax curriculum consists of 30 semester credits. Admission to the program is open to the following individuals:

1. Certified Public Accountants and other accountants with equivalent credentials with at least a bachelor's degree.
2. Individuals with an undergraduate degree in accounting from a regionally accredited institution or international equivalent.
3. Individuals with a JD.
4. Individuals who plan to pursue the joint JD/MTax degree (JD students must complete the first year of law school if full-time or the second year of law school if part-time before they can take courses in the MTax program).
5. Individuals with an undergraduate degree in business from a regionally accredited institution or international equivalent.
6. Other individuals who demonstrate a high potential to succeed in the MTax program (based on GMAT scores, undergraduate GPA, letters of recommendation, and prior work experience) and who have earned at least a B average in ACCT:601 Financial Accounting (or equivalent) and ACCT:627 Federal Taxation (or equivalent).

Students who have at least two years of work experience and have an accounting certification (i.e. CPA, CMA, CIA, etc.) or have successfully passed the bar exam do not need to take the GMAT exam to be admitted to the program. All other students must earn a satisfactory score on the GMAT (LSAT for law students) prior to being admitted to the program. Foundation courses are not required for individuals in Categories 1 and 2.

Individuals in categories 3 and 5 must complete an introduction to financial accounting course and a federal income taxation course before they begin taking MTax courses. These courses may be taken at the graduate or undergraduate level. Students should plan to complete those courses in the summer or earlier prior to starting the required MTax courses.

Students are encouraged to begin the program in the fall. Full-time students who begin the program in fall will normally complete all requirements for graduation in two semesters. Part-time students who start in fall can complete all requirements for graduation within two years.

Admission Requirements

- Graduate School application and fee
- Official transcripts from each institution attended
- Students who have at least two years of work experience and have an accounting certification (i.e. CPA, CMA, CIA, etc.) or have successfully passed the bar exam do not need to take the GMAT. An acceptable

GMAT (<https://www.mba.com/>) (score of 500 or better preferred), GRE (<https://www.ets.org/gre/>) or LSAT (<https://www.lsac.org/lsat/>) score is required. A test waiver may be approved based on prior advanced degree or three or more years of work experience. Consult with the CoB advising office for more information on waivers.

- Letter of Intent
- Resume

Application Deadline

- August 1 for Fall enrollment
- December 1 for Spring enrollment
- May 1 for Summer enrollment

International Student Applications

I-20 forms used for visa approval are processed by UA student immigration services in the International Center: <https://www.uakron.edu/international/>. Proof of English Language Proficiency is required by producing an acceptable TOEFL or IELTS score.

Students currently admitted to this program may have different course requirements than those listed here. Refer to your official Program Checklist and DPR in My Akron for your program requirements.

Degree Offered: MTax Master of Taxation

Program Contact: gradbusiness@uakron.edu

Code	Title	Hours
Required Master of Taxation Courses		
ACCT:628	Tax Research ¹	3
ACCT:631	Corporate Taxation I	3
ACCT:641	Taxation of Partnerships	3
ACCT:642	Corporate Taxation II	3
ACCT:643	Tax Accounting	3
ACCT:648	Tax Policy & Ethics	3
ACCT:649	State & Local Taxation	3
ACCT:651	International Taxation	3
Approved Taxation Electives		
Select 6 credits of the following:		6
ACCT:575	Experiential Learning in Tax	
ACCT:615	Professional Colloquium I	
ACCT:629	Tax Crimes and Forensics	
ACCT:633	Estate and Gift Taxation	
ACCT:644	Income Taxation of Decedents, Estates & Trusts	
ACCT:645	Advanced Individual Taxation	
ACCT:646	Consolidated Tax Returns	
ACCT:647	Qualified Pensions & Profit Sharing	
ACCT:650	Estate Planning	
ACCT:662	S Corp Taxation	
ACCT:693	Selected Topics in Taxation	
Total Hours		30

¹ ACCT:628 must be taken in the first semester that the class is available.

Not all elective classes will be offered each year. Electives will be offered based on demand and faculty resource availability.

Admission Policy

To be considered for acceptance to one of the graduate programs in the College of Business (CoB) at The University of Akron, the following admission criteria are examined:

- A preferred minimum of 3.0 GPA, on a 4.0 scale, from an accredited undergraduate program.
- For those that have lower than a 3.0 GPA, individual consideration may be made based upon the GMAT, GRE, or equivalent scores.
- For those that have a 3.0 GPA or higher, but lack three years of work experience, a GMAT score of 500 or higher is preferred to indicate potential success in the graduate program.
- Admittance without a GMAT test requirement may be granted to those holding a graduate degree from an accredited university or those with three or more years of professional work experience beyond the earned bachelor's degree.
- Applicants holding a degree from outside the United States and with an academic standing of first or high second class, satisfactory evidence of competence in English (i.e., TOEFL score of 79 or above or IELTS score of 6.5 or above) is required.
- In all situations, when the graduate committee has reservations about the potential success of a candidate, a GMAT score may be required.
- For those that are admitted on a provisional basis (less than complete acceptance), the course grades and overall GPA will be examined to determine if the student may continue with graduate coursework.

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Procedure

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it sufficiently in advance to the filing of the graduate application to avoid delay of evaluation of the application for admission. Those who have test scores more than five years old are normally required to retake the exam. GRE and other tests scores should also be sent to the Graduate School as outlined above.

The CoB Graduate Admissions Committee meets monthly and considers all completed applications on hand at the time of each meeting. Applicants will be informed of admission decisions once the Dean of the Graduate School has acted upon the recommendation of the CoB Admissions Committee.

Degree Requirements

To be awarded any master's degree from the College of Business, a student must (<https://bulletin.uakron.edu/graduate/masters-degree-requirements>):

- Meet the time and grade-point requirements of the Graduate School.
- Complete the minimum credits in each of the degree program descriptions.
- Complete all course and program requirements of applicable master's program.

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Transfer Policy

The College of Business will permit up to one-third of program credits of comparable graduate credits to be transferred in a graduate business program. These credits must be pre-approved by the CoB Director of Graduate Programs. This policy also applies to those students pursuing additional graduate degrees.

Additional Degrees

For a student who has already obtained one master's degree in business, it is possible to pursue another degree in the college provided that:

1. The program must be unique from the earlier degree program(s).
2. The desired program (degree requirements) is specifically approved in advance by the CoB Director of Graduate Programs; and
3. No fewer than 20 new credits are earned for the second degree.

Graduate Internships

It is preferred that all full-time CoB graduate students without extensive work experience participate in an internship to gain practical experience in the field of study. The internship may be paid or unpaid. Students admitted to programs requiring internships must participate in an internship as outlined in the program requirements.

Business Administration, Interdisciplinary, MBA

Admission Requirements

- Graduate School application and fee
- Official transcripts from each institution attended
- GMAT (<https://www.mba.com/>) (score of 500 or better preferred), GRE (<https://www.ets.org/gre/>), LSAT (<https://www.lsac.org/>)

Isat/), PCAT (<http://pcatweb.info/>), or MCAT (<https://students-residents.aamc.org/applying-medical-school/taking-mcat-exam/>) scores. A test waiver may be approved based on prior advanced degree or three or more years of work experience. Consult with the CoB advising office for more information on waivers.

- Letter of Intent
- Resume

Application Deadline

- August 1 for Fall enrollment
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- May 1 for Summer enrollment

International Student Applications

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Additional Information for the MBA Program

The MBA program is the principle graduate program of The University of Akron's College of Business. The objective of the MBA program is to provide a diverse group of men and women with the skills, multi-stakeholder strategic perspective, and innovative spirit required to lead in organizations that operate within a global business environment characterized by intense competition and increasing levels of complexity and uncertainty.

The leadership of the College of Business is committed to providing a high quality graduate business school experience. That experience will have a strong professional and real-world focus, characterized by collaborative work and emphasis on the practice of management. The faculty is intent on creating a stimulating academic environment with a balance between theory and application. Faculty strive to create a classroom environment that is varied, interesting, and permeated by the concepts of globalization, professional integrity and ethics, leadership, and planned change.

Degree Offered: MBA Master of Business Administration

Program Contact: gradbusiness@uakron.edu

Program Summary

Code	Title	Hours
Professional Courses		6
MGMT:601	Business Analytics and Information Strategy	
MGMT:689	Leading and Influencing	
MGMT:691	Professional Integrity	
MGMT:693	Negotiations in the Workplace	
MBA Core Courses		21
ECON:601	Economic Decision Making for Business	
ACCT:601	Financial Accounting	
FIN:602	Managerial Finance	
HRM:652	Managing People in Organizations	
SCM:670	Management of Supply Chains and Operations	
MKTG:620	Strategic Marketing	

INTB:605	International Business Environments	ACCT:693	Selected Topics in Taxation
Integrative Course	3	ACCT:695	Graduate Internship in Accounting
MGMT:695	Organizational Strategy	ACCT:697	Independent Study in Accounting
Electives	6	ACCT:621	Corporate Accounting & Financial Reporting I
<i>Accounting</i>		ACCT:622	Corporate Accounting & Financial Reporting II
ACCT:520	Advanced Financial Reporting and Analysis	<i>Finance</i>	
ACCT:524	Business Law	RMI:515	Risk Management and Insurance: Life and Health
ACCT:531	Business Entity Taxation	RMI:561	Financial Risk Management
ACCT:540	Assurance Services and Professional Responsibilities	FIN:631	Financial Markets & Institutions
ACCT:541	Information Systems Audit & Control	FIN:645	Investment Analysis
ACCT:554	Information Systems Security	FIN:650	Techniques of Financial Modelling
ACCT:570	Governmental Accounting	FIN:674	Strategic Financial Decision Making
ACCT:580	Accounting Problems	FIN:678	Capital Budgeting
ACCT:591	Workshop in Accounting	FIN:690	Selected Topics in Finance
ACCT:603	Accounting Decision Support Systems	FIN:695	Research in Finance
ACCT:607	Financial Data Communications & Enterprise Integration	FIN:697	Independent Study in Finance
ACCT:610	Process Analysis & Cost Management	BLAW:655	Government & Business
ACCT:615	Professional Colloquium I	<i>Economics</i>	
ACCT:627	Federal Taxation	ECON:506	State & Local Public Finance
ACCT:628	Tax Research	ECON:515	Cost-Benefit Analysis
ACCT:629	Tax Crimes and Forensics	ECON:523	Applied Game Theory
ACCT:631	Corporate Taxation I	ECON:527	Economic Forecasting
ACCT:632	Taxation of Transactions in Property	ECON:530	Labor Market and Social Policy
ACCT:633	Estate and Gift Taxation	ECON:536	Health Economics
ACCT:637	Business Analysis and Valuation	ECON:538	Economics of Sports
ACCT:640	Advanced Auditing	ECON:540	Special Topics in Economics
ACCT:641	Taxation of Partnerships	ECON:560	Economics of Developing Countries
ACCT:642	Corporate Taxation II	ECON:561	Principles of International Economics
ACCT:643	Tax Accounting	ECON:575	Development of Economic Thought
ACCT:644	Income Taxation of Decedents, Estates & Trusts	ECON:581	Monetary & Banking Policy
ACCT:645	Advanced Individual Taxation	ECON:587	Urban Economics: Theory & Policy
ACCT:646	Consolidated Tax Returns	ECON:591	Workshop in Economics
ACCT:647	Qualified Pensions & Profit Sharing	ECON:602	Macroeconomic Analysis I
ACCT:648	Tax Policy & Ethics	ECON:606	Economics of the Public Sector
ACCT:649	State & Local Taxation	ECON:610	Framework of Economic Analysis
ACCT:650	Estate Planning	ECON:611	Microeconomic Theory I
ACCT:651	International Taxation	ECON:615	Industrial Organization
ACCT:652	Tax-Exempt Organizations	ECON:617	Economics of Regulation
ACCT:654	Independent Study in Taxation	ECON:620	Application of Mathematical Models to Economics
ACCT:655	Advanced Information Systems	ECON:621	Application of Linear Models in Economic Analysis
ACCT:658	Enterprise Risk	ECON:626	Applied Econometrics I
ACCT:659	Data Analysis and Assurance Services	ECON:627	Applied Econometrics II
ACCT:660	Professional Colloquium II	ECON:628	Seminar in Research Methods
ACCT:661	Advanced Tax Research & Policy	ECON:633	Theory of Wages & Employment
ACCT:662	S Corp Taxation	ECON:640	Special Topics in Economics
ACCT:664	Research & Quantitative Methods in Accounting	ECON:664	Seminar on Economic Growth & Development
ACCT:665	Fraud and Financial Forensics	ECON:666	Seminar on Regional Economic Analysis & Development
ACCT:670	Corporate Performance Evaluation & Control Systems	ECON:670	International Monetary Economics
ACCT:680	International Accounting	ECON:671	International Trade
ACCT:690	Seminar in Taxation	ECON:683	Monetary Economics
		<i>Marketing</i>	

MKTG:575	Business Negotiations
MKTG:600	Marketing Concepts
MKTG:615	Marketing Analytics
MKTG:625	Brand Management
SALES:630	Customer Relationship Management
MKTG:635	Digital Marketing
MKTG:640	Marketing Research
MKTG:655	Integrated Marketing Communications
MKTG:670	Competitive Research Strategy
SALES:681	Sales Management
MKTG:697	Independent Study: Marketing
<i>Management</i>	
SCM:533	Supply Chain Logistics Planning
SCM:656	Management of Global Supply Chain & Operations
SCM:662	Supply Chain Analysis
SCM:665	Management of Technology
SCM:669	Polymer Management Decisions
SCM:673	Quality & Productivity Techniques
SCM:675	Global Supply Chain Management
SCM:677	Supply Chain Sourcing
SCM:678	Project Management
SCM:680	Supply Chain Logistics Management
SCM:682	Management of Service Operations
SCM:685	BioInnovation and Design
HCM:585	Special Topics in Health Services Administration
HCM:681	Foundations of Health Care Leadership
HCM:683	Health Services Systems Management
HCM:686	Health Services Research Project
HCM:688	Independent Study: Health Services Administration
ENTRE:510	Selected Topics in Entrepreneurship
ENTRE:608	Entrepreneurship and Innovation
ISM:520	Data Networks & Security
ISM:602	Programming for Data Analytics
ISM:605	Object Oriented Programming
ISM:620	E-Business Foundations
ISM:622	E-Business Technologies
ISM:640	Data and IS Governance
ISM:641	Business Database Systems
ISM:643	Analysis & Design of Business Systems
ISM:644	Business Intelligence
ISM:645	Software Development and Quality Assurance
ISM:646	Enterprise Systems Implementation
ISM:648	Management of Telecommunication
ISM:663	Advanced Data Analytics Topics
HRM:600	Management & Organizational Behavior
HRM:650	Human Resource Systems for Managers
HRM:651	Organizational Transformation
HRM:653	Organizational Theory
HRM:654	Management of Organizational Conflict
HRM:655	Compensation and Performance Management
HRM:657	Leadership Role in Organizations
HRM:658	Managing a Global Workforce

HRM:660	Staffing and Employment Regulation
HRM:661	Comparative Systems of Employee & Labor
MGMT:659	International Human Resource Management
MGMT:672	Management Project
MGMT:690	Selected Topics in Management
MGMT:697	Independent Study: Management
<i>International Business</i>	
INTB:506	International Business with study abroad requirement
INTB:630	International Marketing Policy
INTB:685	Multinational Corporations
INTB:690	Seminar: International Business
INTB:697	Independent Study: International Business
Total Hours	36

Admission Policy

To be considered for acceptance to one of the graduate programs in the College of Business (CoB) at The University of Akron, the following admission criteria are examined:

- A preferred minimum of 3.0 GPA, on a 4.0 scale, from an accredited undergraduate program.
- For those that have lower than a 3.0 GPA, individual consideration may be made based upon the GMAT, GRE, or equivalent scores.
- For those that have a 3.0 GPA or higher, but lack three years of work experience, a GMAT score of 500 or higher is preferred to indicate potential success in the graduate program.
- Admittance without a GMAT test requirement may be granted to those holding a graduate degree from an accredited university or those with three or more years of professional work experience beyond the earned bachelor's degree.
- Applicants holding a degree from outside the United States and with an academic standing of first or high second class, satisfactory evidence of competence in English (i.e., TOEFL score of 79 or above or IELTS score of 6.5 or above) is required.
- In all situations, when the graduate committee has reservations about the potential success of a candidate, a GMAT score may be required.
- For those that are admitted on a provisional basis (less than complete acceptance), the course grades and overall GPA will be examined to determine if the student may continue with graduate coursework.

Even though an applicant is eligible for consideration, an offer of admission is not guaranteed. Since staff, facilities, and resources are limited, a determination will be made as to the number of applicants that can be adequately served among those eligible for admission. As a result, offers of admission may be limited to only the most qualified of eligible applicants as determined by the College of Business Graduate Committee. The committee considers the following factors: difficulty of the applicant's undergraduate program; length of time and activities since graduation; and the percentile ranking on standardized entrance exams (e.g., GMAT, GRE, etc.).

Those applicants previously denied admission may, upon presentation of new information, be reconsidered. The applicant must petition the College of Business Graduate Committee in writing and provide those reasons

relevant to the situation which demonstrate the likelihood of success. In all cases, the burden of proof is on the applicant.

Under the regulations of the Graduate School, eligible applicants who have been extended an offer of admission by the CoB Graduate Admissions Committee are recommended to the Dean of the Graduate School for either “full” or “provisional” graduate status. Students admitted with “provisional” status who have not attained an overall 3.0 GPA upon completion of 12 graduate credits will be dismissed from the program. Official admission decisions will come from the Dean of the Graduate School.

Procedure

All official test score reports should be sent to the Graduate School. The GMAT is administered world-wide and the applicant should register for it sufficiently in advance to the filing of the graduate application to avoid delay of evaluation of the application for admission. Those who have test scores more than five years old are normally required to retake the exam. GRE and other tests scores should also be sent to the Graduate School as outlined above.

The CoB Graduate Admissions Committee meets monthly and considers all completed applications on hand at the time of each meeting. Applicants will be informed of admission decisions once the Dean of the Graduate School has acted upon the recommendation of the CoB Admissions Committee.

Degree Requirements

To be awarded any master’s degree from the College of Business, a student must (<https://bulletin.uakron.edu/graduate/masters-degree-requirements> (<https://bulletin.uakron.edu/graduate/masters-degree-requirements/>)):

- Meet the time and grade-point requirements of the Graduate School.
- Complete the minimum credits in each of the degree program descriptions.
- Complete all course and program requirements of applicable master’s program.

Questions regarding these Policies, Procedures, and Requirements may be sent via e-mail to gradbusiness@uakron.edu (grad.cba@uakron.edu). Further information may be found at the College of Business website: <https://www.uakron.edu/cba/>.

Transfer Policy

The College of Business will permit up to one-third of program credits of comparable graduate credits to be transferred in a graduate business program. These credits must be pre-approved by the CoB Director of Graduate Programs. This policy also applies to those students pursuing additional graduate degrees.

Additional Degrees

For a student who has already obtained one master’s degree in business, it is possible to pursue another degree in the college provided that:

1. The program must be unique from the earlier degree program(s).
2. The desired program (degree requirements) is specifically approved in advance by the CoB Director of Graduate Programs; and
3. No fewer than 20 new credits are earned for the second degree.

Graduate Internships

It is preferred that all full-time CoB graduate students without extensive work experience participate in an internship to gain practical experience in the field of study. The internship may be paid or unpaid. Students admitted to programs requiring internships must participate in an internship as outlined in the program requirements.

Business Certificate for Health Care Professionals

This certificate is for healthcare professionals holding advanced degrees in their areas of expertise (pharmacy, medicine, nursing, dentistry, etc.). Ideally, the individuals are the ones who are creating/managing their own businesses, such as clinics, doctor’s offices, pharmacies, that have the necessary healthcare training but need to have a better understanding of how to run their businesses. Essential business courses are provided in a certificate format assuming that most of these professionals may not have the time nor interest in completing the MBA over a two to four year period.

Admission Requirements

- Graduate School application and fee
- Official transcripts from each institution attended
- Hold an advanced degree in an area of expertise (dentistry, medicine, pharmacy, nursing, etc.)

Students currently admitted to this program may have different course requirements than those listed here. Refer to your official Program Checklist and DPR in My Akron for your program requirements.

Program Contact: gradbusiness@uakron.edu

Code	Title	Hours
ECON:600	Foundations of Economic Analysis	3
ACCT:601	Financial Accounting	3
FIN:602	Managerial Finance	3
SCM:670	Management of Supply Chains and Operations	3
HCM:681	Foundations of Health Care Leadership	3
MKTG:620	Strategic Marketing	3
Total Hours		18

Business Dual Enrollment, Certificate

This certificate enables secondary school teachers to teach dual enrollment courses in business. Applicants must have a valid State of Ohio teaching license.

Admission Requirements

- Graduate School application and fee
- Official transcripts from each institution attended
- Letter of Intent
- Resume

Students currently admitted to this program may have different course requirements than those listed here. Refer to your official Program Checklist and DPR in My Akron for your program requirements.

Program Contact: gradbusiness@uakron.edu

Code	Title	Hours
ACCT:601	Financial Accounting	3
ENTRE:608	Entrepreneurship and Innovation	3
MKTG:620	Strategic Marketing	3
HRM:652	Managing People in Organizations	3
BLAW:655	Government & Business	3
INTB:605	International Business Environments	3
Total Hours		18

Finance

- Financial Management, Certificate (p. 114)
- Risk Management and Insurance, Certificate (p. 114)

Finance (FIN)

FIN:537 International Financial Management (3 Credits)

Prerequisite: FIN 602 or ECON 561 or permission of the instructor. This course emphasizes international finance, particularly the impact of exchange rates on economies and businesses. Theory and practice of financial wealth maximization in the international business enterprise. (Formerly 6400:537)

FIN:538 International Markets and Institutions (3 Credits)

Prerequisite: FIN 537 or ECON 561 or permission of instructor. This course emphasizes a broad look at international markets and institutions. This course is a blend of technical and descriptive material. Instructor is aware that students in this class come from a variety of academic backgrounds and preparation, particularly both the finance and the international business areas. (Formerly 6400:538)

FIN:589 Financial Analytics (3 Credits)

Prerequisites: ECON 601 and FIN 602 or permission of the instructor. This course is designed to give students experience in analyzing large datasets using rigorous financial models widely employed in the corporate finance and asset management industries. Using Microsoft Excel spreadsheet software, the course will emphasize the development of computer-based tools rather than the use of existing tools or templates. Students will gain practical experience in analyzing financial data and implementing concepts and theories that are used in the fields of economics and finance. (Formerly 6400:589)

FIN:602 Managerial Finance (3 Credits)

Pre/Corequisite: ACCT 601 or equivalent. FIN 602 may be taken concurrently with ACCT 601. Emphasis on financial decision making related to goal of firm; specifically, the investment decision, the financial decision and the dividend decision. (Formerly 6400:602)

FIN:620 Corporate Financial Reporting (2 Credits)

An introduction to Generally Accepted Accounting Principles (GAAP) and an overview of the construction of financial statements and their use in business decision making. (Formerly 6750:620)

FIN:631 Financial Markets & Institutions (3 Credits)

Prerequisite: FIN 602 or equivalent. A study of major financial markets and financial institutions with an emphasis on the decision making processes within a rapidly changing, but regulated operating environment. (Formerly 6400:631)

FIN:641 Fundamentals of Financial Principles (2 Credits)

Introduction to financial principles needed for effective managerial decision making. (Formerly 6750:641)

FIN:645 Investment Analysis (3 Credits)

Prerequisite: FIN 602 or equivalent. Study of the economic and market forces that influence security prices. Techniques of analysis used in evaluating limited income and equity securities. (Formerly 6400:645)

FIN:646 Financial Strategy in Modern Business (3 Credits)

Prerequisites: FIN 641 and ISM 652. Explores problems faced by the financial manager through identification, analysis, and evaluation of financial resources and strategies consistent with firm goals and shareholder value. (Formerly 6750:645)

FIN:650 Techniques of Financial Modelling (3 Credits)

Prerequisites: ECON 600 and FIN 602. Current techniques and methods of financial analysis are examined, including the use of financial models for short and long run profitability decisions. (Formerly 6400:650)

FIN:674 Strategic Financial Decision Making (3 Credits)

Prerequisite: FIN 602. Examines the role of financial decision makers as strategic consultants to other business units/functions with integrative risk management as a unifying theme. (Formerly 6400:674)

FIN:678 Capital Budgeting (3 Credits)

Prerequisite: FIN 602 or equivalent. Attempt to integrate various theories of capital budgeting into comprehensive conceptual scheme. Theoretical concepts and practical applications blended for better understanding of capital problems. (Formerly 6400:678)

FIN:690 Selected Topics in Finance (3 Credits)

(May be repeated for a total of six credits) Prerequisite: FIN 602 or equivalent. Provides study of contemporary issues and areas not covered in current finance graduate courses. (Formerly 6400:690)

FIN:695 Research in Finance (1-3 Credits)

Prerequisites: [FIN 602 and MGMT 601] or [ECON 626 and ECON 627] or equivalent, or permission of the instructor. Corequisites: RMI 514 or RMI 515 or RMI 616 or FIN 631 or FIN 645 or FIN 650 or FIN 674 or FIN 678. Taken concurrently with or following a 500/600-level field Finance course. Involves independent out-of-class work on a project designed in consultation with the designated graduate-level course instructor. (Formerly 6400:695)

FIN:697 Independent Study in Finance (1-3 Credits)

(May be repeated for a total of six credits) Focus on special topics of study and research in finance on an independent basis. (Formerly 6400:697)

Risk Management and Insurance (RMI)

RMI:514 Risk Management and Insurance: Property and Casualty (3 Credits)

Prerequisite: FIN 602 or equivalent, or permission of instructor. Addresses tools for managing risk, legal concepts or insurance contracts, personal insurance and commercial property and casualty insurance policies as well as other risk issues. (Formerly 6400:514)

RMI:515 Risk Management and Insurance: Life and Health (3 Credits)

Prerequisite: FIN 602 or equivalent, or permission of instructor. Concepts of life and health insurance and risk management are addressed. (Formerly 6400:515)

RMI:518 Insurance Operations (3 Credits)

Prerequisites: RMI 514 or RMI 515. This course provides a detailed examination of the composition, financial structure, and operation of the property-casualty insurance industry. While the primary focus of the course is on the U.S. insurance market, it also provides for an overview of the international insurance marketplace. (Formerly 6400:518)

RMI:560 Risk and Insurance Analytics (3 Credits)

Prerequisite: RMI 514 or RMI 515. The primary objective of this course is to provide an introduction to risk and insurance analytics and the application of analysis techniques to insurance underwriting, fraud detection and risk management. Topics to be covered include:

1. An overview of the application of analytics to risk management and insurance, 2. Basic Data Modeling Concepts, 3. Traditional Analysis Techniques, 4. Modern Analysis Techniques, 5. Application to Underwriting, 6. Application to Claims, 7. Application to Risk Management. (Formerly 6400:560)

RMI:561 Financial Risk Management (3 Credits)

Prerequisite: RMI 514 or RMI 515 or permission. Explores risk issues at the firm level with emphasis upon identification and management of risk to enhance firm value. (Formerly 6400:561)

Financial Management, Certificate

The graduate certificate in financial management provides the student with the decision tools and analytical skills needed for the successful financial management of the firm.

Required Courses

Code	Title	Hours
FIN:631	Financial Markets & Institutions	3
FIN:645	Investment Analysis	3
FIN:674	Strategic Financial Decision Making ¹	3
FIN:678	Capital Budgeting	3
Total Hours		12

¹ Students who have not taken the equivalent of intermediate corporate finance may need to take FIN:602.

Risk Management and Insurance, Certificate

The professional opportunities in risk management and insurance are expanding rapidly. The graduate certificate in Risk Management and Insurance helps students acquire the educational foundation for a career in the risk management and insurance fields.

Required Courses

Code	Title	Hours
RMI:514	Risk Management and Insurance: Property and Casualty	3
RMI:515	Risk Management and Insurance: Life and Health	3
RMI:561	Financial Risk Management	3

¹ Students who have not completed the equivalent of intermediate corporate finance may be required to take FIN:602 Managerial Finance.

Joint Degree Programs

Joint Programs

The School of Law and the College of Business (CoB) offer a joint program in legal and administrative studies (JD/MBA), a joint program in legal and taxation studies (JD/MTax), and a joint program in legal

and accounting (JD/MSA). These combinations are open to the student preparing for a career in such areas as corporate law, tax accounting, or legal practice in government. The amount of time required to complete a joint degree program is shorter than the time required to complete both programs independently. To pursue either one of these cooperative programs, the student must apply to and be accepted by both the School of Law and the Graduate School. The student should contact each school independently for information covering admission criteria and procedures (for further information on School of Law admissions, write: Director of Admissions, School of Law, The University of Akron, Akron, OH 44325-2901; for further information on College of Business admissions, contact Graduate Programs in Business at (330) 972-7043 or gradbusiness@uakron.edu). A baccalaureate degree is required.

Degree Requirements

A student is required to fulfill the requirements of the School of Law, 88 credits, which includes up to ten credits transferred from the College of Business. Law students may transfer up to 1/3 of their program credits from the School of Law for comparable coursework.

The reciprocal acceptance of course credits by each school is the essence of the joint programs. All law courses used to fulfill College of Business requirements must be approved by the director of Graduate Programs in Business prior to completion.

Law students pursuing the Masters of Taxation degree, must take LAWX:641 Corporate Taxation I in the School of Law (3 credits) and six approved elective Law credits from the list below, or others with approval of the Director of Graduate Programs.

MTax elective courses:

Code	Title	Hours
LAWX:639	Estate & Gift Taxation	3
LAWX:645	Property	4
LAWX:675	Entrepreneurship	3
LAWX:680	Family Law Practicum	2
LAWX:684	Seminar in Selected Legal Problems	1-3
LAWX:685	Wills, Trusts & Estates	4
LAWX:686	Wills, Trusts and Estates II	3
LAWX:684	Seminar in Selected Legal Problems	1-3

Additional courses may be approved by petitioning the Director of Graduate Programs in Business.

Joint Degree Admission

Admission Requirements

- Graduate School application and fee
- Official transcripts from each institution attended provided on the LSDAS Report requested from the School of Law
- LSAT in lieu of the GMAT, Tests may be waived based on three or more years of work experience beyond the bachelor's degree or an earned graduate degree.
- Joint Degree Application Form from the School of Law
- Letter of Intent
- Resume

Application Deadline

- August 1 for Fall enrollment
- December 1 for Spring enrollment
- May 1 for Summer enrollment

International Student Applications

I-20 forms used for visa approval are processed by UA student immigration services in the International Center: <https://www.uakron.edu/international/>. Proof of English Language Proficiency is required by producing an acceptable TOEFL or IELTS score.

Students currently admitted to this program may have different course requirements than those listed here. Refer to your official Program Checklist and DPR in My Akron for your program requirements.

Degrees Offered: JD/MBA (MBA webpage (<https://www.uakron.edu/cba/graduate/programs/mba/>), MBA Bulletin Page (<https://bulletin.uakron.edu/graduate/colleges-programs/business-administration/business-interdisciplinary-mba/>)), JD/MSA (MSA webpage (<https://bulletin.uakron.edu/graduate/colleges-programs/business-administration/accountancy/accounting-msa/>)), JD/MTax (MTax webpage (<https://bulletin.uakron.edu/graduate/colleges-programs/business-administration/accountancy/taxation-ntax/>))

Joint Degree Application Form (<https://www.uakron.edu/cba/graduate/programs/joint-degree/joint-degree-application.dot>)

School of Law Admissions website (<https://www.uakron.edu/law/admissions/>)

Program Contact: gradbusiness@uakron.edu

Admission Policy

To be considered for acceptance to one of the graduate programs in the College of Business (CoB) at The University of Akron, the following admission criteria are examined:

- A preferred minimum of 3.0 GPA, on a 4.0 scale, from an accredited undergraduate program.
- For those that have lower than a 3.0 GPA, individual consideration may be made based upon the GMAT, GRE, or equivalent scores.
- For those that have a 3.0 GPA or higher, but lack three years of work experience, a GMAT score of 500 or higher is preferred to indicate potential success in the graduate program.
- Admittance without a GMAT test requirement may be granted to those holding a graduate degree from an accredited university or those with three or more years of professional work experience beyond the earned bachelor's degree.
- Applicants holding a degree from outside the United States and with an academic standing of first or high second class, satisfactory evidence of competence in English (i.e., TOEFL score of 79 or above or IELTS score of 6.5 or above) is required.
- In all situations, when the graduate committee has reservations about the potential success of a candidate, a GMAT score may be required.
- For those that are admitted on a provisional basis (less than complete acceptance), the course grades and overall GPA will be

examined to determine if the student may continue with graduate coursework.

Even though an applicant is eligible for consideration, an offer of admission is not guaranteed. Since staff, facilities, and resources are limited, a determination will be made as to the number of applicants that can be adequately served among those eligible for admission. As a result, offers of admission may be limited to only the most qualified of eligible applicants as determined by the College of Business Graduate Committee. The committee considers the following factors: difficulty of the applicant's undergraduate program; length of time and activities since graduation; and the percentile ranking on standardized entrance exams (e.g., GMAT, GRE, etc.).

Those applicants previously denied admission may, upon presentation of new information, be reconsidered. The applicant must petition the College of Business Graduate Committee in writing and provide those reasons relevant to the situation which demonstrate the likelihood of success. In all cases, the burden of proof is on the applicant.

Under the regulations of the Graduate School, eligible applicants who have been extended an offer of admission by the CoB Graduate Admissions Committee are recommended to the Dean of the Graduate School for either "full" or "provisional" graduate status. Students admitted with "provisional" status who have not attained an overall 3.0 GPA upon completion of 12 graduate credits will be dismissed from the program. Official admission decisions will come from the Dean of the Graduate School.

Procedure

All official test score reports should be sent to the Graduate School. The GMAT is administered world-wide and the applicant should register for it sufficiently in advance to the filing of the graduate application to avoid delay of evaluation of the application for admission. Those who have test scores more than five years old are normally required to retake the exam. GRE and other tests scores should also be sent to the Graduate School as outlined above.

The CoB Graduate Admissions Committee meets monthly and considers all completed applications on hand at the time of each meeting. Applicants will be informed of admission decisions once the Dean of the Graduate School has acted upon the recommendation of the CoB Admissions Committee.

Degree Requirements

To be awarded any master's degree from the College of Business, a student must (<https://bulletin.uakron.edu/graduate/masters-degree-requirements> (<https://bulletin.uakron.edu/graduate/masters-degree-requirements/>)):

- Meet the time and grade-point requirements of the Graduate School.
- Complete the minimum credits in each of the degree program descriptions.
- Complete all course and program requirements of applicable master's program.

Questions regarding these Policies, Procedures, and Requirements may be sent via e-mail to gradbusiness@uakron.edu (grad.cba@uakron.edu). Further information may be found at the College of Business website: <https://www.uakron.edu/cba/>.

Transfer Policy

The College of Business will permit up to one-third of program credits of comparable graduate credits to be transferred in a graduate business program. These credits must be pre-approved by the CoB Director of Graduate Programs. This policy also applies to those students pursuing additional graduate degrees.

Additional Degrees

For a student who has already obtained one master's degree in business, it is possible to pursue another degree in the college provided that:

1. The program must be unique from the earlier degree program(s).
2. The desired program (degree requirements) is specifically approved in advance by the CoB Director of Graduate Programs; and
3. No fewer than 20 new credits are earned for the second degree.

Graduate Internships

It is preferred that all full-time CoB graduate students without extensive work experience participate in an internship to gain practical experience in the field of study. The internship may be paid or unpaid. Students admitted to programs requiring internships must participate in an internship as outlined in the program requirements.

Management

- Global Innovation and Technology Management, Certificate (p. 118)
- Information Systems Management, Accelerated MSM (p. 119)
- Management, Business Analytics - Information Systems Concentration, MSM (p. 120)
- Management, Business Analytics - Supply Chain Concentration, MSM (p. 122)

Health Care Management (HCM)

HCM:585 Special Topics in Health Services Administration (1-3 Credits)

Prerequisite: permission of instructor. Special topics in health services administration (e.g., management) focusing on historical and/or contemporary managerial organizational and/or policy/strategy issues as related to health-care organizations and health-care systems. Separate topics may be repeated for a maximum of six credits. For those registered for graduate credit, a major research paper is required. (Formerly 6500:585)

HCM:681 Foundations of Health Care Leadership (3 Credits)

Introductory course for health professionals covering principles and concepts of management applied to health services organizations. (Formerly 6500:681)

HCM:683 Health Services Systems Management (3 Credits)

Prerequisite: Graduate Standing. Study of health services organizations, comparative delivery systems, the roles of third-party payors and government policy in health care. Seminar format: major research paper required. (Formerly 6500:683)

HCM:686 Health Services Research Project (3 Credits)

Prerequisite: HCM 683 or permission of instructor. In-depth field study in health services administration with applications of research and analysis skills. Course requires review of literature and a major research paper. (Formerly 6500:686)

HCM:688 Independent Study: Health Services Administration (1-3 Credits)

(May not be repeated for more than three credits) Prerequisites: HCM 681 or HRM 600 or equivalent or permission of instructor. Independent study and research of a special topic of interest in health services administration (e.g., management), chosen by the student in consultation with and under the supervision of the instructor. (Formerly 6500:688)

Human Resource Management (HRM)

HRM:600 Management & Organizational Behavior (3 Credits)

Course examines management principles, concepts, functions and process, as well as human behavior in organizations. (Formerly 6500:600)

HRM:650 Human Resource Systems for Managers (3 Credits)

Prerequisite: HRM 652. A broad survey of the fundamental principles, research findings and practices related to the acquisition, development, maintenance and effective utilization of a business firm's human resources. (Formerly 6500:650)

HRM:651 Organizational Transformation (3 Credits)

A comprehensive study of innovations in organizations designed to increase human satisfaction and productivity through changes in human management. (Formerly 6500:651)

HRM:652 Managing People in Organizations (3 Credits)

Introduction to the employee issues that managers face in organizations. The aspects of organizational behavior that influence performance, and issues related to managing human resources will be examined. (Formerly 6500:652)

HRM:653 Organizational Theory (3 Credits)

Prerequisite: HRM 600. Examines the structure, design and overall effectiveness of a business organization from a macro-perspective. (Formerly 6500:653)

HRM:654 Management of Organizational Conflict (3 Credits)

Prerequisite: HRM 600 or equivalent. Course emphasizes ensuring that the organization benefits from inevitable conflicts that occur, and provides skills in diagnosis, negotiation, and building trust and cooperative working relationships in organizations. (Formerly 6500:654)

HRM:655 Compensation and Performance Management (3 Credits)

Prerequisite: HRM 600 or equivalent. The development and analysis of systems of payments and rewards in business organizations with special attention placed on performance evaluation methods and productivity enhancement. (Formerly 6500:655)

HRM:657 Leadership Role in Organizations (3 Credits)

Prerequisite: HRM 652. Analysis and development of leadership theory and thought. Identification of leaders in both formal and informal organizations. Training and development methods of leaders evaluated. Individual and small group field study assignments. (Formerly 6500:657)

HRM:658 Managing a Global Workforce (3 Credits)

Prerequisites: HRM 652. The formulation, design, and implementation of human resource practices designed to generate competitive cost advantages for business firms operating in domestic and/or international markets. (Formerly 6500:658)

HRM:660 Staffing and Employment Regulation (3 Credits)

Prerequisite: HRM 600 or equivalent. Design and implementation of staffing practices and systems for businesses with an emphasis on the implications of federal regulations on the staffing function. (Formerly 6500:660)

HRM:661 Comparative Systems of Employee & Labor (3 Credits)

Prerequisite: HRM 600. A survey course examining how industrial relations systems and employment practices across national boundaries impact upon the employment relationship of business firms with global operations. (Formerly 6500:661)

Information Systems Management (ISM)**ISM:520 Data Networks & Security (3 Credits)**

Prerequisite: MGMT 601. Principles of the design and management of data networks for business communications. (Formerly 6500:520)

ISM:602 Programming for Data Analytics (3 Credits)

Introduction to data preprocessing and programming concepts including controls, functions, and data structures, and applications to modeling, hypothesis testing, data visualization, and simulation and bootstrapping. (Formerly 6500:602)

ISM:605 Object Oriented Programming (3 Credits)

Advanced introduction to computer programming in the context of developing business applications. It consists of two core components: object-oriented programming principles and business applications prototyping. (Formerly 6500:605)

ISM:620 E-Business Foundations (3 Credits)

Provides an understanding of the foundation of Electronic Business focusing on business and application issues. (Formerly 6500:620)

ISM:622 E-Business Technologies (3 Credits)

Prerequisite: ISM 620 or ISM 602. This course provides a foundation in internet related technologies for successfully managing an e-business. Students will be required to design and implement a functional e-business prototype. (Formerly 6500:622)

ISM:640 Data and IS Governance (3 Credits)

Corequisite: ISM 601. Focuses on management of IT and analytics functions, including alignment with business strategy, data architecture, systems and data governance, and cloud analytics processing. (Formerly 6500:640)

ISM:641 Business Database Systems (3 Credits)

Introduction to issues underlying the analysis, design, implementation, and management of business databases. (Formerly 6500:641)

ISM:643 Analysis & Design of Business Systems (3 Credits)

Prerequisite: ISM 605. A hands-on treatment of the methods used to develop different types of business information systems. (Formerly 6500:643)

ISM:644 Business Intelligence (3 Credits)

Corequisite: MGMT 601. Concerns transformation of business data into actionable information through ETL, data warehousing, data modeling and architecture. Particular emphasis on data visualization with end user tools. (Formerly 6500:644)

ISM:645 Software Development and Quality Assurance (3 Credits)

Prerequisite: MGMT 601. Introduction to business software development and quality assurance. Student teams will work on projects with an emphasis on implementation of business systems. (Formerly 6500:645)

ISM:646 Enterprise Systems Implementation (3 Credits)

Prerequisite: ISM 602. The configuration and implementation of Enterprise Systems to support the cross functional integration of business processes. (Formerly 6500:646)

ISM:648 Management of Telecommunication (3 Credits)

Prerequisite: ISM 602 or ACCT 603. An introduction to the use and management of telecommunications resources to support the activities of the organization. (Formerly 6500:648)

ISM:652 Information Systems for Management (2 Credits)

An introduction to current practice in the management of information in the organization from an executive management perspective. (Formerly 6750:652)

ISM:663 Advanced Data Analytics Topics (3 Credits)

Prerequisites: MGMT 601 and ISM 602. Covers advanced topics on data analytics such as Bayesian networks and decision tree learning. Requires a programming language for big data projects. (Formerly 6500:663)

Management (MGMT)**MGMT:601 Business Analytics and Information Strategy (3 Credits)**

Covers information systems foundations, strategic use of core analytical techniques including statistics and data mining to enable firms to better compete. (Formerly 6500:601)

MGMT:650 Managing People in Organizations (2 Credits)

This course covers the management of people, including motivation and rewards, relationships, teams, power and politics, decision making, and organization design. (Formerly 6750:650)

MGMT:651 Data Driven Decision Making for Managers (2 Credits)

Topics include descriptive statistics, estimation, hypothesis testing, simple and multiple regression. Skills provided include familiarity with statistical software, using statistical analysis to support business decisions, and case analyses. (Formerly 6750:651)

MGMT:659 International Human Resource Management (3 Credits)

Prerequisite: HRM 600. A survey course focused on the identification, analysis, and resolutions of human resource problems in business firms with global operations. (Formerly 6500:659)

MGMT:672 Management Project (3 Credits)

Prerequisite: Instructor permission. Students develop skills in real-world problem solving by interacting with organizations on issues important to them. Special emphasis will be transforming actual organizational data into recommendations. (Formerly 6500:672)

MGMT:675 Leadership, Diversity and Responsibility for Executives (2 Credits)

Prerequisite: MGMT 650. Explores the issues of leadership and influencing employees with particular emphasis on dealing with increased diversity in the workplace and making ethical decisions in organizations. (Formerly 6750:675)

MGMT:689 Leading and Influencing (1 Credit)

The main topics of the course are authentic leadership and influence within collaborative structures. The emphasis of the course is on self-awareness and development of leadership and collaborative competencies. (Formerly 6700:689)

MGMT:690 Selected Topics in Management (3 Credits)

(May be repeated for a total of six credits) Prerequisite: HRM 652. Selected topics in historical, contemporary and/or operational and functional areas of management. (Formerly 6500:690)

MGMT:691 Professional Integrity (1 Credit)

This course is designed to examine the issues of integrity, ethics, and business social responsibility facing business professionals in today's world of business globalization. (Formerly 6700:691)

MGMT:693 Negotiations in the Workplace (1 Credit)

This course introduces students to the skills necessary to successfully navigate career and life negotiations. Contexts covered include job interviews, job offers and promotions. This course is taught from a practical perspective, with hands-on experience and interactions. (Formerly 6700:693)

MGMT:694 Global Strategic Management (3 Credits)

Prerequisites: ACCT 623, FIN 646, SCM 655, MKTG 665. This course integrates the core concepts of business and emphasizes strategic management with a global perspective. Provides insights into the nature of strategy and approaches that may be used by organizations to achieve competitive advantage (Formerly 6750:695)

MGMT:695 Organizational Strategy (3 Credits)

Prerequisites: FIN 602, SCM 670, MKTG 620, INTB 605 or permission. A case-oriented course which focuses on integration of theoretical and practical knowledge acquired in core business courses. Students analyze, evaluate, and formulate organization objectives and strategies within domestic and international environmental contexts. (Formerly 6500:695)

MGMT:697 Independent Study: Management (1-3 Credits)

(May be repeated for a total of six credits) Focus on special topics of study and research in management on an independent basis. (Formerly 6500:697)

Supply Chain and Operations Management (SCM)

SCM:533 Supply Chain Logistics Planning (3 Credits)

Prerequisite: SCM 675. Emphasizes the importance of planning in the development of the domestic and global supply chain logistics system that includes transportation, inventory, warehousing and procurement. (Formerly 6500:533)

SCM:655 Management of Operations (3 Credits)

Prerequisites: MGMT 650, MGMT 651, and ISM 652. An investigation of the issues directly related to the management of operations at the strategic, tactical and operational levels of the organization. (Formerly 6750:655)

SCM:656 Management of Global Supply Chain & Operations (3 Credits)

Prerequisite: HRM 600 or equivalent or permission of instructor. Study and explore the elements and issues related to globalization of supply chain, production and service operations. (Formerly 6500:656)

SCM:662 Supply Chain Analysis (3 Credits)

Prerequisite: SCM 675. Application of quantitative models in the analysis and design of systems in the supply chain and in manufacturing and service operations environments. (Formerly 6500:662)

SCM:665 Management of Technology (3 Credits)

Survey of the principles and management practices of technology driven organizations are discussed with concepts, models and case studies for managers of technology intensive operations. (Formerly 6500:665)

SCM:669 Polymer Management Decisions (3 Credits)

Introduces major polymer concepts, production processes, and uses of polymeric materials in an easy-to-comprehend interdisciplinary instructional way. Industrial case studies will help integrate enterprise-wide innovation and technology management related decisions. (Formerly 6500:669)

SCM:670 Management of Supply Chains and Operations (3 Credits)

An overview of the issues directly related to the management of supply chains and operations at the strategic, tactical, and operational levels of the organization. (Formerly 6500:670)

SCM:673 Quality & Productivity Techniques (3 Credits)

Prerequisite: MGMT 601. Introduction to techniques for improving productivity and quality, including statistical process control (SPC), material requirements planning (MRP), just-in-time (JIT) inventory control and management of the program. (Formerly 6500:673)

SCM:675 Global Supply Chain Management (3 Credits)

Prerequisite: Graduate Standing. Focuses on the integration of activities and information/material flows across multiple organizations that comprise the supply chain, and the relationships among those organizations. (Formerly 6500:675)

SCM:677 Supply Chain Sourcing (3 Credits)

Prerequisite: SCM 670. Introduces the student to fundamental sourcing concepts as well as the scope of responsibility and critical roles of the sourcing function within the principal organization in a supply chain network. (Formerly 6500:677)

SCM:678 Project Management (3 Credits)

Prerequisite: Graduate Standing. Provides working knowledge of tools and methods available to project managers including computerized analysis of network models to aid in the planning and control functions. (Formerly 6500:678)

SCM:680 Supply Chain Logistics Management (3 Credits)

Prerequisite: SCM 670. Emphasizes the importance of planning and operation of supply chain logistics systems that includes transportation, inventory and warehousing, with particular emphasis on international logistics, regulations and documentation. (Formerly 6500:680)

SCM:682 Management of Service Operations (3 Credits)

Application of operations and systems analysis to services organizations. (Formerly 6500:682)

SCM:685 BioInnovation and Design (3 Credits)

Bring together students with different academic backgrounds to work in teams and identify and develop new medical technologies and solutions to health care problems. (Formerly 6500:685)

Global Innovation and Technology Management, Certificate

In a global economy integrated with technology, the innovative enterprises with effective and efficient management of technology and innovation will gain competitive advantage over their rivals. To respond to these needs of our potential employers, this certificate program in Management of Technology and Innovation was developed by the College of Business with the cooperation of the School of Polymer Science and Polymer Engineering and the guidance of the members of the Advancement Councils of the two units. This graduate certificate program offers courses in Management of Technology and other innovation-related business disciplines, including marketing, finance, accounting, entrepreneurship, and more. This certificate program will prepare the learners to innovatively manage a technology-driven enterprise.

Students admitted to the Global Innovation and Technology Certificate Program may enroll only in those courses required for completion of the certificate.

Persons wanting to enroll in a CoB graduate certificate program must already be accepted into a graduate or professional degree program or already possess a graduate or professional degree.

Admission Requirements

- Graduate School application and fee
- Official transcripts from each institution attended
- Letter of Intent
- Resume

Students currently admitted to this program may have different course requirements than those listed here. Refer to your official Program Checklist and DPR in My Akron for your program requirements.

Program Contact: gradbusiness@uakron.edu

Code	Title	Hours
Required Courses		
ACCT:601	Financial Accounting	3
SCM:656	Management of Global Supply Chain & Operations	3
SCM:665	Management of Technology	3
MKTG:620	Strategic Marketing	3
Recommended Electives		
Select three credits of the following for which the proper prerequisites have been met:		3
ACCT:610	Process Analysis & Cost Management	
FIN:602	Managerial Finance	
MKTG:625	Brand Management	
MGMT:601	Business Analytics and Information Strategy	
ENTRE:608	Entrepreneurship and Innovation	
HRM:652	Managing People in Organizations	
HRM:658	Managing a Global Workforce	
Total Hours		15

Information Systems Management, Accelerated MSM

The MSM - Fast track Information Systems option has been designed for students in undergraduate information systems or related programs who are interested in pursuing graduate work with an information systems management emphasis. Additional requirements for students wishing to pursue this option include:

- Undergraduate degree in Information Systems (from AACSB accredited institution) or related fields with a Pre-MBA minor
- Undergraduate GPA of at least 3.0 with successful course completion in programming, database, and networking (B or better)
- Documented completion of an IS related internship (or other IS work experience) with a letter summarizing project and work scope from supervisor
- Letters of reference from undergraduate program director or faculty
- Undergraduate students who wish to count ACCT:554 Information Systems Security and ISM:520 Data Networks & Security toward their graduate degree may take these classes during their senior year and must receive a grade of B or better.
- Undergraduate degree must be completed at the most two years prior to planned date of program entry.

Admission Requirements

- Graduate School application and fee
- Official transcripts from each institution attended
- GMAT (<https://www.mba.com/>) (score of 500 or better preferred), GRE (<https://www.ets.org/gre/>), LSAT (<https://www.lsac.org/lsat/>), PCAT (<http://pcatweb.info/>), or MCAT (<https://students-residents.aamc.org/applying-medical-school/taking-mcat-exam/>) scores. A test waiver may be approved based on prior advanced

degree or three or more years of work experience. Consult with the CoB advising office for more information on waivers.

- Letter of Intent
- Resume

Application Deadline

- August 1 for Fall enrollment
- December 1 for Spring enrollment
- May 1 for Summer enrollment

International Student Applications

I-20 forms used for visa approval are processed by UA student immigration services in the International Center: <https://www.uakron.edu/international/>. Proof of English Language Proficiency is required by producing an acceptable TOEFL or IELTS score.

Students currently admitted to this program may have different course requirements than those listed here. Refer to your official Program Checklist and DPR in My Akron for your program requirements.

Degree Offered: MSM Master of Science in Management

Program Contact: gradbusiness@uakron.edu

Code	Title	Hours
Management Core		
MGMT:601	Business Analytics and Information Strategy	3
SCM:670	Management of Supply Chains and Operations	3
	or SCM:675 Global Supply Chain Management	
SCM:678	Project Management	3
Information Systems Core		
ISM:640	Data and IS Governance	3
ISM:641	Business Database Systems	3
ISM:643	Analysis & Design of Business Systems	3
ISM:644	Business Intelligence	3
Electives		
Select nine credits of the following:		9
ACCT:554	Information Systems Security	
ISM:520	Data Networks & Security	
ISM:645	Software Development and Quality Assurance	
HRM:651	Organizational Transformation	
HRM:652	Managing People in Organizations	
ISM:663	Advanced Data Analytics Topics	
MGMT:672	Management Project	
MGMT:690	Selected Topics in Management	
BUSN:695	Internship in Business	
Total Hours		30

Admission Policy

To be considered for acceptance to one of the graduate programs in the College of Business (CoB) at The University of Akron, the following admission criteria are examined:

- A preferred minimum of 3.0 GPA, on a 4.0 scale, from an accredited undergraduate program.

- For those that have lower than a 3.0 GPA, individual consideration may be made based upon the GMAT, GRE, or equivalent scores.
- For those that have a 3.0 GPA or higher, but lack three years of work experience, a GMAT score of 500 or higher is preferred to indicate potential success in the graduate program.
- Admittance without a GMAT test requirement may be granted to those holding a graduate degree from an accredited university or those with three or more years of professional work experience beyond the earned bachelor's degree.
- Applicants holding a degree from outside the United States and with an academic standing of first or high second class, satisfactory evidence of competence in English (i.e., TOEFL score of 79 or above or IELTS score of 6.5 or above) is required.
- In all situations, when the graduate committee has reservations about the potential success of a candidate, a GMAT score may be required.
- For those that are admitted on a provisional basis (less than complete acceptance), the course grades and overall GPA will be examined to determine if the student may continue with graduate coursework.

Even though an applicant is eligible for consideration, an offer of admission is not guaranteed. Since staff, facilities, and resources are limited, a determination will be made as to the number of applicants that can be adequately served among those eligible for admission. As a result, offers of admission may be limited to only the most qualified of eligible applicants as determined by the College of Business Graduate Committee. The committee considers the following factors: difficulty of the applicant's undergraduate program; length of time and activities since graduation; and the percentile ranking on standardized entrance exams (e.g., GMAT, GRE, etc.).

Those applicants previously denied admission may, upon presentation of new information, be reconsidered. The applicant must petition the College of Business Graduate Committee in writing and provide those reasons relevant to the situation which demonstrate the likelihood of success. In all cases, the burden of proof is on the applicant.

Under the regulations of the Graduate School, eligible applicants who have been extended an offer of admission by the CoB Graduate Admissions Committee are recommended to the Dean of the Graduate School for either "full" or "provisional" graduate status. Students admitted with "provisional" status who have not attained an overall 3.0 GPA upon completion of 12 graduate credits will be dismissed from the program. Official admission decisions will come from the Dean of the Graduate School.

Procedure

All official test score reports should be sent to the Graduate School. The GMAT is administered world-wide and the applicant should register for it sufficiently in advance to the filing of the graduate application to avoid delay of evaluation of the application for admission. Those who have test scores more than five years old are normally required to retake the exam. GRE and other tests scores should also be sent to the Graduate School as outlined above.

The CoB Graduate Admissions Committee meets monthly and considers all completed applications on hand at the time of each meeting. Applicants will be informed of admission decisions once the Dean of the Graduate School has acted upon the recommendation of the CoB Admissions Committee.

Degree Requirements

To be awarded any master's degree from the College of Business, a student must (<https://bulletin.uakron.edu/graduate/masters-degree-requirements> (<https://bulletin.uakron.edu/graduate/masters-degree-requirements/>)):

- Meet the time and grade-point requirements of the Graduate School.
- Complete the minimum credits in each of the degree program descriptions.
- Complete all course and program requirements of applicable master's program.

Questions regarding these Policies, Procedures, and Requirements may be sent via e-mail to gradbusiness@uakron.edu (grad.cba@uakron.edu). Further information may be found at the College of Business website: <https://www.uakron.edu/cba/>.

Transfer Policy

The College of Business will permit will permit up to one-third of program credits of comparable graduate credits to be transferred in a graduate business program. These credits must be pre-approved by the CoB Director of Graduate Programs. This policy also applies to those students pursuing additional graduate degrees.

Additional Degrees

For a student who has already obtained one master's degree in business, it is possible to pursue another degree in the college provided that:

1. The program must be unique from the earlier degree program(s).
2. The desired program (degree requirements) is specifically approved in advance by the CoB Director of Graduate Programs; and
3. No fewer than 20 new credits are earned for the second degree.

Graduate Internships

It is preferred that all full-time CoB graduate students without extensive work experience participate in an internship to gain practical experience in the field of study. The internship may be paid or unpaid. Students admitted to programs requiring internships must participate in an internship as outlined in the program requirements.

Management, Business Analytics - Information Systems Concentration, MSM

The Master of Science in Management, Business Analytics - Information Systems Concentration allows students to concentrate their study of Business Analytics within the foundation of Information Systems. Because of the complex nature of the MS Management specializations, they typically go beyond optional concentrations in traditional MBA programs. They are designed for individuals who know what they want to do or to help them apply what they already know more effectively. The 30 credit program includes the Business Analytics, which is 15 credits, the Information Systems core which is 9 credits, and six credits of electives. Students may waive the GMAT requirement if they have an acceptable GRE score and have two years of documented business experience. Full time students are required to enroll in an internship or Co-Op in their first semester.

Admission Requirements

- Graduate School application and fee
- Official transcripts from each institution attended
- GMAT (<https://www.mba.com/>) (score of 500 or better preferred), GRE (<https://www.ets.org/gre/>), LSAT (<https://www.lsac.org/lstat/>), PCAT (<http://pcatweb.info/>), or MCAT (<https://students-residents.aamc.org/applying-medical-school/taking-mcat-exam/>) scores. A test waiver may be approved based on prior advanced degree or three or more years of work experience. Consult with the CoB advising office for more information on waivers.
- Undergraduate degree from a regionally accredited institution or international equivalent
- Letter of Intent
- Resume

Application Deadline

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Degree Offered: MSM Master of Science in Management

Program Contact: gradbusiness@uakron.edu

Code	Title	Hours
Business Analytics Core		
MGMT:601	Business Analytics and Information Strategy	3
ISM:602	Programming for Data Analytics	3
ISM:641	Business Database Systems	3
ISM:644	Business Intelligence	3
ISM:663	Advanced Data Analytics Topics	3
Information Systems Core		
ISM:640	Data and IS Governance	3
ISM:643	Analysis & Design of Business Systems	3
SCM:678	Project Management	3
Electives		
Any graduate business courses for a total of six credits. Full-time students are required to enroll in an internship or co-op in their first semester.		6
Total Hours		30

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Management, Business Analytics - Supply Chain Concentration, MSM

The Master of Science in Management, Business Analytics - Supply Chain Concentration allows students to concentrate their study of Business Analytics within the foundation of Supply Chain Management. Because of the complex nature of the MS Management specializations, they typically go beyond optional concentrations in traditional MBA programs. They are designed for individuals who know what they want to do or to help them apply what they already know more effectively. The 30 credit program includes the Business Analytics, which is 15 credits, the Supply Chain core which is 9 credits, and six credits of electives. Students may waive the GMAT requirement if they have an acceptable GRE score and have two years of documented business experience. Full-time students are required to enroll in an internship or Co-Op in their first semester.

Admission Requirements

- Graduate School application and fee
- Official transcripts from each institution attended
- GMAT (<https://www.mba.com/>) (score of 500 or better preferred), GRE (<https://www.ets.org/gre/>), LSAT (<https://www.lsac.org/lSAT/>), PCAT (<http://pcatweb.info/>), or MCAT (<https://students-residents.aamc.org/applying-medical-school/taking-mcat-exam/>) scores. A test waiver may be approved based on prior advanced degree or three or more years of work experience. Consult with the CoB advising office for more information on waivers.
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Degree Offered: MSM Master of Science in Management

Program Contact: gradbusiness@uakron.edu

Code	Title	Hours
Business Analytics Core		
MGMT:601	Business Analytics and Information Strategy	3
ISM:602	Programming for Data Analytics	3
ISM:641	Business Database Systems	3
ISM:644	Business Intelligence	3
ISM:663	Advanced Data Analytics Topics	3
Supply Chain Core		
SCM:670	Management of Supply Chains and Operations	3
SCM:677	Supply Chain Sourcing	3
SCM:680	Supply Chain Logistics Management	3
Electives		
Any graduate business courses for a total of six credits. Full-time students are required to enroll in an internship or co-op in their first semester.		6
Total Hours		30

Admission Policy

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- For those that have a 3.0 GPA or higher, but lack three years of work experience, a GMAT score of 500 or higher is preferred to indicate potential success in the graduate program.
- Admittance without a GMAT test requirement may be granted to those holding a graduate degree from an accredited university or those with three or more years of professional work experience beyond the earned bachelor's degree.
- Applicants holding a degree from outside the United States and with an academic standing of first or high second class, satisfactory evidence of competence in English (i.e., TOEFL score of 79 or above or IELTS score of 6.5 or above) is required.
- In all situations, when the graduate committee has reservations about the potential success of a candidate, a GMAT score may be required.
- For those that are admitted on a provisional basis (less than complete acceptance), the course grades and overall GPA will be examined to determine if the student may continue with graduate coursework.

Even though an applicant is eligible for consideration, an offer of admission is not guaranteed. Since staff, facilities, and resources are limited, a determination will be made as to the number of applicants that can be adequately served among those eligible for admission. As a result, offers of admission may be limited to only the most qualified of eligible applicants as determined by the College of Business Graduate Committee. The committee considers the following factors: difficulty of the applicant's undergraduate program; length of time and activities since graduation; and the percentile ranking on standardized entrance exams (e.g., GMAT, GRE, etc.).

Those applicants previously denied admission may, upon presentation of new information, be reconsidered. The applicant must petition the College of Business Graduate Committee in writing and provide those reasons relevant to the situation which demonstrate the likelihood of success. In all cases, the burden of proof is on the applicant.

Under the regulations of the Graduate School, eligible applicants who have been extended an offer of admission by the CoB Graduate Admissions Committee are recommended to the Dean of the Graduate School for either "full" or "provisional" graduate status. Students admitted with "provisional" status who have not attained an overall 3.0 GPA upon completion of 12 graduate credits will be dismissed from the program. Official admission decisions will come from the Dean of the Graduate School.

Procedure

All official test score reports should be sent to the Graduate School. The GMAT is administered world-wide and the applicant should register for it sufficiently in advance to the filing of the graduate application to avoid delay of evaluation of the application for admission. Those who have test scores more than five years old are normally required to retake the exam. GRE and other tests scores should also be sent to the Graduate School as outlined above.

The CoB Graduate Admissions Committee meets monthly and considers all completed applications on hand at the time of each meeting. Applicants will be informed of admission decisions once the Dean of

the Graduate School has acted upon the recommendation of the CoB Admissions Committee.

Degree Requirements

To be awarded any master's degree from the College of Business, a student must (<https://bulletin.uakron.edu/graduate/masters-degree-requirements> (<https://bulletin.uakron.edu/graduate/masters-degree-requirements/>)):

- Meet the time and grade-point requirements of the Graduate School.
- Complete the minimum credits in each of the degree program descriptions.
- Complete all course and program requirements of applicable master's program.

Questions regarding these Policies, Procedures, and Requirements may be sent via e-mail to gradbusiness@uakron.edu (grad.cba@uakron.edu). Further information may be found at the College of Business website: <https://www.uakron.edu/cba/>.

Transfer Policy

The College of Business will permit will permit up to one-third of program credits of comparable graduate credits to be transferred in a graduate business program. These credits must be pre-approved by the CoB Director of Graduate Programs. This policy also applies to those students pursuing additional graduate degrees.

Additional Degrees

For a student who has already obtained one master's degree in business, it is possible to pursue another degree in the college provided that:

1. The program must be unique from the earlier degree program(s).
2. The desired program (degree requirements) is specifically approved in advance by the CoB Director of Graduate Programs; and
3. No fewer than 20 new credits are earned for the second degree.

Graduate Internships

It is preferred that all full-time CoB graduate students without extensive work experience participate in an internship to gain practical experience in the field of study. The internship may be paid or unpaid. Students admitted to programs requiring internships must participate in an internship as outlined in the program requirements.

College of Engineering and Polymer Science

The College of Engineering and Polymer Science at the University is committed to excellence in undergraduate and graduate education as well as cutting-edge research. The College of Engineering and Polymer Science is the second oldest college at the University. The College consists of the departments of Biomedical Engineering; Chemical, Biomolecular, and Corrosion Engineering; Civil Engineering; Electrical and Computer Engineering; Mechanical Engineering; Computer Science; Computer Information Systems; and the School of Polymer Science and Polymer Engineering. The College fulfills the mission of an urban research university by educating students, engaging with local industry, and conducting research. The current research focus of the College includes: tribology, lubrication, surfaces, advanced energy, transportation, separations/filtration, nanotechnology, aero-propulsion, catalysis, corrosion, controls, computational mechanics, manufacturing, bio-materials, smart materials, composites and civil structures, wellness,

sensors and networks, complex modeling and simulation, polymer physics, polymer chemistry, polymer fabrication, and polymer processing. The College also has numerous research centers funded by industry, the state, and federal agencies.

The College has always had a vibrant graduate program, and for more than forty years, has offered an interdisciplinary Ph.D. in Engineering program. It also offers Ph.D.s in Polymer Science and in Polymer Engineering, along with a variety of Masters degrees.

The mission of graduate education in the College is to:

- Train engineers and scientists to think critically and solve complex engineering problems.
- Train students to develop theory, methodology, and develop experimental skills to investigate emerging issues in engineering and science that effect state and national interests.
- Provide excellence in research findings via theses, doctoral dissertations, and professional publications.
- Train students to be future educators.
- Train students in industrial research.
- Train students to work on interdisciplinary teams.

As the state of Ohio positions itself at the forefront of engineering, science and technology, appropriately trained scientists and engineers are needed in all fields. The College graduate programs provide education and training that equips students with the maturity and ability to assume leadership roles in all engineering fields. The interdisciplinary nature of the College's graduate programs attracts a variety of students from all over the country and the world. Many of the graduate students come from industry as well as government agencies.

College Website (<https://www.uakron.edu/ceps/>)

College of Engineering and Polymer Science Dean's Office

These interdisciplinary programs are available to students from any of the engineering disciplines.

- Engineering, MSE (p. 145)
- Engineering, PhD (p. 145)

Departments and Schools

Department of Biomedical Engineering

- Biomedical Engineering, MBE (p. 126)
- Biomedical Engineering, MSE (p. 127)

For more information, visit the Department of Biomedical Engineering website (<https://www.uakron.edu/engineering/bme/>).

Department of Chemical, Biomolecular, and Corrosion Engineering

- Chemical Engineering, MS (p. 130)

For more information, visit the Department of Chemical, Biomolecular, and Corrosion Engineering website (<https://uakron.edu/engineering/cbe/>).

Department of Civil Engineering

- Civil Engineering, MS (p. 135)
- Environmental Engineering, Certificate (p. 136)
- Geotechnical Engineering, Certificate (p. 136)
- Nuclear Engineering, Certificate (p. 136)
- Structural Engineering, Certificate (p. 137)
- Transportation Engineering, Certificate (p. 137)

For more information, visit the Department of Civil Engineering website (<https://uakron.edu/engineering/ce/>).

Department of Computer Science

- Computer Science, MS (p. 140)

For more information, visit the Department of Computer Science website (<https://www.uakron.edu/computer/cs/>).

Department of Electrical and Computer Engineering

- Electrical and Computer Engineering, MS (p. 144)

For more information, visit the Department of Electrical and Computer Engineering website (<https://www.uakron.edu/engineering/ece/>).

Department of Mechanical Engineering

- Manufacturing, Certificate (p. 150)
- Mechanical Engineering, MS (p. 151)

For more information, visit the Department of Mechanical Engineering website (<https://www.uakron.edu/engineering/me/>).

School of Polymer Science and Polymer Engineering

- Elastomer Science and Engineering, Certificate (p. 156)
- Master of Polymer Science and Polymer Engineering (p. 156)
- Polymer Engineering, MSPE (p. 156)
- Polymer Engineering, PhD (p. 157)
- Polymer Materials and Engineering at Beijing University of Chemical Technology, BE/ Polymer Science, MS (p. 158)
- Polymer Materials and Engineering at Beijing University of Chemical Technology, BE/Polymer Engineering, MS (p. 159)
- Polymer Science, MS (p. 159)
- Polymer Science, PhD (p. 160)

For more information, visit the School of Polymer Science and Polymer Engineering website (<https://www.uakron.edu/polymer/>).

Biomedical Engineering

- Biomedical Engineering, MBE (p. 126)
- Biomedical Engineering, MSE (p. 127)

Biomedical Engineering (BMEN)

BMEN:522 Physiological Control Systems (3 Credits)

Prerequisite: BIOL 202 and MATH 335. The basic techniques employed in control theory, systems analysis, and model identification as they apply to physiological systems. (Formerly 4800:522)

BMEN:530 Design of Medical Imaging Systems (3 Credits)

Prerequisites: BIOL 200, PHYS 292, ELEN 340, BMEN 305, or by permission of instructor. Physical principles and engineering design of medical imaging systems, with emphasis on digital radiography, computed tomography, nuclear medicine, ultrasound and magnetic resonance. (Formerly 4800:530)

BMEN:560 Experimental Techniques in Biomechanics (3 Credits)

Prerequisites: CHEM 153, MATH 335, PHYS 292, MECE 203 or by permission. Principles of testing and measuring devices commonly used for biofluid and biosolid mechanics studies. Laboratories for demonstration and hands-on experience. (Formerly 4800:560)

BMEN:570 Human Factors Engineering (3 Credits)

Reliability and human error, human capabilities and limitations, crew protection, display systems, controls and controlling actions, interface design principles, risk management, Safety and accident prevention. (Formerly 4800:570)

BMEN:600 BME Graduate Colloquium (1 Credit)

(May be repeated for a maximum of 16 credits.) The Biomedical Engineering Colloquium is a seminar series designed to introduce students to current topics in biomedical engineering research, design and business. (Formerly 4800:600)

BMEN:605 Fundamentals of Biomedical Engineering (4 Credits)

Prerequisites: Graduate Standing in College of Engineering or permission of instructor. This course covers the fundamental areas of biomedical engineering including biomechanics, biomaterials, signal/image processing, biotransport phenomena, controls, and emerging areas. (Formerly 4800:605)

BMEN:606 Physiology for Biomedical Science and Engineering (3 Credits)

An integrative study of the various human body functions with emphasis on cellular, neuromuscular, cardiovascular, and renal physiology and their applications in biomedical engineering. (Formerly 4800:606)

BMEN:611 Biometry (3 Credits)

Statistics and experimental design topics for the biomedical and biomedical engineering disciplines including: distributions, hypothesis testing and estimation, ANOVA, probit analysis and nonparametrics statistics. (Formerly 4800:611)

BMEN:620 Neural Networks (3 Credits)

Examination of highly parallel, distributed architectures for computing that are, to varying degrees, derived from structures observed in biological nervous systems. After an overview of how real neurons operate, the course will examine both classical and modern neural computing architectures. Comparisons will be made with traditional serial machines and applications for which neural networks seem most promising will be examined. (Formerly 4800:620)

BMEN:627 Advances in Drug and Gene Delivery Systems (3 Credits)

This course will examine technological innovations for the delivery of drugs and genes. Methods of introducing drugs and genes into the body, modeling drug transport, and metabolic responses of cells and organs will be analyzed. (Formerly 4800:627)

BMEN:630 Biomedical Computing (3 Credits)

Prerequisite: 4100:206 or equivalent. Computer applications in health care, clinical laboratories, AMHT, medical records, direct order entry, A-D, D-A conversion, patient monitoring, peripherals and interfaces, diagnostic algorithms, automated EEG, ECG systems. (Formerly 4800:630)

BMEN:631 Biomedical Instrumentation I (4 Credits)

Prerequisites: BMEN 605 or permission of the instructor. This course covers biomedical equipment, bio-signals and processing techniques, biomedical sensors/transducers, signal conditioning, data acquisition, noise control, device safety, and modern medical imaging systems. (Formerly 4800:631)

BMEN:633 Biomedical Optics (3 Credits)

Application of lightwave principles and optical fibers on the engineering design and development of instrumentation, techniques, and applications for medical diagnostic imaging, and treatment of disease. (Formerly 4800:633)

BMEN:634 Medical Imaging Devices (3 Credits)

Imaging modalities including radiation, magnetic resonance, and sound. The formation of images. Specific devices including computer tomography, magnetic resonance, ultrasound, gamma cameras and PET. (Formerly 4800:634)

BMEN:640 Spine Mechanics (3 Credits)

Prerequisites: 3100:561 or equivalent; 4300:406 or equivalent; or permission. Physical properties and functional biomechanics of the spine. Kinematics and kinetics of the human spine. Biomechanics of scoliosis, trauma, instability, pain, and orthoses. Mechanics and design of surgical implants. (Formerly 4800:640)

BMEN:642 Hard Connective Tissue Biomechanics (3 Credits)

Prerequisites: 3100:561 or equivalent; CIVE 407 or equivalent; or permission. Physical properties and functional biomechanics of bone. The biology and mechanics of fracture and fracture healing. Mechanics of external and internal fixators. Total joint implants and reconstruction techniques. (Formerly 4800:642)

BMEN:645 Mechanics in Physiology & Medicine (3 Credits)

Prerequisites: MECE 310 and CIVE 202 or equivalent. Blood rheology, mechanics of microcirculation, finite deformation theory, soft tissue mechanics, mechanics of blood and lymph circulation, kinetics and kinematics of orthopedic joints. Clinical applications. (Formerly 4800:645)

BMEN:647 Kinematics of the Human Body (3 Credits)

Prerequisites: MECE 321 or equivalent, graduate standing in the College of Engineering or by permission. Analytical methods used to model and quantify human body motion. Three-dimensional kinematics, joint coordinate systems, functional anatomy, segment center of mass and joint centers. (Formerly 4800:647)

BMEN:650 Cardiovascular Dynamics (3 Credits)

Analysis of blood pumping action, pressure/flow waveforms and transmission through circulation and blood rheology factors. Use of various modeling and measurement techniques. Clinical implications related to disease. (Formerly 4800:650)

BMEN:653 Transport Phenomena in Biology & Medicine (3 Credits)

Prerequisites: CHEE 321 and 4200:322 or MECE 310 and MECE 315 or equivalent. Basic definitions, cardiovascular mass and momentum transport, compartment modeling, mass transfer in physiological systems and artificial kidney and lung devices, Design optimization. Analysis of human thermal system. (Formerly 4800:653)

BMEN:654 Microfluidics in Biotechnology (3 Credits)

Prerequisite: BMEN 605 or permission of instructor. This course integrates principles of fluid mechanics, surface and polymer sciences, and microfabrication to analyze flow of biofluids at the microscale. (Formerly 4800:654)

BMEN:655 Rehabilitation Engineering (3 Credits)

Prerequisites: graduate standing in engineering, mathematics, or science; or permission of the instructor. Devices for rehabilitation, interfacing the motor and/or sensory impaired, quantitative assessment techniques, prosthetics and orthotics, bedsore mechanics, emerging technologies. (Formerly 4800:655)

BMEN:660 Biomaterials & Laboratory (4 Credits)

Corequisite: Biomaterials Laboratory. Material uses in biological applications. Effect of physiological environment and sterilization on materials. Controlled and uncontrolled degradation. Effect of materials on soft tissue, hard tissue and blood. Laboratory experiments using materials designed for biomedical use and demonstrations of biological/materials interactions. (Formerly 4800:660)

BMEN:661 Advanced Biomaterials (3 Credits)

Prerequisite: BMEN 660 or permission of instructor. The objective of this course is to provide the fundamental understanding of the host responses when exposed to various implantable devices and biomaterials. Methods for testing biocompatibility will be analyzed. (Formerly 4800:661)

BMEN:662 Tissue Engineering & Regenerative Medicine (3 Credits)

Prerequisites: BMEN 661 or permission. This course will cover topics including basic developmental biology, quantitative description of biological processes, and integration of cells with materials to regenerate tissue. (Formerly 4800:662)

BMEN:663 Artificial Organs (3 Credits)

Prerequisite: graduate standing in the College of Engineering and Polymer Science or permission of instructor. Study of the rationale for the engineering and clinical aspects required for the design and variety of artificial organs, with emphasis on the artificial heart and artificial kidney. (Formerly 4800:663)

BMEN:665 Biomaterials and Tissue Engineering Methods (3 Credits)

Prerequisite: BMEN 660; Corequisite: BMEN 661; or permission of the instructor. This course is design to equip students with knowledge and skills to evaluate biomaterials and to design scaffolds for tissue engineering. Analytical techniques include principles of microscopy, cell culture techniques, and biocompatibility testing. (Formerly 4800:665)

BMEN:670 Mathematical Modeling in Biology & Medicine (3 Credits)

Prerequisites: graduate standing in engineering, mathematics, or physics; or permission of instructor. Modeling of pharmacokinetic, cardiovascular, neuromuscular, and immune systems, and artificial organ interactions. Deterministic and stochastic approaches. (Formerly 4800:670)

BMEN:685 Medical Devices & Artificial Organs (3 Credits)

Prerequisites: graduate standing in engineering, mathematics, or science; or permission of instructor. Design of medical devices and artificial organs, requirements, safety considerations, tissue constraints, optimization techniques, government regulations, and legal liability. (Formerly 4800:685)

BMEN:696 Engineering Report (2 Credits)

Prerequisites: Admission to Biomedical Engineering and permission of the advisor. A relevant problem in Biomedical Engineering for students electing the non-thesis option. The final engineering report must be approved by the advisor and the advisory committee. (Formerly 4800:696)

BMEN:697 Special Topics: Biomedical Engineering (1-4 Credits)

(May be repeated.) Specialized areas of study as defined by the instructor. (Formerly 4800:697)

BMEN:698 Masters Research (1-6 Credits)

Prerequisite: Permission of advisor. (May be repeated.) Research on a suitable topic in biomedical engineering culminating in a master's thesis. (Formerly 4800:698)

BMEN:699 Masters Thesis in Biomedical Engineering (1-6 Credits)

Prerequisite: permission of advisor. (May be repeated) Supervised research in a specific area of biomedical engineering. (Formerly 4800:699)

BMEN:898 Preliminary Research (1-15 Credits)

(May be repeated) Prerequisite: Approval of the dissertation director. Preliminary investigations prior to the submission of a dissertation proposal to the Interdisciplinary Doctoral Committee. (Formerly 4800:898)

BMEN:899 Doctoral Dissertation (1-15 Credits)

Prerequisite: acceptance of research proposal by the Interdisciplinary Doctoral Committee and approval of the dissertation director. (May be repeated) Original research by the doctoral student. (Formerly 4800:899)

Biomedical Engineering, MBE

The Masters in Biomedical Engineering is a coursework only Masters program that develops deeper technical knowledge in biomedical engineering beyond the BS. It can be completed in three semesters of full-time study.

Admission Requirements

Applicants for the Masters in Biomedical Engineering program must hold a bachelor's degree from a program that is accredited by the Engineering Accreditation Commission of ABET at the time of graduation, or provide evidence of an equivalent academic background to the Dean of the College of Engineering and the appropriate department chair.

Applicants to the Masters in Biomedical Engineering must submit a completed Graduate School application, official undergraduate transcripts, undergraduate grade point average, three letters of recommendation, and a statement of purpose that provides a rationale for proposed graduate study. Applicants must have an overall grade-point average of 2.75 or better or 3.00 for the last two years (64 semester credits or equivalent).

Official results of the analytical writing and quantitative portions of the GRE must be submitted. The GRE minimum requirements for admission into graduate engineering programs in the College of Engineering and Polymer Science can be met by one of the four score combinations below:

Analytical Writing	Quantitative
3.0	159
3.5	153
4.0	149
4.5	146

With program approval, the GRE requirement may be waived for students holding degrees from ABET EAC accredited programs (including such programs at UA).

Applicants whose native language is not English must have a TOEFL score of at least 79 on the internet-based TOEFL.

Bridge-up requirements for applicants with a non-engineering bachelor's degree

Applicants with a bachelor's degree in a discipline other than engineering shall have completed coursework in calculus, differential equations, have one year of classical physics, one year of chemistry, thermodynamics I, and the following:

Code	Title	Hours
Must complete 4 of the 5 following courses		
ELEN:307	Basic Electrical Engineering	4
BMEN:362	Transport Fundamentals for Biomedical Engineering	3
BMEN:300	Biomaterials	3
BMEN:305 or ELEN:340	Introduction to Biophysical Measurements Signals & Systems	4
CIVE:202	Introduction to Mechanics of Solids	3

An overall GPA of 3.0 must be maintained for these courses. These undergraduate engineering courses may be taken prior to graduate admission.

Accelerated Degree Pathway from UA's BS in Biomedical Engineering

Qualified undergraduates in UA's Bachelor of Science in Biomedical Engineering program who are interested in earning the Masters in Biomedical Engineering can do so as part of an Accelerated Degree Pathway (ADP) that accelerates time to completion when earning both degrees. These students must apply and meet the minimum requirements for admission to the ADP program in the Spring before their last year of study for the BS, and at the time of graduation with the BS, apply and meet the minimum requirements for admission to the Masters in Biomedical Engineering. Interested students should consult the department during their junior year for more information.

The University's Academic Requirements (See Academic Requirements in this Graduate Bulletin), the following College of Engineering and Polymer Science requirements and the department's academic requirements must all be satisfied for the masters degrees in the College of Engineering and Polymer Science.

Students in the program:

- will be matched with major advisor, and
- will complete a formal Plan of Study that complies with the requirements below, and is acceptable to the Associate Chair for Graduate Studies in Biomedical Engineering and the Department Chair.

Summary

Code	Title	Hours
Core Required Courses		12
Technical Electives		18
Total Hours		30

Core Required Courses

Code	Title	Hours
Core Required Courses		
BMEN:600	BME Graduate Colloquium ¹	1

BMEN:600	BME Graduate Colloquium ¹	1
BMEN:605	Fundamentals of Biomedical Engineering	4
BMEN:606	Physiology for Biomedical Science and Engineering	3
BMEN:611	Biometry	3
Total Hours		12

¹ This course must be taken twice in different semesters to meet degree requirements.

Technical Electives

Code	Title	Hours
Select minimum of 18 credits from among the following ²		
<i>Up to six credits of 500-level courses may be chosen:</i>		
BMEN:530	Design of Medical Imaging Systems	3
BMEN:5xx		
<i>Choose the remaining electives at the 600-level:</i>		
BMEN:627	Advances in Drug and Gene Delivery Systems	3
BMEN:653	Transport Phenomena in Biology & Medicine	3
BMEN:654	Microfluidics in Biotechnology	3
BMEN:661	Advanced Biomaterials	3
BMEN:662	Tissue Engineering & Regenerative Medicine	3
BMEN:697	Special Topics: Biomedical Engineering	1-4
BMEN:6xx		

² A minimum of six credits of graduate level BMEN courses are required to complete the Technical Elective requirement; other credits can be taken at the graduate level in other disciplines with program approval.

Biomedical Engineering, MSE

Admission Requirements

Applicants for the master of science program must hold a bachelor's degree from a program that is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology at the time of graduation, or provide evidence of an equivalent academic background to the Dean of the College of Engineering and Polymer Science and the appropriate department chair.

Applicants must submit official undergraduate transcripts, undergraduate grade point average, three letters of recommendation, and a statement of purpose that provides a rationale for proposed graduate study.

Applicants with a bachelor's degree must have an overall grade-point average of 2.75 or better or 3.00 for the last two years (64 semester credits or equivalent).

Applicants whose native language is not English must have a TOEFL score of at least 96 on the internet-based TOEFL.

Applicants with a bachelor's degree in a discipline other than engineering shall have completed coursework in calculus, differential equations, have one year of classical physics, one year of chemistry, and must select and complete undergraduate coursework in MECE:300 Thermodynamics I and 4 of the 5 following subject areas:

Code	Title	Hours
ELEN:307	Basic Electrical Engineering	4
ELEN:340	Signals & Systems	4
or BMEN:305	Introduction to Biophysical Measurements	
BMEN:362	Transport Fundamentals for Biomedical Engineering	3
BMEN:300	Biomaterials	3
CIVE:202	Introduction to Mechanics of Solids	3

An overall GPA of 3.0 must be maintained for these courses. These undergraduate engineering courses may be taken prior to graduate admission.

Thesis Option

Code	Title	Hours
Required Courses		
BMEN:600	BME Graduate Colloquium	1
BMEN:605	Fundamentals of Biomedical Engineering	4
BMEN:606	Physiology for Biomedical Science and Engineering	3
BMEN:611	Biometry	3

Code	Title	Hours
Approved Electives (12-14 credits)		
BMEN:530	Design of Medical Imaging Systems	3
BMEN:627	Advances in Drug and Gene Delivery Systems	3
BMEN:653	Transport Phenomena in Biology & Medicine	3
BMEN:654	Microfluidics in Biotechnology	3
BMEN:661	Advanced Biomaterials	3
BMEN:662	Tissue Engineering & Regenerative Medicine	3
BMEN:697	Special Topics: Biomedical Engineering	1-4

Code	Title	Hours
Master's Thesis (6 credits)		
BMEN:699	Masters Thesis in Biomedical Engineering	1-6

Total Credits: 30

Approved electives include BMEN:6xx-level courses other than the core requirements. A total of 18 credits of graduate level BMEN courses are required for thesis option; other credits can be taken at the graduate level in other disciplines with approval. Up to 6 credits of 5xx level courses can be taken for degree. BMEN:600 can be taken up to 2 times for course credit for thesis option.

The thesis must be successfully (no "fail" votes) defended before the Advisory Committee.

Non-thesis Option

Code	Title	Hours
Required Courses		
BMEN:600	BME Graduate Colloquium	1
BMEN:605	Fundamentals of Biomedical Engineering	4
BMEN:606	Physiology for Biomedical Science and Engineering	3

BMEN:611	Biometry	3
BMEN:696	Engineering Report	2

Code	Title	Hours
Approved Electives (12-14 credits)		
BMEN:530	Design of Medical Imaging Systems	3
BMEN:627	Advances in Drug and Gene Delivery Systems	3
BMEN:653	Transport Phenomena in Biology & Medicine	3
BMEN:654	Microfluidics in Biotechnology	3
BMEN:661	Advanced Biomaterials	3
BMEN:662	Tissue Engineering & Regenerative Medicine	3
BMEN:697	Special Topics: Biomedical Engineering	1-4

Total Credits: 32

Approved electives include BMEN:6xx-level courses other than the core requirements. A total of 18 credits of graduate level BMEN courses are required for thesis option; other credits can be taken at the graduate level in other disciplines with approval. Up to 6 credits of 5xx level courses can be taken for degree. BMEN:600 can be taken up to 2 times for course credit for thesis option.

Chemical, Biomolecular, and Corrosion Engineering

- Chemical Engineering, MS (p. 130)

Chemical Engineering (CHEE)

CHEE:521 Fundamentals of Multiphase Transport Phenomena (3 Credits)

Prerequisite: CHEE 321 or equivalent and permission. Major topics to be covered include intraphase and interphase transport phenomena, transport phenomena in multiphase fluids, transport in porous media, transport in gas/liquid pipe flows, computational fluid dynamics of multiphase systems, and case studies. (Formerly 4200:521)

CHEE:535 Process Analysis & Control (3 Credits)

Prerequisites: CHEE 330 and CHEE 353. This course is intended for a student holding a BS in a discipline other than engineering. Response of simple and chemical processes and design of appropriate control systems. (Formerly 4200:535)

CHEE:541 Process Design I (3 Credits)

Prerequisites: CHEE 330, CHEE 351, and CHEE 353. Application of chemical engineering fundamentals to the design of a multi-unit process. Emphasis on use of process simulators. Advanced equipment design, oral, written communication skills, teamwork. (Formerly 4200:541)

CHEE:561 Solids Processing (3 Credits)

Prerequisites: CHEE 321 and CHEE 353 or permission. Comprehensive problems in sedimentation, fluidization, drying and other operations involving mechanics of particulate solids in liquid and gas continua. (Formerly 4200:561)

CHEE:563 Pollution Control (3 Credits)

Prerequisite: CHEE 353 or permission. Air and water pollution sources and problems. Engineering aspects and methodology. (Formerly 4200:563)

CHEE:566 Digitized Data & Simulation (3 Credits)

Prerequisite: Permission. Data acquisition and analysis by digital devices, digital control applications and design. (Formerly 4200:566)

CHEE:570 Electrochemical Engineering (3 Credits)

Chemical engineering principles as applied to the study of electrode processes and to the design of electrochemical reactors. Topics include electrochemical thermodynamics, cell polarizations, Faraday's Laws, electrode kinetics, transport processes in electrochemical systems, current distributions, reactor design, experimental methods, commercial processes, and batteries and fuel cells. (Formerly 4200:570)

CHEE:572 Separation Processes in Biochemical Engineering (3 Credits)

Prerequisite: CHEE 353. Introduction to the separation and purification techniques pertinent to bioprocesses, with emphasis on the engineering considerations for large-scale operations. (Formerly 4200:572)

CHEE:600 Transport Phenomena (3 Credits)

Systematic presentation of conservation of momentum, energy and mass at microscopic and macroscopic levels in conjunction with illustrative examples and analogies. (Formerly 4200:600)

CHEE:605 Chemical Reaction Engineering (3 Credits)

Prerequisite: CHEE 330 or permission. Kinetics of homogeneous and heterogeneous systems. Reactor design for ideal and non-ideal flow systems. (Formerly 4200:605)

CHEE:610 Classical Thermodynamics (3 Credits)

Prerequisite: CHEE 225. Discussion of laws of thermodynamics and their application. Predication and correlation of thermodynamic data. Phase and reaction equilibria. (Formerly 4200:610)

CHEE:621 Surface Science in Chemical Engineering (3 Credits)

Prerequisite: Permission of instructor. This course emphasizes the basics of surface science (surface energy, wetting, adhesion); surface characterization techniques (contact angle, ellipsometry, XPS); and surface engineering methods (SAMs, soft-lithography). (Formerly 4200:621)

CHEE:622 Biochemical Engineering (3 Credits)

Application of chemical engineering principles to biological processes which produce desirable compounds or destroy unwanted or hazardous substances. (Formerly 4200:622)

CHEE:625 Physical Properties of Structural Biopolymers (3 Credits)

Prerequisite: Permission of instructor. Examination of the physical properties of biological tissues from a material science perspective leading to a rational design of biomaterials. (Formerly 4200:625)

CHEE:630 Chemical Process Dynamics (3 Credits)

Prerequisite: CHEE 600. Development and solutions of mathematical models for chemical processes including models based on transport phenomena principles, population balance methods and systems analysis. (Formerly 4200:630)

CHEE:631 Chemical Engineering Analysis (3 Credits)

Mathematical analysis of problems in transport processes, chemical kinetics and control systems. Solution techniques for these problems and their practical significances are stressed. Heuristic proofs will be given for necessary theory developments. (Formerly 4200:631)

CHEE:632 Nonlinear Dynamics & Chaos (3 Credits)

Prerequisite: MATH 335. Description and analysis of the complex behavior exhibited by nonlinear equations. Emphasis is on the numerical methods to quantify chaos. (Formerly 4200:632)

CHEE:633 Colloids-Principles & Practice (3 Credits)

Prerequisite: Permission of instructor. Colloid science and applications in chemical and biomaterials engineering: disperse systems, interparticle forces, surface tension, interfacial thermodynamics, colloid applications, biomaterials applications and characterization techniques. (Formerly 4200:633)

CHEE:634 Applied Surfactant Science (3 Credits)

Prerequisite: CHEE 610. The basics of surfactant science, the chemical engineering application of surfactants including use in polymerization media, separations, emulsion, microemulsion, and a rheology modifier. (Formerly 4200:634)

CHEE:635 Advanced Polymer Engineering (3 Credits)

Prerequisite: CHEE 600 or permission. Reactors for polymerization, polymer characterization, polymer processing, polymer rheology. (Formerly 4200:635)

CHEE:640 Advanced Plant Design (3 Credits)

Prerequisite: Permission. Topical treatment of process and equipment design, scale-up, optimization, process syntheses, process economics. Case problems. (Formerly 4200:640)

CHEE:674 Renewable Resources for Environmentally Benign Chemical Production (3 Credits)

Prerequisite: Permission of instructor. Focus is on chemical and biochemical processing technologies for the preparation of fuels, polymeric materials, and specialty chemicals from renewable resources. (Formerly 4200:674)

CHEE:680 Heterogeneous Catalysis (3 Credits)

Prerequisite: CHEE 330. Kinetics and mechanisms of heterogeneous and homogeneous catalytic reactions; characterization and design of heterogeneous catalysts. (Formerly 4200:680)

CHEE:696 Topics in Chemical Engineering (1-3 Credits)

(May be repeated for a total of six credits.) Prerequisite: Permission. Topics selected from new and developing areas of chemical engineering, such as electrochemical engineering, coal and synthetic fuels processing, bioengineering, simultaneous heat and mass transfer phenomena and new separation techniques. (Formerly 4200:696)

CHEE:697 Chemical Engineering Report (3 Credits)

Prerequisite: Permission of advisor. A relevant problem in chemical engineering is studied. Required course for students electing non-thesis option. Final report must be approved by advisor and advisory committee. (Formerly 4200:697)

CHEE:699 Master's Thesis (1-6 Credits)

(May be repeated to a maximum of six credits.) For properly qualified candidate for master's degree. Supervised original research in specific area of chemical engineering selected on basis of availability of staff and facilities. (Formerly 4200:699)

CHEE:701 Advanced Transport Phenomena (3 Credits)

Prerequisite: CHEE 600. Advanced theory of transport phenomena such as applied tensor analysis, constitutive equations, multicomponent reactive transport and multiphase transport. Illustrative practical examples presented. (Formerly 4200:701)

CHEE:702 Multiphase Transport Phenomena (3 Credits)

Prerequisite: CHEE 600. General transport theorem, kinematics, Cauchy's lemmas and the jump boundary conditions are developed followed by the theory of volume averaging. The single phase equations are then volume averaged to obtain the multiphase equations of change. The technique for using these equations and their practical significance is also covered. (Formerly 4200:702)

CHEE:706 Advanced Reaction Engineering (3 Credits)

Prerequisite: CHEE 605. Kinetics of heterogeneous systems, steady and unsteady state mathematical modeling of chemical reactors, fluidization and additional topics drawn from current literature. (Formerly 4200:706)

CHEE:711 Advanced Chemical Engineering Thermodynamics (3 Credits)

Prerequisite: CHEE 610. Advanced topics in thermodynamics, including phase and reaction equilibria at high pressures, phase equilibrium for multiphase systems, reaction equilibria in multiphase systems, thermodynamics of surfaces, thermodynamics of systems under stress, non-equilibrium thermodynamics and current topics from literature. (Formerly 4200:711)

CHEE:715 Momentum Transport (3 Credits)

Prerequisite: CHEE 600. Discussion of potential flow, boundary layer formation and turbulent flow phenomena for Newtonian fluids. (Formerly 4200:715)

CHEE:716 Non-Newtonian Fluid Mechanics (3 Credits)

Prerequisite: CHEE 600. Tensor and curvilinear coordinates. Newtonian viscometrics. Development of non-Newtonian constitutive equations. Special and general flows of various constitutive models. (Formerly 4200:716)

CHEE:720 Energy Transport (3 Credits)

Prerequisite: CHEE 600. Conduction, natural and forced convection, and radiation heat transfer starting with equations of continuity, motion and energy. (Formerly 4200:720)

CHEE:721 Topics in Energy Transport (3 Credits)

Prerequisite: CHEE 720. Advanced analytical and graphical methods for solving complex heat transfer problems found in chemical engineering. (Formerly 4200:721)

CHEE:725 Mass Transfer (3 Credits)

Prerequisite: CHEE 600. Theory of mass transfer with applications to absorption, adsorption, distillation and heterogeneous catalysis. (Formerly 4200:725)

CHEE:731 Process Control (3 Credits)

Prerequisite: CHEE 630. Introduction to modern control theory of chemical processes including cascade control, multivariate control and data sampled control. (Formerly 4200:731)

CHEE:736 Polymer Engineering Topics (3 Credits)

Prerequisite: Permission. Selected topics of current interest in polymer engineering, such as modeling of reactors or processes, multiphase materials, multiphase flow, artificial fiber engineering, etc. (Formerly 4200:736)

CHEE:738 Chemical Processing of Advanced Materials (3 Credits)

Prerequisite: CHEE 605. Advanced materials such as ceramics, optical materials, sensors, catalysts; application of reaction engineering to sol-gel processing, ceramic processing, modified chemical vapor deposition. (Formerly 4200:738)

CHEE:742 Advanced Catalyst Design (3 Credits)

Prerequisite: CHEE 605. Development of catalysis theory and its application to the design of practical catalysts. (Formerly 4200:742)

CHEE:750 Advanced Pollution Control (3 Credits)

Prerequisite: CHEE 463 or permission. Analysis of current environmental research in analytical instrumentation, air and water, pollution control, hazardous waste treatment, and nuclear waste disposal. (Formerly 4200:750)

CHEE:780 Advanced Biocatalysis & Biotransformations (3 Credits)

Prerequisite: CHEM 401 or CHEM 501 or permission of instructor. Focuses include: (a) high performance enzymes via chemical modification, recombinant technology, evolution, extremophiles; (b) applications of enzymes in biosynthesis, bioprocessing, biosensing, and bioremediation. (Formerly 4200:780)

CHEE:791 Chemical Engineering Seminar (1 Credit)

(May be repeated for a maximum of six credits.) Prerequisite: Permission of instructor. Advanced level coverage of specialized chemical engineering topics. Intended for students seeking a Ph.D. in engineering. (Formerly 4200:791)

CHEE:794 Advanced Seminar Research Techniques for Engineering (3 Credits)

(May be repeated for a total of six credits.) Prerequisite: permission of department chair. Advanced projects, readings and other studies in various areas of chemical engineering. Intended for student seeking Ph.D. in engineering. (Formerly 4200:794)

CHEE:898 Preliminary Research (1-15 Credits)

(May be repeated for a total of 15 credits.) Prerequisite: approval of dissertation director. Preliminary investigations prior to the submission of a dissertation proposal to the Interdisciplinary Doctoral Committee. (Formerly 4200:898)

CHEE:899 Doctoral Dissertation (1-15 Credits)

(May be taken more than once.) Prerequisite: acceptance of research proposal by the Interdisciplinary Doctoral Committee and approval of the dissertation director. Original research by the doctoral student. (Formerly 4200:899)

Chemical Engineering, MS

Admission Requirements

Applicants for the master of science program must hold a bachelor's degree from a program that is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology at the time of graduation, or provide evidence of an equivalent academic background to the Dean of the College of Engineering and Polymer Science and the appropriate department chair.

Applicants must submit a completed Graduate School application, official undergraduate transcripts, undergraduate grade point average, three letters of recommendation, resume, and a statement of purpose. Personal statements or descriptions of post-baccalaureate experience that provide a rationale for proposed graduate study may also be submitted.

Official results of the analytical writing and quantitative portions of the GRE must be submitted. The GRE minimum requirements for admission can be met by one of the four score combinations below:

Analytical Writing	Quantitative
3.0	159
3.5	153
4.0	149
4.5	146

The GRE requirement may be waived for students holding degrees from ABET accredited programs (with department approval).

Applicants with a bachelor's degree must have an overall grade-point average of 2.75 or better or 3.00 for the last two years (64 semester credits or equivalent).

Applicants whose native language is not English must have a TOEFL score of at least 79 on the internet-based TOEFL or an IELTS score of at least 6.5 and also must submit their score on the Test of Written English (TWE).

Applicants who do not satisfy the requirements for Full Admission may be granted Provisional Admission or Deferred Admission.

Degree Requirements

The University's Academic Requirements (See Academic Requirements in this Graduate Bulletin), the following college requirements and the department's academic requirements must all be satisfied for the master of science degrees in the College of Engineering and Polymer Science.

- Identify a three-member Advisory Committee including a major advisor before completion of 9 credit hours of coursework.
- Complete a formal Plan of Study that is acceptable to the Advisory Committee with a minimum of 24 credit hours of coursework of which no more than 6 credits are special topics courses. The formal Plan of Study may be revised upon approval of the Advisory Committee.
- Successfully (no "fail" votes) defend the thesis before the Advisory Committee, or have the Engineering Report approved by the Advisory Committee, or successfully complete the appropriate department's nonthesis option requirements.

Applicants with a bachelor's degree in a discipline other than engineering shall have completed coursework in calculus, differential equations, have one year of classical physics, and must complete:

Code	Title	Hours
CHEE:200	Material & Energy Balances	4
CHEE:225	Equilibrium Thermodynamics	4
CHEE:321	Transport Phenomena	3
CHEE:330	Chemical Reaction Engineering	3

An overall GPA of 3.0 must be maintained for these courses. These undergraduate engineering courses may be taken prior to graduate admission, or concurrently if the student has Full Admission or Provisional Admission and is enrolled for at least 9 graduate credits.

Thesis Option

Code	Title	Hours
CHEE:600	Transport Phenomena	3
CHEE:605	Chemical Reaction Engineering	3
CHEE:610	Classical Thermodynamics	3
CHEE:631	Chemical Engineering Analysis ¹	3
Select six credits of Chemical Engineering Electives ²		6
Select six credits of Approved Electives		6
Master's Thesis		6
Total Hours		30

- ¹ Chemical Engineering Analysis is considered as a 3-credit Approved Mathematics course.
- ² Students without a BS in Chemical Engineering or Corrosion Engineering are required to take CHEE:535 Process Analysis & Control, CHEE:541 Process Design I
- ³ Chemical Engineering students in both MS degree options are expected to attend and to participate in the department's seminars.

Nonthesis Option

Code	Title	Hours
CHEE:600	Transport Phenomena	3
CHEE:605	Chemical Reaction Engineering	3

CHEE:610	Classical Thermodynamics	3
CHEE:631	Chemical Engineering Analysis ¹	3
CHEE:697	Chemical Engineering Report ²	3
Select six credits of Chemical Engineering Electives ³		6
Select 9 credits of Approved Electives		9
Total Hours		30

- ¹ Chemical Engineering Analysis is considered as a 3-credit Approved Mathematics course.
- ² Non-thesis MS students are required to give a oral research presentation for their Chemical Engineering Report.
- ³ Students without a BS in Chemical Engineering or Corrosion Engineering are required to take CHEE:535 Process Analysis & Control, CHEE:541 Process Design I
- ⁴ Chemical Engineering students in both MS degree options are expected to attend and to participate in the department's seminars.

Five Year BS/MS Chemical Engineering Program

The five year BS/MS program in Chemical Engineering provides superior undergraduate students with the opportunity to complete an M.S. in Chemical Engineering with one additional year of study beyond their B.S. Chemical Engineering degree at The University of Akron. The program is only available to B.S. Chemical Engineering students at The University of Akron. Applications are accepted in the Spring of the junior year.

Civil Engineering

- Civil Engineering, MS (p. 135)
- Environmental Engineering, Certificate (p. 136)
- Geotechnical Engineering, Certificate (p. 136)
- Nuclear Engineering, Certificate (p. 136)
- Structural Engineering, Certificate (p. 137)
- Transportation Engineering, Certificate (p. 137)

Civil Engineering (CIVE)

CIVE:500 Introduction to Nuclear Power Generation and Simulation (3 Credits)

Prerequisites: Admission to the Graduate Nuclear Engineering Certificate Program and permission of advisor. Nuclear power history, fundamental reactions, thermodynamic heat cycles, 1-fluid homogeneous simulator thermodynamics, steam, numerical simulation of commercial nuclear power plants, controls. (Formerly 4300:500)

CIVE:501 Nuclear Reactor Engineering and Balance of Plant Systems (3 Credits)

Prerequisite: Admission to Nuclear Engineering Certificate program and permission of advisor. Nuclear reactor time-dependent theory, heat removal, thermodynamics, systems and safety. Balance of Plant heat cycles, component function and design and thermodynamics. Simulation emphasized. (Formerly 4300:501)

CIVE:502 Nuclear Process and Radioactive Waste Management, Safeguards (3 Credits)

Prerequisite: Admission to Nuclear Engineering Certificate program and permission of advisor. Nuclear industry chemistry, processing and waste disposal. Nuclear material safeguards, security and response systems. Radiation process and shielding, reactor licensing and safety, and the environment. (Formerly 4300:502)

CIVE:503 Nuclear Thermodynamics, Simulation, and Advanced Reactor (3 Credits)

Prerequisite: Admission to Nuclear Engineering Certificate program and permission of advisor. Reactor power distribution, thermal and exposure limits, critical heat flux and pressure design, neutronic/thermal hydraulic relationships. Full-plant simulation with advanced BOP components. (Formerly 4300:503)

CIVE:514 Design of Earth Structures (3 Credits)

Prerequisite: CIVE 314 or permission. Design of earth structures; dams, highway fills, cofferdams, etc. Embankment construction techniques, quality control, embankment analysis, instrumentation, foundation soil stabilization, seepage analysis and control. Design problem. Graduate students will perform more advanced analysis and design. (Formerly 4300:514)

CIVE:518 Soil & Rock Exploration (3 Credits)

Prerequisite: CIVE 314 or permission. Site exploration criteria and planning. Conventional boring, sampling and in situ testing methods. Theory and application of geophysics and geophysical methods including seismic, electrical resistivity, gravity, magnetic and radioactive measurements. Air photo interpretation. (Formerly 4300:518)

CIVE:523 Chemistry for Environmental Engineers (3 Credits)

Prerequisite: One year of college chemistry. General, physical, organic, biochemistry, equilibrium, and colloid chemistry concepts applied to environmental engineering. Concepts are used in water and wastewater laboratory. (Formerly 4300:523)

CIVE:526 Environmental Engineering Design (3 Credits)

Prerequisite: CIVE 323. An introduction to the physical, chemical and biological processes utilized in the treatment of water and wastewater, with design parameters emphasized. (Formerly 4300:526)

CIVE:527 Water Quality Modeling & Management (3 Credits)

Prerequisite: CIVE 323. Analysis and simulation of the physical, chemical and biochemical processes affecting stream quality. Development of management strategies based upon the application of water quality modeling techniques to environmental systems. (Formerly 4300:527)

CIVE:528 Hazardous & Solid Wastes (3 Credits)

Prerequisite: Senior standing or permission of instructor. Hazardous and solid waste quantities, properties and sources are presented. Handling, processing, storage and disposal methods are discussed with non-technical constraints outlined. (Formerly 4300:528)

CIVE:543 Applied Hydraulics (3 Credits)

Prerequisite: CIVE 341. Review of design principles; urban hydraulics, steam channel mechanics, sedimentation, coastal engineering. (Formerly 4300:543)

CIVE:551 Computer Methods of Structural Analysis (3 Credits)

Structural analysis using microcomputers; finite element software, interactive graphics; beam stiffness concepts and matrix formulation; simple and complex structural systems modeling; vibration analysis. (Formerly 4300:551)

CIVE:553 Optimum Structural Design (3 Credits)

Prerequisite: CIVE 306. Basic concepts in structural optimization. Mathematical programming methods including unconstrained minimization, multidimensional minimization and constrained minimization. (Formerly 4300:553)

CIVE:554 Advanced Mechanics of Materials (3 Credits)

Prerequisite: CIVE 202 or equivalent. Three-dimensional state of stress and strain analysis. Unsymmetric bending of straight and curved members with shear deformation. Beams on elastic foundations. Saint Venant's torsional problems. Inelastic analysis of bending and torsional members. Introduction to energy method. Instability behavior of prismatic members. (Formerly 4300:554)

CIVE:563 Transportation Planning (3 Credits)

Prerequisite: CIVE 361. Theory and techniques for development, analysis and evaluation of transportation system plans, Emphasis on understanding and using tools and professional methods available to solve transportation planning problems, especially in urban areas. (Formerly 4300:563)

CIVE:564 Highway Design (3 Credits)

Prerequisite: CIVE 361. Study of modern design of geometrical and pavement features of highways. Design problem and computer use. Graduate students will produce a more complete design. (Formerly 4300:564)

CIVE:565 Pavement Engineering (3 Credits)

Prerequisite: CIVE 361. Theories of elasticity, of viscoelasticity and of layered systems as applied to pavements. Pavement materials characterization; pavement design, pavement restoration for rigid and flexible pavements. (Formerly 4300:565)

CIVE:566 Traffic Engineering (3 Credits)

Prerequisite: CIVE 361. Vehicle and urban travel characteristics, traffic flow theory, traffic studies, accidents and safety, traffic signs and marking, traffic signal planning, traffic control and transportation administration. (Formerly 4300:566)

CIVE:567 Advanced Highway Design (3 Credits)

Prerequisite: CIVE 564, Autocad, or permission. Computer-aided geometric design of highways including survey data input, digital terrain modeling, cross-section templates, horizontal and vertical roadway design, earthwork computations, and advanced topics. (Formerly 4300:567)

CIVE:568 Highway Materials (3 Credits)

Prerequisites: CIVE 361, CIVE 380 or permission. Properties of aggregates, manufacture and properties of portland cement concrete, properties of asphaltic materials, design and testing of hot mix asphalt pavement mixes and of surface treatments. Laboratory preparation of specimens and determination of properties. Graduate student requirement: Graduate students will be required to perform an additional eight-hour asphalt laboratory (Absorption recovery of asphalt from solution) and to prepare a paper on a highway materials topic. (Formerly 4300:568)

CIVE:574 Underground Construction (2 Credits)

Prerequisite: CIVE 314. Description of practices and techniques of underground construction. Selection of proper method for individual job. Design of underground openings, support systems and linings. (Formerly 4300:574)

CIVE:604 Dynamics of Structures (3 Credits)

Prerequisite: CIVE 306. Approximate, rigorous dynamic analysis of one, two, multiple and infinite degrees of freedom structural systems. Elastoplastic, plastic analysis. Equivalent systems, dynamic hinge concept. Modal analysis. Transfer matrices. Fourier, Laplace transforms. (Formerly 4300:604)

CIVE:605 Structural Stability (3 Credits)

Prerequisite: CIVE 554 or equivalent. Buckling of bars, beam-columns and frames. Lateral buckling of beams. Double and tangent modulus theories. Energy methods. Compressed rings and curved bars. Torsional buckling. Buckling of plates and shells. Inelastic buckling. (Formerly 4300:605)

CIVE:606 Energy Methods & Elasticity (3 Credits)

Prerequisite: CIVE 202. Work and complementary work. Strain energy and complementary strain energy. Virtual work and Castigliano's theorems. Variational methods. Applications. Formulation of boundary value problems in elasticity. Selected topics in energy methods and elasticity. (Formerly 4300:606)

CIVE:607 Prestressed Concrete (3 Credits)

Prerequisite: CIVE 404. Basic concepts. Design of double-tee roof girder; shear; development length; column; piles; design of highway bridge girder; pretensioned, post-tensioned; continuous girders; corbels; volume-change forces; connections. (Formerly 4300:607)

CIVE:608 Multistory Building Design (3 Credits)

Prerequisite: CIVE 401. Floor systems; staggered truss system; braced frame design; unbraced frame design; drift indices; monocoque (tube and partial tube) systems; earthquake design; fire protection. Analysis by STRUDL. (Formerly 4300:608)

CIVE:609 Finite Element Analysis I (3 Credits)

Prerequisite: CIVE 554 or equivalent. Introductory development of finite element method as applied to various topics from continuum mechanics. Such areas as plane, axisymmetric and 3-D stress analysis; conduction, fluid mechanics; transient problems and geometric and material non-linearity. (Formerly 4300:609)

CIVE:610 Composite Materials in Civil Infrastructure (3 Credits)

Prerequisite: CIVE 554 or equivalent. Constituent materials; manufacturing processes; panel properties by micro/macromechanics; simplified analysis of composite beams, columns, and applications to highway bridges; composites in concrete and wood structures. (Formerly 4300:610)

CIVE:611 Fundamentals of Soil Behavior (2 Credits)

Prerequisite: CIVE 314. In-depth examination of structure and fundamental physico-chemical and mechanical properties of engineering soils viewed as particulate matter. (Formerly 4300:611)

CIVE:612 Advanced Soil Mechanics (3 Credits)

Prerequisite: CIVE 314. Study of mechanics of behavior of soil as continuum. Principles of stress, strain, deformation, shear strength and pore water pressure as applied to mechanical behavior of soil masses. (Formerly 4300:612)

CIVE:613 Advanced Geotechnical Testing (3 Credits)

Prerequisites: CIVE 518 and CIVE 612. Theory and practice of static and dynamic in situ and laboratory soil testing. Testing procedures, applicability, limitations. General evaluation of geotechnical parameters for routine and special site conditions. One lecture, two laboratories per week. (Formerly 4300:613)

CIVE:614 Foundation Engineering I (3 Credits)

Prerequisite: CIVE 313 or permission. Foundation bearing capacity and settlement analysis. Design of shallow and deep foundation systems. Pile driving and load test procedures and analysis. Theory and design of earth-retaining structures including retaining walls, tiebacks and bulkheads. (Formerly 4300:614)

CIVE:615 Foundation Engineering II (3 Credits)

Prerequisite: CIVE 614 or permission. Soil-structure interaction theory and applications to underground structures including conduits, tunnels and shafts. Advanced foundation construction methods and problems including dewatering, soil stabilization, underpinning and cofferdams. Slope stability analysis. (Formerly 4300:615)

CIVE:616 Soil Improvement (3 Credits)

Prerequisites: CIVE 313 and CIVE 314. Admixture stabilization, precompression with vertical drains, blasting, vibrocompaction, injection and grouting, thermal methods, electro-osmosis, soil reinforcement, case studies. (Formerly 4300:616)

CIVE:617 Numerical Methods in Geotechnical Engineering (3 Credits)

Prerequisites: CIVE 313 and CIVE 314. Steady-state and transient flow through soils, consolidation, soil-structure interaction, piling, stress-deformation analysis of earth structures. (Formerly 4300:617)

CIVE:618 Rock Mechanics (3 Credits)

Prerequisite: CIVE 554 or permission. Mechanical nature of rocks; linear elasticity and application to rock problems; inelastic behavior of rocks, time dependence and effects of pore pressure, experimental characterization of rock properties; failure theory and crack propagation. (Formerly 4300:618)

CIVE:620 Sanitary Engineering Problems (2 Credits)

Prerequisite: CIVE 323. Application of both laboratory methods and theory to solution of sanitary engineering problems involving water pollution, stream regeneration, special industrial wastes, detergents and others. (Formerly 4300:620)

CIVE:621 Environmental Engineering Principles (4 Credits)

Corequisite: CIVE 523. Provide the basic principles of chemical reaction engineering, microbiology, environmental regulations, and contaminant migration required for the understanding and solving environmental problems. (Formerly 4300:621)

CIVE:622 Aquatic Chemistry (3 Credits)

Prerequisites: CHEM 151 and CHEM 153 or permission. Quantitative treatment of variables that govern the chemistry of aquatic systems. Emphasis on carbonate in open-closed systems, metal complexation and solubility, and oxidation-reduction reactions. (Formerly 4300:622)

CIVE:623 Physical/Chemical Treatment Processes (3 Credits)

Pre/Corequisite: CIVE 621. Theory, current research associated with physical/chemical processes, the impact on design-coagulation/flocculation, sedimentation, filtration, absorption processes emphasized. (Formerly 4300:623)

CIVE:624 Biological Treatment Processes (3 Credits)

Pre/Corequisite: CIVE 621. Theory, current research associated with biological processes, related physical/chemical processes, the impact on design-activated sludge, fixed film processes, gas transfer, sludge stabilization, sludge dewatering processes emphasized. (Formerly 4300:624)

CIVE:625 Water Treatment Plant Design (3 Credits)

Prerequisite: CIVE 623. Design of water treatment plants for potable, industrial and commercial uses. Development of water sources, treatment methods and financing used to design best practical methods in terms of cost-benefits. (Formerly 4300:625)

CIVE:626 Wastewater Treatment Plant Design (3 Credits)

Prerequisite: CIVE 624. Application of theory and fundamentals to design of wastewater treatment plants. System design methods used for biological and chemical stabilization of wastewater to meet water quality criteria. Economic analyses made to determine best practical designs to be utilized. (Formerly 4300:626)

CIVE:627 Environmental Operations Laboratory (2 Credits)

Prerequisite: CIVE 426 or permission of instructor. Conduction of laboratory experiments related to the design and operation of water and wastewater treatment processes. Experimental design, data collection, analysis and report preparation. (Formerly 4300:627)

CIVE:628 Advanced Chemical Oxidation Process (3 Credits)

Prerequisites: CHEM 151 and CHEM 153 or permission. Qualitative and quantitative treatment of variables that govern process chemistry and kinetics in water. Emphasis on ozone, hydrogen peroxide, and ultra-violet light (UV). (Formerly 4300:628)

CIVE:631 Soil Remediation (3 Credits)

Prerequisite: CIVE 621 or permission. Provide a thorough understanding of site characterization, traditional soil remediation technologies, as well as present new and emerging remediation technologies. (Formerly 4300:631)

CIVE:635 Air Pollution Control (3 Credits)

Prerequisite: CIVE 621 or permission. Introduction to air pollution control philosophies, approaches, regulations, and modeling. Also contains an in-depth evaluation/design approach for the control of particular matter, SO_x, and NO_x. (Formerly 4300:635)

CIVE:640 Advanced Fluid Mechanics (3 Credits)

Prerequisite: MECE 310 or permission. Basic equations, Navier-Stokes equations. Analysis of potential flow, turbulence, hydraulic transients. Solution of typical fluid mechanics problems. Analysis of water hammer in pipe networks by method of characteristics. (Formerly 4300:640)

CIVE:644 Open Channel Hydraulics (3 Credits)

Application of basic principles of fluid mechanics to flow in open channels. Criteria for analysis of uniform, gradually varied and rapidly varied flows. Study of movement and transportation of sediments. Design problems utilizing numerical techniques. (Formerly 4300:644)

CIVE:645 Applied Hydrology (3 Credits)

Discussion of water cycle such as precipitation, evaporation, stream flows, floods, infiltration. Methods of analysis and their application to studies of water demand, storage, transportation including mathematical modeling of urban runoff and statistical hydrology. (Formerly 4300:645)

CIVE:646 Coastal Engineering (3 Credits)

Characteristics of linear and nonlinear wave theories. Interaction of structures, waves; design analysis of shore, offshore structures. Movement, transportation of sediments in lake shore areas. (Formerly 4300:646)

CIVE:663 Advanced Transportation Engineering I (3 Credits)

Prerequisites: CIVE 361 and CIVE 466 or permission. Highway and parking facility design, transportation planning, highway capacity estimates, signal systems and optimization, incident detection and management, freeway ramp metering, and highway traffic safety. (Formerly 4300:663)

CIVE:664 Advanced Transportation Engineering II (3 Credits)

Prerequisites: CIVE 361 and CIVE 466 or permission. Highway and parking facility design, transportation planning, highway capacity estimates, signal systems and optimization, incident detection and management, freeway ramp metering, and highway traffic safety. (Formerly 4300:664)

CIVE:665 Traffic Detection and Data Analysis (3 Credits)

Prerequisite: CIVE 361 or consent of instructor. Theory and application of pressure tubes, loop detectors, and imaging sensing, microwave, infrared, ultrasonic, laser detectors. Parameter estimation, reliability, and data mining and fusion. (Formerly 4300:665)

CIVE:681 Advanced Engineering Materials (3 Credits)

Selected topics on principles governing mechanical behavior of materials with respect to elastic, plastic and creep responses, stress rupture, low and high cycle and thermal fatigue. Failure theories and fracture phenomena in brittle and ductile materials. Crack propagation and life prediction of engineering materials. (Formerly 4300:681)

CIVE:682 Elasticity (3 Credits)

Prerequisite: CIVE 202. Plane stress, plane strain. Two-dimensional problems in rectangular, polar coordinates. Strain-energy methods. Stress, strain in three dimensions. Torsion. Bending. Thermal stresses. (Formerly 4300:682)

CIVE:683 Plasticity (3 Credits)

Prerequisite: CIVE 682 and MECE 622 or equivalent. Mathematical formulation of constitutive equations with focus on their use in structural analysis. Internal variables. Isotropic, kinematic hardening. Nonisothermal plasticity. Finite deformations. Anisotropy. (Formerly 4300:683)

CIVE:684 Advanced Reinforced Concrete Design (3 Credits)

Prerequisite: CIVE 403. Slab systems. Equivalent frame properties. Limit analysis. Yield line theory. Lateral load systems. Shear walls. Footings. Biaxial column action. (Formerly 4300:684)

CIVE:685 Advanced Steel Design (3 Credits)

Prerequisite: CIVE 401. Properties of steel, fasteners, bearing, friction joints, Gusset plates, bolts in tension, end plates, weld joints, cyclic loads, fatigue analysis, types of detail, torsion, stability design. (Formerly 4300:685)

CIVE:686 Experimental Methods in Structural Mechanics (3 Credits)

Prerequisite: CIVE 682. Electrohydraulic closed-loop test systems. Methods for specimen heating. Strain measurement techniques for room and elevated temperatures. Design of computer controlled experiments investigating deformation and failure under complex stress states. (Formerly 4300:686)

CIVE:687 Limit Analysis in Structural Engineering (3 Credits)

Prerequisites: [CIVE 454 or CIVE 554] and CIVE 682. Fundamental theorems of limit analysis. The lower-bound and upper-bound solutions. Applications to frames, plates and plane stress and plane strain problems. Design considerations. Mathematical programming and computer implementation. (Formerly 4300:687)

CIVE:694 Advanced Seminar in Civil Engineering (1-3 Credits)

Prerequisite: Permission. Advanced projects, reading, studies, or experimental in various areas of civil engineering. (Formerly 4300:694)

CIVE:697 Engineering Report (2 Credits)

Prerequisite: Permission of advisor. A relevant problem in civil engineering for students electing the non-thesis option. The final engineering report must be approved by the advisor and the advisory committee. (Formerly 4300:697)

CIVE:698 Master's Research (1-6 Credits)

Prerequisite: Permission of advisor. (May be repeated.) Research on a suitable topic in civil engineering culminating in a master's thesis. (Formerly 4300:698)

CIVE:699 Master's Thesis (1-6 Credits)

Prerequisite: Permission. Research and thesis on some suitable topic in civil engineering as approved by department. Defense of thesis is by final examination. (Formerly 4300:699)

CIVE:701 Earthquake Engineering (3 Credits)

Prerequisite: CIVE 604. Earthquake fundamentals. Earthquake response of single-story and multi-story buildings, as well as structural components. Modal analysis for earthquake response. Inelastic response of multistory structures. Earthquake codes. Stochastic approach. (Formerly 4300:701)

CIVE:702 Plates & Shells (3 Credits)

Prerequisites: CIVE 682 and 3450:531. Navier and Levy solutions for rectangular plates. Approximate methods, including finite difference. Forces in middle plane. Large deflections. Differential geometry of a surface. Shells of revolution. (Formerly 4300:702)

CIVE:703 Viscoelasticity & Viscoplasticity (3 Credits)

Prerequisite: CIVE 683. Formulation of constitutive relations for time dependent materials. Classical linear viscoelasticity. Internal variable representation of nonlinear, hereditary behavior. Creep and rate dependent plasticity. Continuum thermodynamics. Anisotropy. (Formerly 4300:703)

CIVE:704 Finite Element Analysis II (3 Credits)

Prerequisite: CIVE 609 and CIVE 702 or permission. Curved, plate, shell brick elements. Quasi-analytical elements. Quadrature formulas. Substructuring for static and dynamic analyses. Solution algorithms for linear and nonlinear static and dynamic analysis. Computer program formulation. Review of large-scale production programs. (Formerly 4300:704)

CIVE:710 Advanced Composite Mechanics (3 Credits)

Prerequisite: CIVE 610. Analysis of short-fiber composites and statistical behavior, bending, buckling and vibration of laminated plates and shells. Advanced topics involving stress concentration, residue stress, fatigue, fracture toughness, nonlinear and viscoelastic stress-strain formulations, solutions of nonlinear problems. (Formerly 4300:710)

CIVE:712 Dynamic Plasticity (3 Credits)

Prerequisite: CIVE 683 or CIVE 703. Impulsive and transient loading of structural elements (beams, plates, shells, etc.) in which inelastic deformation occurs. Topics include: longitudinal and transverse plastic wave propagation in thin rods, propagation of plastic hinges, rate-dependent viscoplastic waves, transverse impact on beams and plates, high-rate forming, blast loading, plate perforation, shock waves in solids. (Formerly 4300:712)

CIVE:717 Soil Dynamics (3 Credits)

Prerequisite: CIVE 614 or permission. Vibration and wave propagation theory relating to soils, soil structures and foundations. Dynamic behavior of soils. Design of foundations for dynamic loading impact, pulsating and blast loads. (Formerly 4300:717)

CIVE:731 Bioremediation (3 Credits)

Prerequisite: CIVE 621 or permission. Provide the fundamentals required for understanding and successfully implementing the biodegradation of hazardous compounds coupled with the design and operational techniques of bioremediation systems. (Formerly 4300:731)

CIVE:745 Seepage (2 Credits)

Discussion of parameters determining permeability of various soils. Analytical, numerical and experimental methods to determine two- or three-dimensional movement of groundwater. Unsteady flows. (Formerly 4300:745)

CIVE:898 Preliminary Research (1-15 Credits)

(May be repeated for a total of 15 credits.) Prerequisite: Approval of dissertation director. Preliminary investigations prior to the submission of a dissertation proposal to the interdisciplinary Doctoral Committee. (Formerly 4300:898)

CIVE:899 Doctoral Dissertation (1-15 Credits)

(May be taken more than once.) Prerequisite: Acceptance of research proposal by the Interdisciplinary Doctoral Committee and approval of the dissertation director. Original research by the doctoral student. (Formerly 4300:899)

Civil Engineering, MS

Admission Requirements

Applicants for the master's of science program must hold a bachelor's degree from a program that is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology at the time of graduation, or provide evidence of an equivalent academic background to the Dean of the College of Engineering and Polymer Science and the appropriate department chair.

Applicants must submit official undergraduate transcripts, undergraduate grade point average, three letters of recommendation, and a statement of purpose. Personal statements or descriptions of post-baccalaureate experience that provide a rationale for proposed graduate study may also be submitted.

Official results of the analytical writing and quantitative portions of the GRE must be submitted. The GRE minimum requirements for admission can be met by one of the four score combinations below:

Analytical Writing	Quantitative
3.0	159
3.5	153
4.0	149
4.5	146

The GRE requirement may be waived for students holding degrees from ABET accredited programs (with department approval).

Applicants with a bachelor's degree must have an overall grade-point average of 2.75 or better or 3.00 for the last two years (64 semester credits or equivalent).

Applicants whose native language is not English must have a TOEFL score of at least 79 on the internet-based TOEFL and also must submit their score on the Test of Written English (TWE).

Applicants who do not satisfy the requirements for Full Admission may be granted Provisional Admission or Deferred Admission.

Degree Requirements

The University's Academic Requirements (See Academic Requirements in this Graduate Bulletin), the following college requirements and the department's academic requirements must all be satisfied for the master of science degrees in the College of Engineering and Polymer Science.

- Identify a three-member Advisory Committee including a major advisor before completion of 9 credit hours of coursework.
- Complete a formal Plan of Study that is acceptable to the Advisory Committee with a minimum of 24 credit hours of coursework of which no more than 6 credits are special topics courses. The formal Plan of Study may be revised upon approval of the Advisory Committee.
- Successfully (no "fail" votes) defend the thesis before the Advisory Committee, or have the Engineering Report approved by the Advisory Committee.

Committee, or successfully complete the appropriate department's nonthesis option requirements.

Applicants with a bachelor's degree in a discipline other than engineering shall have completed coursework in calculus, differential equations, have one year of classical physics, and must select and complete undergraduate coursework from one of four undergraduate disciplines. These undergraduate engineering courses may be taken prior to graduate admission, or concurrently if the student has full admission or provisional admission, and is enrolled for at least 9 graduate credits.

Code	Title	Hours
CIVE:306	Theory of Structures	3
CIVE:313	Soil Mechanics	3
MECE:310	Fluid Mechanics I	2
CIVE:323	Water Supply & Pollution Control	3
CIVE:341	Hydraulic Engineering	3
CIVE:361	Transportation Engineering	3
CIVE:401	Steel Design	3
CIVE:403	Reinforced Concrete Design	3
Total Hours		23

Areas of study in the department include structural mechanics, geotechnical, hydraulic, transportation, and environmental engineering.

Thesis Option

Code	Title	Hours
Civil Engineering Courses		15
Approved Mathematics or Science		3
Approved Electives		6
Master's Thesis		6
Total Hours		30

Nonthesis Option

Code	Title	Hours
Civil Engineering Courses		15
Approved Mathematics or Sciences		3
Approved Electives		12
Engineering Report		2
Total Hours		32

Environmental Engineering, Certificate

This certificate program provides practicing professionals an opportunity to expand their knowledge base in environmental engineering. It is designed for people who cannot make the full time commitment to the graduate degree program but would like to receive recognition of their continued effort in the area of study or would like to cumulate credit hours toward their ultimate graduate degree goal.

Admission Criteria

This certificate is designed primarily for students with a B.S. degree in Civil Engineering or a closely related field.

Program of Study

Civil Engineering students may earn a Environmental Engineering Certificate by completing a total of 18 credit hours.

Code	Title	Hours
CIVE:523	Chemistry for Environmental Engineers	3
CIVE:526	Environmental Engineering Design	3
CIVE:527	Water Quality Modeling & Management	3
CIVE:623	Physical/Chemical Treatment Processes	3
CIVE:624	Biological Treatment Processes	3
CIVE:631	Soil Remediation	3
Total Hours		18

Geotechnical Engineering, Certificate

This certificate program provides practicing professionals an opportunity to expand their knowledge base in geotechnical engineering. It is designed for people who cannot make the full time commitment to the graduate degree program but would like to receive recognition of their continued effort in the area of study or would like to cumulate credit hours toward their ultimate graduate degree goal.

Admission Criteria

This certificate is designed primarily for students with a B.S. degree in Civil Engineering or a closely related field.

Program of Study

Civil Engineering students may earn a Geotechnical Engineering Certificate by completing a total of 15 credit hours.

Code	Title	Hours
Select at least three of the following courses:		9
CIVE:612	Advanced Soil Mechanics	
CIVE:614	Foundation Engineering I	
CIVE:615	Foundation Engineering II	
CIVE:617	Numerical Methods in Geotechnical Engineering	
CIVE:717	Soil Dynamics	
Four of the following workshop courses may be taken and substituted for two of the courses above:		6
Load and Resistance Factor Design of Foundations and Geotechnical Features		
Ground Improvement Methods		
Mechanically Stabilized Earth Walls and Reinforced Soil Slopes		
Deep Foundations		
Total Hours		15

Students interested in these workshop courses should contact the Department of Civil Engineering.

Nuclear Engineering, Certificate

This certificate program provides practicing professionals an opportunity to expand their knowledge base in nuclear engineering. It is designed for people who cannot make the full-time commitment to the graduate degree program but would like to receive recognition of their continued

effort in the area of study or would like to accumulate credit hours toward their ultimate graduate degree goal.

Admission

This certificate is designed for students with a B.S. in Civil Engineering or a closely related field.

Code	Title	Hours
Required Courses		
CIVE:500	Introduction to Nuclear Power Generation and Simulation	3
CIVE:501	Nuclear Reactor Engineering and Balance of Plant Systems	3
CIVE:502	Nuclear Process and Radioactive Waste Management, Safeguards	3
CIVE:503	Nuclear Thermodynamics, Simulation, and Advanced Reactor	3
Electives		
	Select at least six additional credit hours from any of the engineering disciplines	6
Total Hours		18

Structural Engineering, Certificate

This certificate program provides professionals an opportunity to expand their knowledge base in the design and behavior of structural systems. It is designed for people who cannot make the full time commitment to the graduate degree program but would like to receive recognition of their continued effort in the area of study or would like to cumulate credit hours toward their ultimate graduate degree goal.

Admission Criteria

This certificate is designed primarily for students with a B.S. degree in Civil Engineering or a closely related field.

Program of Study

Civil Engineering graduates may earn a Structural Engineering Certificate by completing the following five courses:

Code	Title	Hours
CIVE:551	Computer Methods of Structural Analysis	3
CIVE:554	Advanced Mechanics of Materials	3
CIVE:605	Structural Stability	3
CIVE:684	Advanced Reinforced Concrete Design	3
CIVE:685	Advanced Steel Design	3
Total Hours		15

Transportation Engineering, Certificate

This certificate program provides practicing professionals an opportunity to expand their knowledge base in the design and operation of transportation systems. It is designed for people who cannot make the full time commitment to the graduate degree program but would like to receive recognition of their continued effort in the area of study or would like to cumulate credit hours toward their ultimate graduate degree goal.

Admission Criteria

This certificate is designed primarily for students with a B.S. degree in Civil Engineering or a closely related field.

Program of Study

Civil Engineering students may earn a Transportation Engineering Certificate by completing the following courses:

Code	Title	Hours
CIVE:564	Highway Design	3
CIVE:565	Pavement Engineering	3
CIVE:566	Traffic Engineering	3
Select two of the following:		6
CIVE:663	Advanced Transportation Engineering I	
CIVE:664	Advanced Transportation Engineering II	
CIVE:665	Traffic Detection and Data Analysis	
Total Hours		15

Computer Science

- Computer Science, MS (p. 140)

Computer Science (CPSC)

CPSC:501 Fundamentals of Data Structures (3 Credits)

Prerequisite: programming experience in C. Basic data structures and algorithms: stacks, queues, linked lists, trees, hash tables, and graphs; sorting and search algorithms. Introduction to data abstraction and algorithm analysis. (May not be used to meet computer science requirements.) (Formerly 3460:501)

CPSC:506 Introduction to C & UNIX (3 Credits)

Prerequisite: Programming experience. C language programming. UNIX shell programming, file structure, system calls, and interprocess communication. (May not be used to meet computer science requirements.) (Formerly 3460:506)

CPSC:508 Windows Programming (3 Credits)

Prerequisite: admission to Computer Science Master's Program or permission. Windows operating systems, integrated development environment, event-driven programming, graphical user interface design, using object libraries, component object model, object linking and embedding, client-server objects. (Formerly 3460:508)

CPSC:511 Human-Computer Interaction (3 Credits)

Prerequisite: Admission to the computer science graduate program. This course introduces the basic concepts and technologies of Human-Computer Interaction (HCI). Students will learn how to design and implement systems for human to interact with computers. Topics include: Categories of HCI, CLI, GUI, NUI, Design, Implementation and Evaluation of HCI, HCI Devices, Virtual Device Drive, HCI Toolkits, HCI Standards, Categories of Interactive Tasks, EDP and Multi-Threading in HCI, VR/AR/MR/XR in HCI, APP HCI, 3D Printing. (Formerly 3460:511)

CPSC:515 Big Data Programming (3 Credits)

Prerequisite: Admission to Computer Science Graduate Program or permission. Fundamentals of big data programming and computing platforms. Wrangling, modeling, visualizing, and analyzing data; computing platforms for data mining and deep learning. (Formerly 3460:515)

CPSC:518 Introduction to Discrete Structures (3 Credits)

Prerequisite: admission to Computer Science Master's Program or permission. Introduction to algebraic structures of particular use in computer science. Topics include algorithms and flow chart language, graphs and digraphs, trees, and lattices codes. (May not be used to meet computer science Master's degree requirements.) (Formerly 3460:518)

CPSC:521 Object-Oriented Programming (3 Credits)

Prerequisite: Admission to Computer Science master's program or permission. Object-oriented design, analysis, and programming using different development models. Comparison with other programming paradigms. (May not be used to meet computer science Master's degree requirements.) (Formerly 3460:521)

CPSC:526 Operating Systems (3 Credits)

Prerequisites: Admission to Computer Science master's program or permission. Introduction to aspects of all modern operating systems: types; storage management; process and resource control; interacting process synchronization. (Formerly 3460:526)

CPSC:528 UNIX System Programming (3 Credits)

Prerequisite: admission to Computer Science Master's Program or permission. An overview of the UNIX operating system. Shell programming. Process management, processor management, storage management, scheduling algorithms, resource protection, and system programming. (Formerly 3460:528)

CPSC:530 Theory of Programming Languages (3 Credits)

Prerequisite: Admission to Computer Science Master's Program or permission. Advanced concepts underlying programming languages and their applications, formal definitions of programming languages, Backus Normal Form, semantics. Alternative programming paradigms including functional programming. (Formerly 3460:530)

CPSC:535 Algorithms (3 Credits)

Prerequisites: Admission to Computer Science master's program or permission. Design and analysis of efficient algorithms for random access machines; derivation of pattern classification algorithms. (Formerly 3460:535)

CPSC:536 Applied Machine Learning (3 Credits)

Prerequisite: Admission to a Computer Science Master's program or permission. This course introduces the fundamentals of machine learning and concepts of deep learning. Topics include machine learning concepts, tasks, and workflow; supervised learning methods for classification and prediction; unsupervised learning methods for pattern recognition; deep learning algorithms such as neural networks and convolutional neural networks. (Formerly 3460:536)

CPSC:538 Interactive Game & Game Engine Design (3 Credits)

Prerequisite: Admission to Computer Science Graduate Program. This course will introduce the basic concepts and techniques of game and game engine design. Students will learn how to design and implement interactive computer games and game engines. Topics include: Interactive Animation, Game Engines, EDP in Game Development, Procedural Animation and Physics Engine, Decision Making and AI Games, Surface & Volume Representation, VR, AR, MR, APP Games, Game Engine Development, and Voxel-Engine. (Formerly 3460:538)

CPSC:540 Compiler Design (3 Credits)

Prerequisites: Admission to Computer Science master's program or permission. Techniques used in constructing compilers, including lexical and syntactic analysis, parsing techniques, object code generation and optimization. Course requires a compiler implementation project. (Formerly 3460:540)

CPSC:545 Introduction to Bioinformatics (3 Credits)

Prerequisite: admission to Computer Science Master's Program or permission. Introduce major themes in bioinformatics. Topics include concepts of molecular genetics, biological databases, database searching, sequence alignments, phylogenetic trees, structure prediction, and microarray data analysis. (Formerly 3460:545)

CPSC:553 Computer Security (3 Credits)

Prerequisite: admission to Computer Science master's program or permission. Principles of computer security: cryptography, authentications, secure network protocols, intrusion detection and countermeasures. (Formerly 3460:553)

CPSC:555 Data Communication & Computer Networks (3 Credits)

Prerequisite: admission to Computer Science Master's Program or permission. ISO-OSI, TCP/IP, SNA data switching, protocols, flow and error control, routing, topology. Network trends, network taxonomies, and socket-based programming. (Formerly 3460:555)

CPSC:557 Computer Graphics (3 Credits)

Prerequisite: admission to Computer Science Master's Program or permission. Topics in vector and raster graphics, interactive graphics languages, scan conversion, clipping, geometric transformation, projection, shading, animation and virtual reality. (Formerly 3460:557)

CPSC:560 Artificial Intelligence & Heuristic Programming (3 Credits)

Prerequisite: admission to Computer Science Master's Program or permission. Study of various programs which have displayed some intelligent behavior. Exploration of level at which computers can display intelligence. (Formerly 3460:560)

CPSC:563 Pervasive Computing (3 Credits)

Prerequisite: admission to Computer Science master's program or permission. Computing from a wireless perspective. Topics include protocols, algorithms, security and sensor networks. (Formerly 3460:563)

CPSC:565 Computer Architecture (3 Credits)

Prerequisite: admission to Computer Science Master's Program or permission. An introduction to hardware organization of computer at register, processor and system level. In-depth study of architecture of a particular computer system family. (Formerly 3460:565)

CPSC:568 Mobile Robotics (3 Credits)

Prerequisite: admission to Computer Science master's program or permission. Introduction to history, hardware and software components, and design of autonomous mobile robots. Multiple projects involving both physical robots and software emulation. (Formerly 3460:568)

CPSC:575 Database Management (3 Credits)

Prerequisite: admission to Computer Science Master's Program or permission. Fundamentals of database organization, data manipulations and representation, data integrity, privacy. (Formerly 3460:575)

CPSC:576 Introduction to NoSQL Data Management (3 Credits)

Prerequisite: CPSC 210. The widespread emergence of big data storage needs has driven the development and adoption of a new class of non-relational databases commonly referred to as NoSQL databases. This course will explore the origins of NoSQL databases and the characteristics that distinguish them from traditional relational database management systems. Core concepts of NoSQL databases will be presented, followed by an exploration of how different database technologies implement these core concepts. We will take a closer look at 1-2 databases from each of the four main NoSQL data models (key-value, column family, document, and graph), highlighting the business needs that drive the development and use of each database. Finally, we will present criteria that decision makers should consider when choosing between relational and non-relational databases and techniques for selecting the NoSQL database that best addresses specific use cases. (Formerly 3460:576)

CPSC:577 Introduction to Parallel Processing (3 Credits)

Prerequisite: admission to Computer Science Master's Program or permission. Commercial processors: past and present. Parallel languages, models of parallel computation. Emphasis on parallel algorithm design and performance evaluation. A broad study of parallel paradigms with relation to real world applications. (Formerly 3460:577)

CPSC:580 Software Engineering (3 Credits)

Prerequisite: Admission to Computer Science master's program or permission. Introduction to formal software specification and validation. Introduction of methodologies and tools of design, development, validation, and maintenance. (Formerly 3460:580)

CPSC:589 Topics in Computer Science (1-3 Credits)

(May be repeated) Prerequisite: permission of instructor. Selected topics in computer science at an advanced level. (Formerly 3460:589)

CPSC:595 Experiential Learning in Computer Science (1-3 Credits)

Prerequisites: must complete 18 graduate credits hours with at least 3.0 overall GPA and have permission of a faculty member. Placement in industry for experience related to computer science. (May not be repeated). (Formerly 3460:595)

CPSC:597 Individual Study in Computer Science (1-3 Credits)

(May be repeated. Can apply to degree, minor or certificate only with department approval.) Prerequisite: permission. Directed studies designed as introduction to research problems under guidance of designated faculty member. (Formerly 3460:597)

CPSC:601 Research Methodology (3 Credits)

Prerequisite: Admission to Computer Science graduate program or permission of instructor. Research process overview: literature review, formulation of problems, research design, writing proposals, data collection, data processing and analysis, evaluation, writing reports, and presenting results. (Formerly 3460:601)

CPSC:626 Advanced Operating Systems (3 Credits)

Prerequisite: admission to Computer Science Master's Program or permission. Advanced topics in operating system design: synchronization mechanisms, performance evaluation, security, distributed operating systems. (Formerly 3460:626)

CPSC:630 Advanced Theory of Programming Languages (3 Credits)

Prerequisite: admission to Computer Science Master's Program or permission. In-depth study of various issues in the design and implementation of programming languages, such as formal type systems, operational and other semantics, and verification. (Formerly 3460:630)

CPSC:631 Abstract Machines (3 Credits)

Prerequisite: Admission to the Computer Science Master's program or instructor permission. The course studies the formal specification of abstract computational devices, representations of programs, static and dynamic semantics, and their implementations. (Formerly 3460:631)

CPSC:635 Advanced Algorithms (3 Credits)

Prerequisite: Admission to Computer Science master's program or permission. Advanced graph algorithms, matrix multiplication, fast Fourier transforms, lower bound theory, complexity hierarchies, NP-complete and intractable problems, approximation techniques. (Formerly 3460:635)

CPSC:636 Graph Analytics (3 Credits)

Prerequisite: Admission to the Computer Science Master's program or instructor permission. Topics include graph's mathematical and statistical properties, basic graph analytic algorithms, and network models, and application of graph analytics to high-dimensional data analysis. (Formerly 3460:636)

CPSC:641 Optimization for Parallel Compilers (3 Credits)

Prerequisite: Graduate standing and permission of instructor. Advanced analysis and transformation strategies to support automatic vectorization and parallelization of code, emphasizing restructuring to improve instruction scheduling. (Formerly 3460:641)

CPSC:645 Computational Biology (3 Credits)

Prerequisite: Admission to Computer Science graduate program or permission of instructor. Topics include sequence analysis, hidden Markov model, RNA structure prediction, microarray data analysis, biological networks, and molecular dynamics simulation as well as Monte Carlo simulation. (Formerly 3460:645)

CPSC:653 Software Security (3 Credits)

Prerequisite: Admission to Computer Science graduate program or permission of instructor. Issues in software security – common software security errors, steganography, spam, cryptography, malware, Internet hacking. (Formerly 3460:653)

CPSC:655 Computer Networks & Distributed Processing (3 Credits)

Prerequisite: admission to Computer Science Master's Program or permission. Interconnection technologies, protocol layering models, datagram and stream transport services, client-server paradigm, principles and protocols of interconnected networks operating as unified systems, and TCP/IP technology. (Formerly 3460:655)

CPSC:658 Visualization (3 Credits)

Prerequisite: admission to Computer Science Master's Program or permission. Visualization pipeline, data representation in visualization, visualization algorithms, object-oriented visualization, scientific visualization, volume visualization, visualization applications and research topics. (Formerly 3460:658)

CPSC:660 Expert Systems (3 Credits)

Prerequisite: admission to Computer Science Master's Program or permission. Architecture of expert systems, knowledge representation and acquisition, inference mechanisms for expert systems, uncertainty management, expert system tools and applications. (Formerly 3460:660)

CPSC:665 Advanced Computer Architecture (3 Credits)

Prerequisite: admission to Computer Science Master's Program or permission. Fundamentals of computer analysis and design, with emphasis on cost/performance tradeoffs. Studies of pipelined, vector, RISC, and multiprocessor architectures. (Formerly 3460:665)

CPSC:670 Advanced Automata & Computability (3 Credits)

Prerequisite: admission to Computer Science Master's Program or permission. An in-depth study of concepts related to computability. Topics include nondeterministic automata, recursive function theory, the Chomsky hierarchy, Turing machines and undecidability. (Formerly 3460:670)

CPSC:676 Data Mining (3 Credits)

Prerequisite: admission to Computer Science Master's Program or permission. Study fundamental data mining algorithms and their applications in the process of Knowledge Discovery from Databases. Study Data warehousing systems and architectures. (Formerly 3460:676)

CPSC:677 Parallel Processing (3 Credits)

Prerequisite: admission to Computer Science Master's Program or permission. Advanced computer architectures, theories of parallel computing, system resources optimization, efficient programming languages and application requirements of cost-effective computer systems. Classical results and practical insights into implementing parallel algorithms on actual parallel machines. (Formerly 3460:677)

CPSC:678 Data Integration (3 Credits)

Prerequisites: Admission to Computer Science graduate program or permission of instructor. Topics include Datalog, Conjunctive Queries, Query Containment and Equivalence, Schema Matching and Mapping, Wrappers, Query Evaluation, Source Descriptions, Semantic Web, and Crowdsourcing. (Formerly 3460:678)

CPSC:680 Software Engineering Methodologies (3 Credits)

Prerequisite: admission to Computer Science Master's Program or permission. Introduction to current techniques and methodologies used in software design, development, validation, and maintenance. (Formerly 3460:680)

CPSC:689 Advanced Topics in Computer Science (1-3 Credits)

(May be repeated) Prerequisite: permission of instructor. At most, six credits may be applied to Master's degree requirements. Selected topics in computer science at an advanced level. (Department consent required for application to computer science Master's degree requirements.) (Formerly 3460:689)

CPSC:695 Practicum in Computer Science (1-3 Credits)

Prerequisite: graduate teaching assistant or permission. Training and experience in college teaching of computer science under the supervision of an experienced faculty member. May not be used to meet degree requirements. Credit/non-credit. (Formerly 3460:695)

CPSC:697 Individual Study in Computer Science (1-3 Credits)

(May be repeated. Can apply to degree only with department approval) Prerequisite: permission of instructor. Directed studies designed as introduction to research problems under guidance of designated faculty member. (Formerly 3460:697)

CPSC:698 Master's Research (1-6 Credits)

Prerequisite: permission of advisor. Research in computer science topic culminating in research paper. No more than three credits may be applied to the minimum degree requirements (May be repeated.) (Formerly 3460:698)

CPSC:699 Master's Thesis (1-6 Credits)

(May be repeated) Prerequisite: permission. Properly qualified candidate for a master's degree may enroll for research experience which culminates in presentation of a faculty-supervised thesis. (Formerly 3460:699)

Computer Science, MS

Admission Requirements

All applicants for admission to the graduate program in computer science must meet the university requirements for graduate admission as published in the Graduate Bulletin. In addition to these requirements, the applicant must also:

- hold a baccalaureate degree in computer science or a related discipline;
- three letters of recommendation;
- statement of purpose;
- resume;
- successfully completed coursework in calculus: equivalent to MATH:221 Analytic Geometry-Calculus I and MATH:222 Analytic Geometry-Calculus II;
- successfully completed coursework in computer science: Data structures and algorithms, Discrete math, and Programming.

Highly qualified students lacking preparation in a certain area may be considered for provisional admission.

Applications to the master's program in Computer Science are accepted on a rolling basis.

Degree Requirements

The master's degree program in Computer Science combines courses in computer science principles and practice. The program provides the student with a solid computer science background in preparation for governmental or industrial employment or for continued study at the Ph.D. level in computer science.

The program requires 30 credits of graduate coursework, and most full-time students admitted into the program will complete the degree requirements in two years.

The program has two optional concentrations: Data Science concentration and Software and Systems concentration. Students in the Data Science concentration should complete at least nine credits in the Data Science course group, and students in the Software and Systems concentration should complete nine credits in the Software and Systems course group.

Thesis Option

Code	Title	Hours
Required Courses		9
CPSC:601	Research Methodology	
CPSC:698	Master's Research	
CPSC:699	Master's Thesis	
Electives (600-Level Courses) ¹		12
Select 12 credits in approved 600-level courses		
Electives (500 and 600-Level Courses)		9
Select nine credits in approved 500 or 600-level courses		
Total Hours		30

The thesis must be of publishable quality and must be successfully presented at a public defense moderated by three full time Graduate Faculty (two of which must be from Computer Science).

Non-thesis Option

Code	Title	Hours
Required Course		3
CPSC:601	Research Methodology	
Electives (600-Level Courses) ¹		15
Select 15 credits in approved 600-level courses		
Electives (500 and 600-Level Courses)		12
Select 12 credits in approved 500 or 600-level courses		
Total Hours		30

¹ Students may take approved 600-level courses outside of the department. Up to six credit hours can be counted toward the required 600-level credit hour requirement. Students must consult with the department for an approved list of courses.

Optional Data Science Concentration

Code	Title	Hours
Select at least nine credits from the following courses:		
CPSC:635	Advanced Algorithms	3
CPSC:636	Graph Analytics	3
CPSC:658	Visualization	3
CPSC:676	Data Mining	3
CPSC:677	Parallel Processing	3
CPSC:678	Data Integration	3

Optional Software and Systems Concentration

Code	Title	Hours
Select at least nine credits from the following courses:		
CPSC:630	Advanced Theory of Programming Languages	3
CPSC:631	Abstract Machines	3
CPSC:635	Advanced Algorithms	3
CPSC:641	Optimization for Parallel Compilers	3
CPSC:653	Software Security	3
CPSC:677	Parallel Processing	3
CPSC:680	Software Engineering Methodologies	3

Electrical and Computer Engineering

- Electrical and Computer Engineering, MS (p. 144)

Electrical Engineering (ELEN)

ELEN:541 Digital Communication (3 Credits)

Introduction to digital communication theory and systems. Sampling, formatting and baseband communications. Digital modulation techniques and optimal receivers. Error performance analysis. Error control coding. (Formerly 4400:541)

ELEN:545 Wireless Communications (3 Credits)

Theory and analysis of wireless communication systems, wireless propagation, multiple access, modulation, demodulation, multipath channel characterization, diversity, cellular, and PCS services and standards. (Formerly 4400:545)

ELEN:548 Optical Communication Networks (3 Credits)

Optical waveguides and optical integrated components, optical transmitters and receivers, optical communication network design. (Formerly 4400:548)

ELEN:553 Antenna Theory (3 Credits)

Theory of EM radiation. Wire antennas, arrays, receiving antennas, reciprocity. Integral equations for induced currents, self and mutual impedances. Equivalent principle, radiation from aperture antennas. (Formerly 4400:553)

ELEN:555 Microwaves (4 Credits)

Dynamic fields, Maxwell's equation and wave equations. Field analysis of wave guides, microwave components, techniques and systems. (Formerly 4400:555)

ELEN:561 Optical Electronics and Photonic Devices (3 Credits)

Lightwave engineering, photonic principles and optical electronic device technology. (Formerly 4400:561)

ELEN:572 Control Systems II (4 Credits)

State variable analysis, design of control systems. Discrete systems, analysis, digital computer control. Experiments include hybrid, AC control system, digital computer control. (Formerly 4400:572)

ELEN:583 Power Electronics I (3 Credits)

Elements of power electronics circuits. Rectifiers, converters, inverters analysis and design. (Formerly 4400:583)

ELEN:584 Power Electronics Laboratory & Design Project (2 Credits)

Prerequisite: ELEN 583 or equivalent. Experiments on different types of power electronic converters: AC/DC, DC/DC, DC/AD, and AC/AC. Design project to include design, simulation, building, and testing of a power electronic circuit. (Formerly 4400:584)

ELEN:585 Electric Motor Drives (3 Credits)

Application of electric machines, choice of motor for particular drive. Application of power semiconductor circuits in electric machinery. (Formerly 4400:585)

ELEN:589 Design of Electric and Hybrid Vehicles (3 Credits)

Prerequisite: Permission by Instructor. Principles of electric and hybrid vehicles. Characteristics of electric machines, engines, transmissions, batteries, fuel cells, ultracapacitors. Vehicle control strategies, communication networks, and overall system integration. (Formerly 4400:589)

ELEN:598 Special Topics: Electrical Engineering (1-3 Credits)

(May be taken more than once.) Prerequisite: permission of department chair. Special topics in electrical engineering. (Formerly 4400:598)

ELEN:641 Random Signal Analysis (3 Credits)

Analysis, interpretation and smoothing of engineering data through application of statistical and probability methods. (Formerly 4400:641)

ELEN:642 Imaging System Engineering (3 Credits)

Prerequisite: ELEN 561. Engineering principles of imaging systems, analysis, design, and evaluation of imaging systems, processing techniques, and applications. (Formerly 4400:642)

ELEN:643 Information Theory (3 Credits)

Source and channel models, entropy, relative entropy, mutual information, data compression, random coding bound and channel coding theorem, channel capacity for Gaussian channels, practical coding schemes, network information theory. (Formerly 4400:643)

ELEN:645 Advanced Wireless Communications (3 Credits)

Advanced topics in wireless communications including MIMO, multiuser and cooperative communications. (Formerly 4400:645)

ELEN:646 Digital Signal Processing (3 Credits)

Relations between continuous-and discrete-time Fourier expansions. Sampling, aliasing, sampling rate conversion. Operator concepts in signal processing, all-pass systems, FFT, digital filter design. (Formerly 4400:646)

ELEN:647 Digital Spectral Analysis & Signal Modeling (3 Credits)

Prerequisites: ELEN 646 or permission of instructor. Methods and theory of spectral analysis and signal modeling are investigated in detail. Applications of theory include speech processing, optimal filtering, biomedical systems, digital communications. (Formerly 4400:647)

ELEN:648 Optical Network Architecture (3 Credits)

Prerequisite: ELEN 548. Principles of optical network architecture, analysis, design, control, and fault management. (Formerly 4400:648)

ELEN:649 Error Control Coding (3 Credits)

Error control coding techniques for communications including block codes, cyclic codes, convolutional codes, turbo codes, LDPC codes, coded modulation and iterative decoding. (Formerly 4400:649)

ELEN:650 Electromagnetic Theory I (3 Credits)

Prerequisite: permission of instructor. Electrostatics: uniqueness theorem, boundary-value problems, constructions of Green's functions. Magnetostatics. Electrodynamics: energy and momentum, EM potentials, Stratton-Chu formulation, radiation, dyadic Green's functions. (Formerly 4400:650)

ELEN:651 Electromagnetic Theory II (3 Credits)

Prerequisite: ELEN 650 or permission of the course instructor. Scattering; TEM waves; guided wave theory: transmission lines, closed-boundary guides and cavities, modal orthogonality and completeness, Green's function, excitation and coupling, open-boundary waveguides. (Formerly 4400:651)

ELEN:652 Computer Electromagnetics (3 Credits)

Prerequisite: ELEN 650 or permission of the course instructor. Analytic and numerical techniques for electromagnetic fields, conformal mapping, finite difference method, finite element method, and the method of moments. (Formerly 4400:652)

ELEN:655 Advanced Antenna Theory & Design (3 Credits)

Prerequisite: ELEN 553 or equivalent. Basic properties and recent advances of microstrip antennas. Analysis and design of reflector antennas. Analysis and synthesis of linear and planar antenna arrays. (Formerly 4400:655)

ELEN:666 Simulation of Nanoscale and Molecular-Scale Systems (3 Credits)

The course describes modern simulation techniques for the analysis of nano-scale phenomena: molecular dynamics, fast algorithms for multiatomic and multiparticle systems, and initio methods in electronic structure calculation. (Formerly 4400:666)

ELEN:673 Nonlinear Control (3 Credits)

Corequisite: ELEN 674 or instructor permission. Designed to provide students with qualitative insights into nonlinear systems as well as techniques for controlling such systems. Topics include describing functions, Popov and circle criteria, jump resonances, subharmonics, phase plane, conservative systems, Lyapunov theory, bifurcation of attractors, and routes to chaos. (Formerly 4400:673)

ELEN:674 Control System Theory (3 Credits)

Prerequisite: instructor permission. Advance modern control theory for linear systems. Controlability, observability, minimal realizations of multivariate systems, stability, state variable feedback, estimation, and an introduction to optimal control. (Formerly 4400:674)

ELEN:677 Optimal Control I (3 Credits)

Prerequisite: ELEN 674. Formulation of optimizational problem; application of variational calculus, maximum principle and optimality principle to control problems. Computational techniques in optimization. (Formerly 4400:677)

ELEN:680 Dynamics & Control of Power Electronic Circuits (3 Credits)

Prerequisites: ELEN 583 or equivalent. Averaged and sampled-data models for rectifiers and DC/DC converters. Small-and large-signal models about the cyclic steady-state. Feedback controls using classical and modern approaches. (Formerly 4400:680)

ELEN:686 Dynamics of Electric Machines (3 Credits)

Prerequisites: graduate status in Electrical Engineering. Voltage and mechanical differential equations of electric machines, analytical and numerical methods for solution of a system of machine differential equations. (Formerly 4400:686)

ELEN:687 Power Electronics II (3 Credits)

Prerequisite: ELEN 583 or equivalent. Effects of the nonidealities of the power circuit components, magnetics, base and gate drives, thyristor commutation circuits, heat transfer and thermal issues. Analysis and design of advanced power circuits. (Formerly 4400:687)

ELEN:688 Control of Electric Machines (3 Credits)

Prerequisites: graduate student in Electrical Engineering. Elements of control circuits for electric drives, techniques for torque/speed control of electric machines. (Formerly 4400:688)

ELEN:689 Power Semiconductor Devices (3 Credits)

Prerequisite: graduate status in Electrical Engineering. Structure and physics of power semiconductor devices: diodes, Bipolar junction transistors, MOSFETs, Thyristors, Power MOS-Bipolar devices (IGT,MCT). Emphasis on the issues that characterize these devices from the lower power semiconductor devices. (Formerly 4400:689)

ELEN:693 Special Problems: Electrical Engineering (1-3 Credits)

(May be taken more than once) Prerequisite: permission of department chair. For a qualified graduate student. Supervised research or investigation in major field of training or experience. Credits dependent upon nature and extent of project. (Formerly 4400:693)

ELEN:697 Engineering Report (2 Credits)

Prerequisite: Permission of advisor. Study of a relevant problem in Electrical and Computer Engineering for students electing the non-thesis Master's option. (Formerly 4400:697)

ELEN:698 Master's Research: Electrical Engineering (1-6 Credits)

Prerequisite: Permission of advisor. (May be repeated.) Research on a suitable topic in electrical engineering culminating in a master's thesis. (Formerly 4400:698)

ELEN:699 Master's Thesis (1-6 Credits)

Prerequisite: permission of department chair. Research and thesis on some suitable topic in electrical engineering. (Formerly 4400:699)

ELEN:753 Topics in Electromagnetics (3 Credits)

Prerequisite: ELEN 651. Introduction to advanced techniques in fields. Topics include application of Green's function techniques and related boundary value problems. (Formerly 4400:753)

ELEN:772 Model Reduction Techniques for Control Systems (3 Credits)

Prerequisite: ELEN 674 or permission of the instructor. Classical, modern, and optimal techniques for computing reduced order models of linear, nonlinear, and infinite dimensional systems. Minimal realizations of multi-variable systems are also considered. (Formerly 4400:772)

ELEN:774 Advanced Linear Control Systems (3 Credits)

Prerequisite: ELEN 674 and a course in Real Analysis or equivalent. Covers topics related to the design of robust control systems. The synthesis of controllers which yield stable closed-loop systems will be considered. The H8-optimality criterion for controller design is included. Special emphasis will be given to the robust stabilization problem and the disturbance attenuation problem. (Formerly 4400:774)

ELEN:775 Robust Control (3 Credits)

Prerequisite: ELEN 674. Input-output and state-space characterizations of robust control systems, and design techniques based on the algebraic Riccati equation. Decentralized and reliable control design methodologies. (Formerly 4400:775)

ELEN:777 Optimal Control II (3 Credits)

Prerequisite: ELEN 677. Advanced state-feedback optimal control. Output-feedback issues, including loop transfer recovery, optimal observer design, reduced-order controllers, frequency weighting, and decentralized control. (Formerly 4400:777)

ELEN:778 Adaptive Control (3 Credits)

Prerequisite: Permission of instructor. This course will provide the advanced graduate student with the techniques required for the control of time-varying nonlinear and stochastic systems. Topics include minimum prediction error control, least squares estimation, certainty equivalence adaptive control. Kalman filtering, minimum variance control, LQG control and stochastic adaptive control. (Formerly 4400:778)

ELEN:779 Advanced Topics in Control (3 Credits)

Prerequisite: ELEN 677. Discussions of recent advances in control systems. (Formerly 4400:779)

ELEN:794 Advanced Seminar: Electrical Engineering (1-3 Credits)

(May be taken more than once) Prerequisite: permission of department chair. Advanced level coverage of specialized topics. For student seeking Ph.D. in engineering. (Formerly 4400:794)

ELEN:898 Preliminary Research (1-15 Credits)

(May be repeated.) Prerequisite: approval of dissertation director. Preliminary investigations prior to submission of a dissertation proposal to the Interdisciplinary Doctoral Committee. (Formerly 4400:898)

ELEN:899 Doctoral Dissertation (1-15 Credits)

(May be repeated.) Prerequisite: acceptance of research proposal by the Interdisciplinary Doctoral Committee and approval of the dissertation director. Original research by the doctoral student. (Formerly 4400:899)

Computer Engineering (CPEN)

CPEN:510 Embedded Scientific Computing (3 Credits)

Prerequisite: Permission by Instructor. Organization of scientific and engineering problems for computer solutions. Analysis of error and convergence properties of algorithms. (Formerly 4450:510)

CPEN:515 System Simulation (3 Credits)

Computer simulation of dynamic systems. Discrete system stability, linear multistep and Runge-Kutta methods, nonlinear systems, stiff systems, distributed systems and real-time computing. (Formerly 4450:515)

CPEN:520 Object Oriented Design (3 Credits)

Investigation of object-oriented design paradigm and the design implementation with the object-oriented programming language C++.. (Formerly 4450:520)

CPEN:521 Computer Systems Design (3 Credits)

Design of advanced processors at the microarchitecture level. Pipelining. Superscalar, vector and VLIW architectures. Instruction-level parallelism. Compiler support. Multiprocessor architectures. (Formerly 4450:521)

CPEN:522 Embedded Systems Interfacing (3 Credits)

Prerequisite: Permission by instructor. Micro-controller structures and embedded peripherals. Interfaces to physical environments. Software access to peripherals, timers, ADCs and DACs. Synchronous and asynchronous communications. Interrupts. Real-time operating systems. (Formerly 4450:522)

CPEN:523 Programmable Logic (3 Credits)

Electronic circuitry considerations in logic circuits, methods of sequential, threshold logic analysis, synthesis, development of computer arithmetic elements; memory, storage devices, (Formerly 4450:523)

CPEN:527 Computer Networks (3 Credits)

Network architecture and protocol layering. Network design principles, communication protocols, and performance measures. Socket programming, routing, error detection and correction, access control, multimedia networking. (Formerly 4450:527)

CPEN:540 Digital Signal Processing (3 Credits)

Signal sampling and reconstruction; data-converter models. Unilateral and bilateral z transforms. Discrete Fourier Transform (DFT); Fast Fourier Transform (FFT). Digital filter structures and design methods. (Formerly 4450:540)

CPEN:562 Analog Integrated Circuit Design (3 Credits)

CMOS processes and layout; amplifiers, current mirrors, and comparators; current, voltage, and bandgap references; switched capacitor circuits. Frequency and noise analysis techniques. (Formerly 4450:562)

CPEN:567 VLSI Circuits & Systems (3 Credits)

Graduate level introduction to VLSI design. MOSFET structures, design rules, and fabrication. Static, dynamic CMOS. PLAs, ROMs, and RAMs. Layout methodologies and tools. System architecture. (Formerly 4450:567)

CPEN:598 Special Topics: Computer Engineering (1-3 Credits)

(May be taken more than once) Prerequisite: permission of department chair. Special topics in computer engineering. (Formerly 4450:598)

CPEN:606 Computer Architecture (3 Credits)

Historical development of computer architecture. Design methodologies. Processor organization and design of instruction sets. Parallel processing. Control section implementations. Memory organization. System configurations. (Formerly 4450:606)

CPEN:607 Parallel Computer Architecture (3 Credits)

Prerequisite: CPEN 606 or equivalent. This course provides an introduction to parallel computer architectures and parallel processing based on a single instruction, message-passing, or shared memory. (Formerly 4450:607)

CPEN:620 Real-time Scheduling (3 Credits)

Theory of fixed priority scheduling for real-time systems. Aperiodic, Periodic, and Sporadic Task scheduling. (Formerly 4450:620)

CPEN:629 Networked Embedded Systems (3 Credits)

Foundations for design and deployment of asynchronous distributed systems. Wireless sensor-actuator systems. New frontiers in distributed systems including communication, localization, synchronization, failure detection and performance analysis. (Formerly 4450:629)

CPEN:642 Advanced Knowledge Engineering (3 Credits)

Prerequisite: permission of instructor. Advanced study of knowledge acquisition and expert system project management. (Formerly 4450:642)

CPEN:663 VLSI Design & Automation (3 Credits)

Prerequisite: CPEN 567. Methodologies for automated design of VLSI systems. Computer-aided design tools and algorithms. Design for low power, high performance, testability. Research topics in VLSI design. (Formerly 4450:663)

CPEN:693 Special Problems: Computer Engineering (1-3 Credits)

(May be taken more than once) Prerequisite: permission of department chair. For a qualified graduate student. Supervised research or investigation in student's major field. Credit depends upon nature and extent of project. (Formerly 4450:693)

CPEN:794 Advanced Seminar (1-3 Credits)

(May be taken more than once) Prerequisite: permission of department chair. Advanced level coverage of various topics. Intended for student seeking Ph.D. in engineering. (Formerly 4450:794)

Electrical and Computer Engineering, MS

Admission Requirements

Applicants for the master of science program must hold a bachelor's degree from a program accredited by the Engineering Accreditation Commission of ABET at the time of graduation, or provide evidence of an equivalent academic background.

Applicants must submit official undergraduate transcripts, a curriculum vitae, three letters of recommendation, and a statement of purpose. Personal statements or descriptions of post-baccalaureate experience that provide a rationale for proposed graduate study may also be submitted.

Official results of the analytical writing and quantitative portions of the GRE must be submitted. The GRE minimum requirements for admission into graduate programs in the College of Engineering and Polymer Science for study in Electrical and Computer Engineering can be met by one of the three score combinations below:

Analytical Writing	Quantitative
2.5	166
3.0	159
3.5	153

Applicants with a bachelor's degree must have an overall grade-point average of 2.75 or better or 3.00 for the last two years (64 semester credits or equivalent).

Applicants whose native language is not English must have a TOEFL score of at least 79 on the internet-based TOEFL or an IELTS score of 6.5.

Applicants who do not satisfy the requirements for Full Admission may be granted Provisional Admission or Deferred Admission with departmental approval.

Degree Requirements

The University's Academic Requirements (See Academic Requirements in this Graduate Bulletin), the following College of Engineering and Polymer Science requirements and the department's academic requirements must all be satisfied for the master of science degrees in the College of Engineering and Polymer Science.

- Identify a three-member Advisory Committee including a major advisor before completion of 9 credit hours of coursework.
- Complete a formal Plan of Study that is acceptable to the Advisory Committee with a minimum of 24 credit hours of coursework of which no more than 6 credits are special topics courses. The formal Plan of Study may be revised upon approval of the Advisory Committee.

- Successfully (no "fail" votes) defend the thesis before the Advisory Committee, or have the Engineering Report approved by the Advisory Committee, or successfully complete the appropriate department's nonthesis option requirements.

Applicants with a bachelor's degree in a discipline other than engineering shall have completed coursework in calculus, differential equations, and classical physics, and must complete a set of undergraduate courses chosen with approval of the department that demonstrate competency in circuits and electronics, systems analysis and design based on differential equations, and other areas of electrical and computer engineering. These undergraduate engineering courses may be taken prior to graduate admission or concurrently if the student has full admission or provisional admission and is enrolled for at least nine graduate credits. A limited number of these courses may be taken at the 500-level and may count toward the M.S. degree provided that they are included in a formal Plan of Study approved by the student's Advisory Committee.

Areas of study for the master's in Electrical and Computer Engineering cover a wide range of topics in both electrical and computer engineering, including power and renewable energy, control systems, electromagnetics, sensors and sensing systems, communications and signal processing, analog and digital electronics and devices, embedded systems and software engineering.

Thesis Option

Code	Title	Hours
	Electrical and Computer Engineering Courses	15
	Approved Mathematics	3
	Approved Electives	6
	Master's Thesis	6
	Total Hours	30

The required coursework must include at least 12 credits at or above the 600-level and may not include more than six credits of special topics or special problems courses. Coursework must follow a plan of study that is approved by the Advisory Committee before 12 credits are completed.

Nonthesis Option

Code	Title	Hours
	Electrical and Computer Engineering Courses	15
	Approved Mathematics	6
	Approved Electives	9
ELEN:697	Engineering Report	2
	Total Hours	32

The required coursework must include at least 12 credits at or above the 600-level and may not include more than six credits of special topics or special problems courses. Coursework must follow a plan of study that is approved by the Advisory Committee before 12 credits are completed.

Electrical and computer engineering students pursuing the nonthesis option must pass an engineering report course and submit an engineering report, evaluated by the advisory committee, after completing no less than 24 credits of graduate coursework.

Engineering, MSE

The Master of Science in Engineering is ideal for those with a bachelor's degree in any engineering discipline wishing to expand their knowledge. The program allows students to take a multidisciplinary approach to the engineering graduate program, an attractive option for those with interests beyond their chosen engineering major. The program prepares students for careers in industry, government, or academia with unique applications in healthcare and medicine.

Admission Requirements

Applicants for the master's of science program must hold a bachelor's degree in an engineering discipline.

Applicants must submit official transcripts and three letters of recommendation. A minimum undergraduate cumulative grade point average of 3.0 (on a scale of 4.0) is required.

Official results of the analytical writing and quantitative portions of the GRE must be submitted. The GRE minimum requirements for admission can be met by one of the four score combinations below:

- Analytical Writing = 3 / Minimum Quantitative Score = 159
- Analytical Writing = 3.5 / Minimum Quantitative Score = 153
- Analytical Writing = 4 / Minimum Quantitative Score = 149
- Analytical Writing = 4.5 / Minimum Quantitative Score = 146

The GRE is waived for graduates of The University of Akron and graduates from an ABET accredited program.

Applicants whose native language is not English must have a TOEFL score of at least 79 on the internet-based TOEFL.

Thesis Option

Code	Title	Hours
	Engineering Courses	12
	Approved Mathematics/Science Courses	3
	Approved Electives	9
	Master's Thesis	6
Total Hours		30

The thesis must be successfully defended (no "fail" votes) before the Advisory Committee.

Nonthesis Option

Code	Title	Hours
	Engineering Courses	18
	Approved Mathematics/Science Courses	3
	Approved Electives	9
	Engineering Report	2
Total Hours		32

Engineering, PhD

Doctor of Philosophy in Engineering

The Doctor of Philosophy in Engineering is an interdisciplinary doctoral program offered on a collegiate basis that provides advanced study and research, focusing on qualitative research methods and specialized classes designed to equip students with advanced scientific research

skills. Students conduct original research alongside faculty and graduate students.

Admission Requirements

Applicants for the Doctor of Philosophy in Engineering must hold a bachelor's degree from a program that is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology at the time of graduation, or provide satisfactory evidence of an equivalent academic background to the Dean of the College of Engineering and Polymer Science.

Applicants with a master of science degree must provide satisfactory evidence of an equivalent engineering baccalaureate background to the Dean of the College of Engineering and Polymer Science.

Applicants must submit official undergraduate transcripts, undergraduate grade point average, three letters of recommendation, statement of purpose, and resume. Personal statements or descriptions of post-baccalaureate experience that provide a rationale for proposed graduate study may also be submitted.

Official results of the analytical writing and quantitative portions of the GRE must be submitted. The GRE minimum requirements for admission can be met by one of the four score combinations below:

Analytical Writing	Quantitative
2.5	165
3.0	159
3.5	153
4.0	149
4.5	146

The GRE requirement may be waived for students holding degrees from ABET accredited programs (with department approval).

Applicants with a bachelor's degree must have a cumulative grade-point average of at least 3.0/4.0. Graduates from international programs may require special consideration given differences in scoring systems.

Applicants with a master's degree must have a cumulative graduate grade point average of at least 3.5/4.0. Graduates from international programs may require special consideration given differences in scoring systems.

Applicants whose native language is not English must have a score of at least 79 on the internet-based TOEFL which includes four sections (reading, listening, speaking, and writing) or a minimum IELTS score of 6.5. Requirements for students wishing to be a teaching assistant are given under the Graduate School guidelines.

Applicants not satisfying the requirements for Full Admission may be classified either as a Provisional Admission or as a Deferred Admission.

Applicants with a bachelor's degree in a discipline other than engineering may be required to take additional bridge-up courses depending on their background. Necessary bridge-up coursework will be determined by the admitting department/program graduate committee.

Transfer Credits

A student who has a master's degree from another university or from one of the departments in the College of Engineering may, upon recommendation of the Interdisciplinary Doctoral Committee, transfer up to 50% of the required credits of course work. The courses comprising

the transfer credits must be identified and itemized on the Plan of Study and must be substantiated by an official transcript from the educational institution that offered the courses.

A student who has completed a non-thesis master's degree, or has graduate credits but has not completed the degree requirements for the master's degree, can transfer a maximum of 18 credits of course work toward the doctoral course requirements.

No more than six credit hours of research or complete thesis credits can be transferred.

Degree Requirements

The University's Academic Requirements (see **Academic Requirements** in this Graduate Bulletin) for the Doctoral Degree and the following College of Engineering and Polymer Science academic requirements for the Doctoral Degree must be satisfied.

- An entering doctoral student will have the chair of the Interdisciplinary Doctoral Committee (IDC) in his/her home department/program.
- Student's plan of study should include 96 credit hours and be in accordance with the guidelines established by the student's admitting department/program.
- A Plan of Study will be established by the IDC satisfying guidelines established by the home department/program.
- Identify an interdisciplinary field of study, a dissertation director, and an Interdisciplinary Doctoral Committee before completion of 18 credits of coursework.
- Pass a departmental Qualifying Examination. The purpose of the qualifying examination is to determine admissibility to the doctoral program and any technical weakness.
- Satisfy the language requirement specified by the Interdisciplinary Doctoral Committee.
- Pass a Candidacy Examination. The purpose of the candidacy examination is to test the student's ability to conduct independent research.
- Present an acceptable Dissertation Proposal that describes the proposed research to the Interdisciplinary Doctoral Committee.
- Present and successfully (no "fail" votes) defend the dissertation to the Interdisciplinary Doctoral Committee.

A copy of the Ph.D. in Engineering Program Procedures (<https://www.uakron.edu/engineering/academics/graduate/>) may be obtained online at the College of Engineering and Polymer Science website.

Doctoral Student's Responsibilities

Doctoral students are completely responsible for all aspects of their graduate education. Specifically, these responsibilities include:

- Understanding, adhering to, and implementing the procedures of the Graduate School, as described in The University of Akron Graduate Bulletin, and the Interdisciplinary Doctoral Procedures of the College of Engineering and Polymer Science.
- Selecting an interdisciplinary program, Dissertation Director, and Interdisciplinary Doctoral Committee.
- Arranging, through the Dissertation Director, all Interdisciplinary Doctoral Committee meetings.
- Initiating, through the Dissertation Director, the forms that monitor their progress toward the doctoral degree.

- Presenting an acceptable Research Proposal to the Interdisciplinary Doctoral Committee and executing the proposed research.
- Preparing a scientifically acceptable and comprehensive dissertation whose format meets all the accepted standards of the Interdisciplinary Doctoral Committee, the College of Engineering and Polymer Science, and the Graduate School.
- Successful defense of the dissertation. (no "fail" votes)

Interdisciplinary Fields of Study

The proposal to establish a doctoral program in the College of Engineering was approved by the Board of Trustees of The University of Akron and the Ohio Board of Regents in 1967-68. Five undergraduate departments: Biomedical; Chemical, Biomolecular, and Corrosion; Civil; Electrical and Computer; and Mechanical are the basic disciplines for the interdisciplinary programs. These interdisciplinary programs are broadly defined as follows:

- *Biomedical Engineering* studies the theoretical and experimental application of engineering principles to biomedical problems. Some typical areas of interest are biomaterials, biomechanics as well as signal and image processing.
- *Environmental Engineering* includes the study of water and air pollution, environmental health, chemical disposal, waste management, noise control, resource engineering, and appropriate fields of urban planning.
- *Mechanics* includes the theoretical and experimental study of the stresses, strains, and endurance of structures, machines and various materials, mechanics of solids, fluids, solid, and composite materials.
- *Systems Engineering* includes analysis, design, simulation and control of integrated operational systems, and interaction effects among the components of engineering systems. Applications include advanced electric power, communication, control, information security, and learning systems.
- *Electrical and Computer Engineering* studies and develops solutions for important problems in areas including energy, health, transportation and information technology. Some areas of interest include sensors, motor drives and controls, networked and distributed systems, alternative energy, software solutions, communications and embedded systems.
- *Materials Engineering* studies the materials from the physical/mechanical, chemical, and electrical standpoints. Its purpose is to develop a better understanding of the composition, properties, and performance of various materials, and to develop new materials and manufacturing methods for applications including sensors, electronics, etc.
- *Transport Processes* include the theoretical and experimental study of the transfer of mass, energy, and power, as related to engineering systems and processes.
- *Chemical Reactions and Process Engineering* studies chemical reactions, homogeneous chemical reactions, heterogeneous chemical reactions, and catalysis as applied to process engineering.
- *Microscale Physiochemical Engineering* studies small particles, surface science, agglomeration, and separation as applied to process engineering.

The interdisciplinary doctoral program has succeeded in providing doctoral students access to the resources of the entire college while providing an economically sound administration for a program that deals with a doctoral population that is much smaller than those for undergraduate or master's degrees.

Mechanical Engineering

- Manufacturing, Certificate (p. 150)
- Mechanical Engineering, MS (p. 151)

Mechanical Engineering (MECE)

MECE:500 Thermal System Components (3 Credits)

Performance analysis and design of basic components of thermal energy exchange and conversion systems. Components studied include heat exchangers, pumps, compressors, turbines and expansion engines. (Formerly 4600:500)

MECE:510 Heating & Air Conditioning (3 Credits)

Prerequisite: Permission. Thermodynamics of gas mixtures. Design and selection of air conditioning equipment. Control of gas mixtures, heating, cooling, and humidity. (Formerly 4600:510)

MECE:511 Compressible Fluid Mechanics (3 Credits)

Subsonic and supersonic flow in nozzles, diffusers, and ducts. One-dimensional reactive gas dynamics. Prandtl-Myer theory. Applications to design and analysis of compressors, turbines, and propulsion devices. (Formerly 4600:511)

MECE:512 Fundamentals of Flight (3 Credits)

Introduction to basic aerodynamics, airplane performance, stability and control, astronautics and propulsion. Design considerations are emphasized. (Formerly 4600:512)

MECE:513 Introduction to Aerodynamics (3 Credits)

Introduction of aerodynamic concepts; conformal transformations, theory of thin airfoils, 2-dimensional airfoil theory, wings of finite span, lifting line theories, lumped-vortex, vortex-lattice, and panel methods. (Formerly 4600:513)

MECE:514 Introduction to Aerospace Propulsion (3 Credits)

Introduction to propulsion systems currently used in aerospace fields; propulsion principles for turbojets, chemical rockets, and electrical rocket propulsion. (Formerly 4600:514)

MECE:515 Energy Conversion (3 Credits)

Prerequisite: Permission. Topics from fields of internal combustion engines, cycle analysis, modern conversion devices. (Formerly 4600:515)

MECE:516 Heat Transfer Processes (3 Credits)

Prerequisite: Permission. Analysis, design of extended surfaces. Natural convection and mixed convection, combined modes of heat transfer with phase changes. (Formerly 4600:516)

MECE:522 Experimental Stress Analysis I (3 Credits)

Prerequisite: Permission. Experimental methods of determining stress or strain: brittle lacquer, strain gages, photoelasticity, full field thermal techniques. (Formerly 4600:522)

MECE:530 Machine Dynamics (3 Credits)

Prerequisite: Permission. Static and dynamic forces in machines, products of inertia, dynamic equivalence, flywheels. Balancing of rotating, reciprocating, cyclic plane motion. Computer simulation of transient mechanism dynamics, other topics in advance dynamics. (Formerly 4600:530)

MECE:531 Fundamentals of Mechanical Vibrations (3 Credits)

Prerequisite: Permission. Undamped and forced vibrations of systems having one or two degrees of freedom. (Formerly 4600:531)

MECE:532 Vehicle Dynamics (3 Credits)

Prerequisite: Permission. Application of dynamic systems analysis techniques to road vehicles. Newtonian and Lagrangian methods. Tire/road interface. Ride characteristics, handling and stability. Digital simulation. (Formerly 4600:532)

MECE:540 System Dynamics & Control (4 Credits)

Prerequisite: Permission. Laplace transforms. Mathematical models of physical systems. Transient response and stability. Error analysis and system accuracy. Root locus methods in design. Frequency analysis and design. Compensation techniques. (Formerly 4600:540)

MECE:541 Control Systems Design (3 Credits)

Prerequisite: Permission. Methods of feedback control design such as minimized error, root-locus, frequency domain. Compensation techniques. Multivariable and nonlinear design methods and computer-aided control design. (Formerly 4600:541)

MECE:542 Industrial Automatic Control (3 Credits)

Prerequisite: Permission. Operation of basic control mechanisms. Study of mechanical, hydraulic, pneumatic, fluidic control systems, including application areas. Tuning of control devices for optimum performance of system. Case studies on control applications from industry, e.g. boilers, furnaces, process heaters. (Formerly 4600:542)

MECE:543 Optimization Methods in Mechanical Engineering (3 Credits)

Prerequisite: Permission. Development and method of solution of optimization problems in mechanical engineering. The use of dynamic programming and operational research methods for optimization including computer utilization and applications. (Formerly 4600:543)

MECE:544 Robot Design, Control & Application (3 Credits)

Prerequisite: Permission. Robot design and control. Kinematic transformations, velocities and accelerations, path trajectories and dynamics, control and sensing in robotics. The automated factory with robot applications. (Formerly 4600:544)

MECE:550 Introduction to Computational Fluid Flow & Convection (3 Credits)

Prerequisite: Permission. Numerical modeling of fluid/thermal systems, numerical solution of the momentum and thermal boundary layer equations; flow simulation using advanced heat transfer/fluid/graphics packages. (Formerly 4600:550)

MECE:562 Pressure Vessel Design (3 Credits)

Prerequisite: Permission. Introduction to modern pressure vessel technology. Topics include basic structural considerations, materials and their environment and design-construction features. (Formerly 4600:562)

MECE:563 Computer Aided Design & Manufacturing (3 Credits)

Prerequisite: Permission. The use of computer systems to assist in the creation, modification, analysis, or optimization of engineering designs, and to plan, manage, and control manufacturing plants. (Formerly 4600:563)

MECE:585 3D Printing and Additive Manufacturing (3 Credits)

Understanding principles and theories in additive manufacturing processes; Understanding process models, materials, design for additive manufacturing (DfAM), and applications; Hands-on practice and research project; State of the art of additive manufacturing. (Formerly 4600:585)

MECE:600 Gas Dynamics (3 Credits)

Prerequisite: MECE 511. Derivation of equations for multi-dimensional irrotational flow of a compressible fluid. Method of small perturbations. Method of characteristics. Ideal flow theory. Transonic flow. One dimensional unsteady flow. (Formerly 4600:600)

MECE:608 Thermodynamics (3 Credits)

Extension and generalization of basic laws of thermodynamics with application to a variety of physical and biological systems. Introduction to irreversible thermodynamics, the third law and statistical thermodynamics. (Formerly 4600:608)

MECE:609 Finite Element Analysis I (3 Credits)

Prerequisite: MECE 622. Introductory development of finite element method as applied to various topics from continuum mechanics. Areas covered include plane; axisymmetric and 3-D stress analysis; conduction; fluid mechanics; transient problems and geometric and material nonlinearity. (Formerly 4600:609)

MECE:610 Dynamics of Viscous Flow I (3 Credits)

Derivation and solution of equations governing laminar viscous flow. Applications include unsteady flows, slow viscous flows, parallel flows, lubrication theory and laminar boundary layers. (Formerly 4600:610)

MECE:611 Computational Fluid Dynamics I (3 Credits)

Prerequisite: MECE 610 or permission of instructor. Study of numerical methods in fluids; numerical errors and stability, finite differencing, nonlinear convection terms, Poisson equations, boundary conditions, turbulence, spectral and finite element techniques. (Formerly 4600:611)

MECE:615 Conduction Heat Transfer (3 Credits)

Study of one-, two- and three-dimensional heat conduction. Development of analytical techniques for analysis and design. (Formerly 4600:615)

MECE:616 Convection Heat Transfer (3 Credits)

Heat transfer from laminar, turbulent external, internal flows. Convective heat transfer at high velocities. Heat transfer to liquid metals; high Prandtl number fluids. (Formerly 4600:616)

MECE:617 Radiation Heat Transfer (3 Credits)

Study of governing radiation laws. Black and real systems, geometric factors, gray enclosures, non-gray systems, gaseous radiation, radiation equipment. (Formerly 4600:617)

MECE:618 Boiling Heat Transfer & Two-Phase Flow (3 Credits)

Current techniques to determine heat transfer and pressure drop in components such as boilers, heat exchangers, and steam generators, with boiling. Boiling mechanism, slip ratio, critical heat flux and instabilities in boiling flow systems. (Formerly 4600:618)

MECE:620 Experimental Stress Analysis II (2 Credits)

Prerequisite: MECE 522. Dynamic strain gage methods, transducer design, Moire fringe techniques and topics in photoelasticity. (Formerly 4600:620)

MECE:621 Introduction to Tire Mechanics (3 Credits)

Prerequisite: Permission. Topics include tire as vehicle component, tire traction and wear, laminated structures, tire stress and strains and advanced tire models. (Formerly 4600:621)

MECE:622 Continuum Mechanics (3 Credits)

Prerequisite: Permission. Analysis of stress and deformation at a point. Derivation of fundamental field equations of fluid and solid mechanics by applying basic laws of dynamics, conservation of mass and energy. Development of constitutive laws. (Formerly 4600:622)

MECE:623 Applied Stress Analysis I (3 Credits)

Prerequisite: MECE 622. Continuation of MECE 622 with specific application to solid mechanics. Development of energy theorems due to Reissner, Washizu and generalized Hamilton's principle. Solutions to static and dynamic problems. (Formerly 4600:623)

MECE:624 Fundamental of Fracture Mechanics (3 Credits)

Prerequisite: MECE 622 or permission of instructor. Methods of stress analysis in elastic media containing holes and cracks. Theories of brittle fracture. Dynamic crack propagation. Fatigue fractures. Finite element approaches to fracture mechanics. (Formerly 4600:624)

MECE:625 Analysis of Mechanical Components (3 Credits)

Theories of failure and plastic flow. Fatigue, creep analysis and introduction to fracture mechanics. (Formerly 4600:625)

MECE:626 Fatigue of Engineering Materials (3 Credits)

Prerequisite: MECE 624 or permission. Quasi-static and cyclic behavior; dislocation networks and their interactions; correlation of dislocation-microstructure interactions; crack initiation; crack propagation; short cracks; crack closure; environmental effects. (Formerly 4600:626)

MECE:627 Advanced Materials & Manufacturing Processes (3 Credits)

Manufacturing processes for advanced materials; classification; technological aspects of bulk deformation, casting, joining, forming, machining, molding, powder metallurgy, rapid solidification; economic aspects; technical activity. (Formerly 4600:627)

MECE:628 Mechanical Behavior of Materials (3 Credits)

Prerequisite: Permission. Mechanical behavior of engineering materials; metallurgy of deformation; dislocation effects and deformation; strengthening mechanisms; thermomechanical processing; mechanical testing. (Formerly 4600:628)

MECE:629 Nonlinear Engineering Problems (3 Credits)

Prerequisite: MECE 622. Study of nonlinear ordinary and partial differential equations governing phenomena of mechanics. Analysis of phase space trajectories, singularities and stability. Development of approximate analytical methods. (Formerly 4600:629)

MECE:630 Vibrations of Discrete Systems (3 Credits)

Prerequisite: MECE 531 or equivalent. Study of vibrations of multidegree of freedom systems including free and forced vibrations, damped and transient response, normal mode vibrations and matrix iteration techniques. Application to seismic design and shock design. (Formerly 4600:630)

MECE:631 Kinematic Design (3 Credits)

Prerequisite: Permission of instructor. The geometry of constrained motion. Analysis of relative plane motion using vectors and the digital computer. Curvature theory. Synthesis of linkages and gearing. Introduction to computer-aided design. (Formerly 4600:631)

MECE:632 Reliability in Design (3 Credits)

Prerequisite: STAT 561. The reliability determination of mechanical components and systems and its use in design. Distribution, reliability determination, normal and log-normal theories, Weibull theory, life spectrum analysis, renewal theory and confidence limits. (Formerly 4600:632)

MECE:633 Computerized Modal Analysis of Structures (3 Credits)

Prerequisite: MECE 630 or equivalent. Modal analysis theory and measurement techniques, digital signal processing concepts, structural dynamics theory, modal parameter estimation with "hands-on" experience in the application of modal measurement methods in vibration analysis. (Formerly 4600:633)

MECE:634 Advanced Dynamics of Rotating Machinery (3 Credits)

Prerequisite: MECE 530 or equivalent. Dynamic modeling and simulation of complex rotor-bearing systems. Steady state, transient and stability analysis with inertia, gyroscopic, imbalance, rotor-bow, disk-skew and impeller-rub interaction effects. (Formerly 4600:634)

MECE:635 Stress Waves in Solids & Fluids (3 Credits)

Prerequisite: MECE 531 or equivalent. The wave equation. Propagation of elastic-plastic stress waves through solid media. Transmission, reflection, absorption and diffraction phenomena. Low and high velocity impact. Dynamic fracture. Numerical simulation techniques. (Formerly 4600:635)

MECE:642 System Analysis & Control Design (3 Credits)

Uniform methods of modeling and response analysis, controllability and observability, stability theory and analysis of linear and nonlinear engineering processes. Design of feedback controls for optimum performance for multivariable real-time control application. (Formerly 4600:642)

MECE:645 Process Identification & Computer Control (3 Credits)

Prerequisite: Permission. Obtaining mathematical models of processing from noisy observations. Methods of digital control design. Case studies on computer control of selected processes. (Formerly 4600:645)

MECE:646 Expert Systems in Controls & Manufacturing (3 Credits)

Prerequisite: MECE 540 or equivalent or by permission. Expert system methodologies for process control, computer integrated flexible manufacturing and robotics. (Formerly 4600:646)

MECE:647 Neural & Fuzzy Control Systems (3 Credits)

Prerequisite: MECE 540 or permission of instructor. Analysis and design of intelligent control systems. Neural networks and fuzzy sets for process identification and controller design. Applications and case studies in industry. (Formerly 4600:647)

MECE:650 Tribology (3 Credits)

Fundamentals of friction lubrication and wear treated; includes basic theory, advanced topics, applications to bearings, seals, gears, cams. Specific topics include adhesive and abrasive friction/wear, boundary lubrication, fluid film lubrication and bearings, rolling element bearings, bearing dynamics. (Formerly 4600:650)

MECE:655 Micro- and Nano-Fluid Dynamics (3 Credits)

Prerequisite: MECE 611 or permission of instructor. The course includes fundamentals of the analytical and numerical solutions of the problems pertinent to fluid mechanics on nano- and micro- scales. Applications will include micro-engines, MEMS, micro-filters, and synthesis of nano-materials. (Formerly 4600:655)

MECE:658 Mechanical Behavior of Nanostructured Materials & Composites (3 Credits)

The course is open to students in mechanical engineering, polymer science and polymer engineering, biology and all other engineering disciplines. Some prior consultation with the instructor is encouraged. The course is considered as a graduate elective in ME. An Overview of Lattice Dislocation Theory, Nanostructured Materials: Processing and Properties, Grain Boundaries, Nanoindentation, Electron Microscopy, Atomic Force Microscopy, Carbon Nanotubes, Polymer and Bio-MEMS. (Formerly 4600:658)

MECE:660 Engineering Analysis (3 Credits)

Prerequisite: B.S. in engineering. Study of analysis techniques as applied to specific engineering problems. Applications include beam deflections, acoustics, heat conduction and hydrodynamic stability. (Formerly 4600:660)

MECE:661 Failure Analysis of Mechanical Systems (3 Credits)

Prerequisite: MECE 625 or permission by instructor. This course emphasizes engineering techniques for predicting yielding, buckling, fracture and fatigue of mechanical systems. Students will be taught how to link theory with practice by examining case studies of structural and mechanical failures and will obtain practical experience in modeling real complex systems in an end-of-term project. (Formerly 4600:661)

MECE:662 Microscale Heat and Mass Transfer (3 Credits)

Prerequisites: MECE 608 and MECE 615 or permission. Kinetics theory, classical and quantum statistics, structure of solids, phonons in solids, free electrons in metals, Boltzmann transport theory, hyperbolic heat conduction, thermal conductivity of thin films, laser materials processing. (Formerly 4600:662)

MECE:663 Web-Based Solid Modeling and e-Manufacturing (3 Credits)

Prerequisite: MECE 563 or equivalent or permission. Team-based collaborative design with a web-based solid modeling library, feature-based manufacturing analysis, and process planning using cross-platform interoperable tools including JAVA, VRML for optimized product realization. (Formerly 4600:663)

MECE:664 Fundamentals of Crystallization and Solidification (3 Credits)

Prerequisite: MECE 608 or equivalent or permission. Fundamental theories and modeling of crystalline nucleation and growth, interface stability and morphology, microstructure formation, and microsegregation. Applications in casting, welding, laser processing, and single crystal growth. (Formerly 4600:664)

MECE:666 Analysis of Manufacturing Systems (3 Credits)

This course will examine general problems in the design, planning, and control of manufacturing systems. No prerequisites or corequisites are required. (Formerly 4600:666)

MECE:670 Integrated Flexible Cellular Manufacturing System-Analysis & Design (3 Credits)

Prerequisite: MECE 563 or equivalent or by permission of instructor. The analysis of integrated computer-aided manufacturing systems, design of automated manufacturing components and simulations of flexible cellular manufacturing systems. (Formerly 4600:670)

MECE:671 Fundamentals and Applications of Micro Electro (3 Credits)

Prerequisite: Consent of instructor. Fundamentals of MEMS based sensors and actuators, MEMS materials, bulk and surface micromachining and MEMS device testing. Applications in optics, automotive, and biomedical instrumentation. (Formerly 4600:671)

MECE:672 Design of Microsystems and Nano Devices (3 Credits)

Prerequisite: Consent of instructor. Design principles of various micro and nano sensors and actuators, microfluidic devices, microstructure analysis and simulation, microfabrication process design rule. Applications in MOEMS, Lab-on-a-chip devices, BioMEMS and NEMS. (Formerly 4600:672)

MECE:682 Fundamentals of Composite Processing and Mechanics (3 Credits)

This course covers mainly composite processing, manufacturing and mechanics. The emphasis is on discontinuous fiber composites. (Formerly 4600:682)

MECE:693 Measurements Methods & Experimental Error in Thermofluid Sciences (3 Credits)

Viscous flow, conduction heat transfer convection heat transfer. The course will incorporate elements of experimental error analysis, optics, and optical ray tracing, principles of testing, methods and devices for fluid flow quantization and temperature measurements. Laboratory work with hands-on experience. (Formerly 4600:693)

MECE:694 Deformation and Failure of Polymers and Soft Materials (3 Credits)

This course introduces the concepts of deformation, fracture and failure analyses of engineering polymers, soft and biological materials. (Formerly 4600:694)

MECE:696 Special Topics in Mechanical Engineering (1-4 Credits)

Prerequisite: Permission. For qualified candidate for graduate degree. Supervised research in the student's major field of training or experience. Credit depends upon nature and extent of project as determined by advisor and department chair. (Formerly 4600:696)

MECE:697 Engineering Report (2 Credits)

Prerequisite: Permission of advisor. A relevant problem in mechanical engineering for students electing the non-thesis option. The final engineering report must be approved by the advisor and the advisory committee. (Formerly 4600:697)

MECE:698 Master's Research: Mechanical Engineering (1-6 Credits)

Prerequisite: Permission of advisor. (May be repeated.) Research on a suitable topic in mechanical engineering culminating in a master's thesis. (Formerly 4600:698)

MECE:699 Master's Thesis (1-6 Credits)

Prerequisite: Permission of advisor. (May be repeated). Supervised research in a specific area of mechanical engineering. (Formerly 4600:699)

MECE:704 Finite Element Analysis II (3 Credits)

Prerequisites: MECE 609 and CIVE 702. Curved, plate, shell, brick elements; quasi-analytical elements. Quadrature formulas. Substructuring for static and dynamic analysis. Solution algorithms for linear and nonlinear static and dynamic analysis. Computer program formulation. Review of large-scale production programs. (Formerly 4600:704)

MECE:705 Finite Element Analysis III (3 Credits)

Prerequisite: MECE 704. Static and dynamic contact problems. Tire mechanics. Fracture mechanics. Plasticity problems involving small and large deflections. Shake down analysis. General constitutive models for composite media, thermoviscoelasticity, fluid turbulence. Fluid-solid interaction analysis. (Formerly 4600:705)

MECE:710 Dynamics of Viscous Flow II (3 Credits)

Prerequisite: MECE 610. Introduction to turbulence. Turbulence modeling and turbulent boundary layers. Practical methods of solution of boundary layer problems. Transition process. (Formerly 4600:710)

MECE:711 Computational Fluid Dynamics II (3 Credits)

Prerequisite: MECE 611 or permission of instructor. Development of advanced computational techniques for convection-dominated flows. Higher order explicit and implicit schemes including nonoscillatory front-capturing methods applied to benchmark problems. (Formerly 4600:711)

MECE:715 Hydrodynamic Stability (3 Credits)

Prerequisites: MECE 660 and MECE 620 or permission. Stability concepts, Stability of Benard convection, Rayleigh-Taylor flow, parallel shear layers, boundary layers, asymptotic solution of Orr-Sommerfeld equation, nonparallel stability. (Formerly 4600:715)

MECE:719 Advanced Heat Transfer (3 Credits)

Prerequisites: MECE 615 and MECE 616. Topics include nonhomogeneous or nonlinear boundary value problems of heat conduction, heat transfer with melting, solidification and ablation, heat transfer in porous systems and hydrodynamically and thermally unsteady convection. (Formerly 4600:719)

MECE:723 Applied Stress Analysis II (3 Credits)

Prerequisite: MECE 623. Continuation of MECE 623. Development of approximate solution techniques including finite elements, method of weighted residuals (Rayleigh-Ritz, Galerkin, Trefftz, collocation, least squares, etc.) and finite differences. (Formerly 4600:723)

MECE:726 Non-Linear Continuum Mechanics (3 Credits)

Prerequisite: MECE 622. Finite deformation and strain, stress, constitutive equations, strain energy functions. Solution of finite deformation problems in hypoelasticity, coupled thermoviscoelasticity and plasticity, electroelasticity and micropolar theories. (Formerly 4600:726)

MECE:730 Vibrations of Continuous Systems (3 Credits)

Prerequisite: MECE 630. Continuation of MECE 630. Analysis of continuous vibrating systems, using separation of variables, energy, variational, Rayleigh-Ritz and other approximate techniques. Concepts and solutions of integral equations as applied to continuous systems. (Formerly 4600:730)

MECE:732 Advanced Modal Analysis of Structures (3 Credits)

Prerequisite: MECE 633 or equivalent. Structural excitation techniques. Modal parameter estimation. System modification; mass/stiffness/damping matrices substructuring. Prediction and evaluation of structural modified dynamic characteristic. (Formerly 4600:732)

MECE:741 Optimization Theory & Applications (3 Credits)

Prerequisite: Permission. Theory of optimization in engineering systems, development and method of solution optimization problems for physical processes, large systems. Use of dynamic programming, operational research methods of system optimization, control. (Formerly 4600:741)

MECE:763 Advanced Methods in Engineering Analysis (3 Credits)

Applications of finite difference and finite element methods, variational methods, integral methods and similarity transforms to engineering problems in heat transfers, fluid mechanics and vibrations. (Formerly 4600:763)

MECE:790 Advanced Seminar in Mechanical Engineering (1-4 Credits)

(May be repeated for a total of nine credits) Prerequisite: permission of department chair. Advanced projects and studies in various areas of mechanical engineering. Intended for student seeking Ph.D in engineering degree. (Formerly 4600:790)

MECE:898 Preliminary Research (1-15 Credits)

Prerequisite: Approval of dissertation director. Preliminary investigations prior to the submission of a dissertation proposal to the Interdisciplinary Doctoral Committee. (Formerly 4600:898)

MECE:899 Doctoral Dissertation (1-15 Credits)

(May be taken more than once.) Prerequisite: Acceptance of research proposal by the Interdisciplinary Doctoral Committee and approval by the dissertation director. Original research by the doctoral student. (Formerly 4600:899)

Manufacturing, Certificate

The industry employees or students who complete this manufacturing certificate program will be capable to (a) demonstrate knowledge of fundamental concepts of manufacturing, (b) use skills related to manufacturing engineering, (c) communicate effectively with manufacturers and manufacturing engineers, (d) generate solutions to problems that may arise in manufacturing engineering, (e) use skills for materials selection for manufacturing, and (f) conduct research in the field of manufacturing.

Admission Requirements

Admission to this program is limited to students holding a:

- B.S. in Mechanical Engineering, or
- B.S. in Aerospace Engineering, or
- B.S. in a closely related field

Code	Title	Hours
Select 15 credits from among the following:		
MECE:544	Robot Design, Control & Application	3
MECE:585	3D Printing and Additive Manufacturing	3
MECE:563	Computer Aided Design & Manufacturing	3
MECE:671	Fundamentals and Applications of Micro Electro	3
MECE:627	Advanced Materials & Manufacturing Processes	3
MECE:694	Deformation and Failure of Polymers and Soft Materials	3
MECE:666	Analysis of Manufacturing Systems	3
MECE:661	Failure Analysis of Mechanical Systems	3
MECE:625	Analysis of Mechanical Components	3
MECE:682	Fundamentals of Composite Processing and Mechanics	3

Note:

Students may also take **MECE:696 Special Topics in Mechanical Engineering (1-4 credits)** to meet requirements, when a topic relevant to manufacturing is offered. Students wishing to do so need the approval of the program prior to enrolling in MECE:696. MECE:696 can be taken multiple times, for different topics.

Mechanical Engineering, MS

Admission Requirements

Applicants for the master of science program must hold a bachelor's degree from a program that is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology at the time of graduation, or provide evidence of an equivalent academic background to the Dean of the College of Engineering and Polymer Science and the appropriate department chair.

Applicants must submit official undergraduate transcripts, undergraduate grade point average, at least two letters of recommendation, and a statement of purpose. Personal statements or descriptions of post-baccalaureate experience that provide a rationale for proposed graduate study may also be submitted.

Official results of the analytical writing and quantitative portions of the GRE must be submitted. The GRE minimum requirements for admission can be met by one of the four score combinations below:

Analytical Writing	Quantitative
2.5	164
3.0	159
3.5	153
4.0	149

The GRE requirement may be waived for students holding degrees from ABET accredited programs (with department approval).

Applicants with a bachelor's degree must have an overall grade-point average of 2.75 or better or 3.00 for the last two years (64 semester credits or equivalent).

Applicants whose native language is not English must have a TOEFL score of at least 79 or an IELTS score of at least 6.5.

Applicants who do not satisfy the requirements for Full Admission may be granted Provisional Admission or Deferred Admission.

Applicants with a bachelor's degree in a discipline other than mechanical engineering shall have completed coursework in calculus, differential equations, and one year of classical physics. They are also required to complete a number of bridge-up undergraduate courses as recommended by the admission committee. These bridge-up courses may be taken concurrently with graduate courses.

Degree Requirements

The University's Academic Requirements (See Academic Requirements in this Graduate Bulletin), the following college requirements and the department's academic requirements must all be satisfied for the master of science degrees in the College of Engineering and Polymer Science.

- Identify an Advisory Committee including a major advisor and at least one more faculty member before completion of nine credit hours of coursework.
- Complete a formal Plan of Study that is acceptable to the Advisory Committee with a minimum of 24 credit hours of coursework of which no more than six credits are special topics courses. The formal Plan of Study may be revised upon approval of the Advisory Committee.
- Successfully (no "fail" votes) defend the thesis before the Advisory Committee, or have the Engineering Report approved by the Advisory Committee, or successfully complete the appropriate department's nonthesis option requirements.

Thesis Option

Code	Title	Hours
Mechanical Engineering Courses		15
Approved Mathematics		3
Approved Electives		6
Master's Thesis		6
Total Hours		30

Nonthesis Option

Code	Title	Hours
Mechanical Engineering Courses		15
Approved Mathematics		3
Approved Electives		12
Engineering Report		2
Total Hours		32

Core Courses

All master's students are required to take at least two of the following Mechanical Engineering core courses.

Code	Title	Hours
MECE:609	Finite Element Analysis I	3
MECE:610	Dynamics of Viscous Flow I	3
MECE:611	Computational Fluid Dynamics I	3
MECE:615	Conduction Heat Transfer	3
MECE:622	Continuum Mechanics	3
MECE:628	Mechanical Behavior of Materials	3
MECE:630	Vibrations of Discrete Systems	3

MECE:660	Engineering Analysis (Cannot count toward the required core courses if used to substitute the mathematics requirement)	3
MECE:666	Analysis of Manufacturing Systems	3

- At least two of the mechanical engineering courses must be designated as core courses (see "Core Courses").
- Students are limited to not more than three 500-level course in engineering. Not more than two of the 500-level courses in engineering can be applied to the 15 credits of mechanical engineering coursework.
- No computer language courses are permitted for graduate credit.
- MECE:660 Engineering Analysis may replace approved mathematics.
- Courses in Statistics may also satisfy approved mathematics upon approval of the student's adviser.
- All master's degree requirements must be completed within six years.
- Students receiving an assistantship are funded for a maximum of two years and must take the thesis option.

Mechanical Engineering, Accelerated BS/MS

Overview

The Accelerated BS/MS program in Mechanical Engineering (ME) allows outstanding ME students to complete both bachelor's and master's degrees in just one more year of study after the BS degree. Students will take graduate courses in the last year of the BS program that count towards both BS and MS degree requirements. Up to 9 credit hours of graduate coursework can be double counted for both degrees.

Advantages of the Accelerated Program

1. **Flexibility during graduate school.** Students can complete graduate classes while fulfilling undergraduate degree requirements
2. **Reduce time.** Students start fulfilling graduate school requirements sooner. The accelerated program engages students in graduate level courses before their peers and provides the opportunity to make connections with graduate instructors and other students in the program.
3. **Save tuition costs.** Students can save tuition costs by completing up to 9 graduate credit hours at the undergraduate tuition price. These same graduate credits are applied to their graduate degree at the University of Akron.

Admission Procedure

Students interested in this accelerated program should request an appointment with the Associate Chair for Graduate Programs in Mechanical Engineering, Dr. Xiaosheng Gao (xgao@uakron.edu), who will evaluate the student's qualifications for the program and recommend a plan of study.

During the third year of the baccalaureate degree, a student will formally apply to the program through the Graduate School. Upon acceptance, the student will be cleared to complete the remaining electives of the baccalaureate degree and the master's degree requirement in the last two years, graduating with both degrees in just five years.

The accelerated BS/MS option is also available for students in the ME BS-Coop program and students in the Aerospace Systems Engineering (ASE) program. These students would apply to the Graduate School in

their fourth year and complete the BS and MS degree requirements in a total period of six years.

Requirements

Students in this accelerated option will need to complete the course requirements of the Master of Science in Mechanical Engineering program – Non-Thesis Option, as described in the Graduate Bulletin.

A maximum of nine credits of 500-level graduate courses is allowed, which are generally completed in the fourth (senior) year. All remaining graduate credits must be at the 600-level and can be completed during the fourth and fifth year of the program.

School of Polymer Science and Polymer Engineering

The University of Akron's College of Polymer Science and Polymer Engineering (CPSPE) was inaugurated in July of 1988 by combining the Department of Polymer Science, then in the Buchtel College of Arts and Sciences, with the Department of Polymer Engineering, then in the College of Engineering. Starting fall of 2020, the CPSPE was renamed the School of Polymer Science and Polymer Engineering (SPSPE). The school is organized for teaching and research at the graduate level, granting M.S. and Ph.D. degrees in either Polymer Science, or in Polymer Engineering (thesis required), and a Master of Polymer Science and Polymer Engineering (non-thesis option). In addition, the SPSPE offers a polymer minor program. The organization includes complementary research centers and facilities with instrumentation and support staff, which provides a research focus for faculty and graduate students. The program is one of the largest and broadest in the U.S., dating back to 1909, and is recognized as being among the world's best. Its traditional strengths in new polymer synthesis and their manufacturing processes which compound, shape, and assemble polymer products, have been complemented in the past two decades by computational simulations, morphological, surface and optical characterization, as well as a number of added specializations, such as new, federally funded programs in nanotechnologies, sustainability, biomimicry, energy generation, batteries and photonics that have permitted a much stronger focus on active polymer devices and assemblies. School of Polymer Science and Polymer Engineering faculty members have generated over 200 active patents and have licensed technologies that have been commercialized worldwide.

School Website (<https://www.uakron.edu/cpspe/>)

- Elastomer Science and Engineering, Certificate (p. 156)
- Master of Polymer Science and Polymer Engineering (p. 156)
- Polymer Engineering, MSPE (p. 156)
- Polymer Engineering, PhD (p. 157)
- Polymer Materials and Engineering at Beijing University of Chemical Technology, BE/ Polymer Science, MS (p. 158)
- Polymer Materials and Engineering at Beijing University of Chemical Technology, BE/Polymer Engineering, MS (p. 159)
- Polymer Science, MS (p. 159)
- Polymer Science, PhD (p. 160)

Polymer Engineering (PLYE)

PLYE:525 Introduction to Blending and Compounding of Polymers (3 Credits)

Prerequisite: Permission of instructor. Nature of polymer blends and compounds and their applications. Preparation and technology using batch and continuous mixers. Mixing Mechanisms. (Formerly 9841:525)

PLYE:527 Mold Design (3 Credits)

Prerequisite: Permission of instructor. Molding methods to manufacture polymeric products. Machinery, materials, molds, equipment, computer-aided design. (Formerly 9841:527)

PLYE:550 Engineering Properties of Polymers (3 Credits)

Prerequisite: Permission of instructor. Introduction to engineering properties and polymer processing. Analyzing mechanical polymer tests in glassy, rubbery, and fluid states. Product design, rheology, rheometry, and polymer processing concepts. (Formerly 9841:550)

PLYE:551 Polymer Engineering Laboratory (3 Credits)

Prerequisite: Permission of instructor. Laboratory experiments on the rheological characterization of polymer melts, fabrication of engineering products, structural investigation of polymeric parts. (Formerly 9841:551)

PLYE:600 Interfacial Phenomena in Soft Matter (3 Credits)

This course covers intermolecular Interactions, (de)wetting, adsorption, adhesion and friction, colloidal stability, nucleation, and assembly process. (Formerly 9841:600)

PLYE:601 Seminar in Polymer Engineering (1 Credit)

Presentations of recent research on topics in polymer engineering by internal and external speakers. (Formerly 9841:601)

PLYE:610 Polymer Engineering Analysis (3 Credits)

Quantitative analysis methods central to Polymer Engineering, with applications including materials flow, deformation, and characterization. (Formerly 9841:610)

PLYE:611 Fundamentals of Polymer Structure Characterization (3 Credits)

Characterization of orientation, morphology, superstructure in polymers using x-ray, light scattering, birefringence, dichroism. Crystallography, unit cell determination. (Formerly 9841:611)

PLYE:621 Rheology of Polymer Fluids (3 Credits)

Experimental methods of determination of rheological properties of polymer melts, solutions, elastomers. Structure-flow behavior relationships, viscoelastic fluid theory, application to extrusion, fiber, film processing molding. Structure development in processing. (Formerly 9841:621)

PLYE:622 Analysis & Design of Polymer Processing Operations I (3 Credits)

Prerequisite: PLYE 621. Mathematical modeling and engineering design analysis of polymer processing operations including extruder screws, injection molds, dies, fibers, film formation. (Formerly 9841:622)

PLYE:623 Analysis & Design of Polymer Processing Operations II (3 Credits)

Prerequisite: Permission of instructor. Basic studies on non-isothermal phenomena in polymer engineering emphasizing crystallization, vitrification, frozen-in orientation and residual stresses, applications, including fiber spinning and film extrusion. (Formerly 9841:623)

PLYE:631 Engineering Properties of Solid Polymers (2 Credits)

Transitions as a function of polymer structure, optical characteristics, mechanical including ultimate properties, viscoelastic behavior of elastomers and plastics, large strain behavior E emphasis on experimental methods. (Formerly 9841:631)

PLYE:641 Polymer Chem & Thermodynamics (3 Credits)

Physico-chemical properties of amorphous and crystalline polymers. Glass transitions, crystallization, molecular orientation and morphology of important commercial polymers, fabricated products and composite materials. (Formerly 9841:641)

PLYE:650 Introduction to Polymer Engineering (3 Credits)

Basic concepts of polymer engineering taught in lecture-laboratory format intended for orientation of new graduate students. (Formerly 9841:650)

PLYE:651 Polymer Engineering Laboratory (3 Credits)

Prerequisite: PLYE 622. Rheological characterization of polymer melts, rubber and plastic extrusion, extrudate swell, injection and compression molding, crystallization behavior, x-ray diffraction, film blowing, impact and tensile testing. (Formerly 9841:651)

PLYE:661 Polymerization Reactor Engineering (3 Credits)

Polymerization kinetics, classical reactor design, comparison of polymerization in batch and continuous stirred tank reactors, flow patterns around agitators, tubular reactors, reactor stability. (Formerly 9841:661)

PLYE:666 Research Methods (3 Credits)

This course will focus on providing guidance to beginning graduate students on general concepts that are typically encountered in research including: 1. Scientific method; 2. Ethics in research; 3. Scientific paper writing; 4 Scientific presentations. (Formerly 9841:666)

PLYE:675 Carbon-Polymer Nanotechnology (3 Credits)

Prerequisite: Permission of instructor. This course focuses on the fundamental aspects of nanotechnology in general and basic knowledge of polymer/carbon nanoscience and nanotechnology in particular. (Formerly 9841:675)

PLYE:680 Polymer Coatings (3 Credits)

Prerequisite: Permission of instructor. This course is an introduction to coating science. The synthesis of polymeric binders and pigments used in commodity coatings will be the focus of the first part of the course. The second part of the course will focus on coatings formulation and end-use applications for commodity coatings. (Formerly 9841:680)

PLYE:699 Masters Thesis (1-6 Credits)

(May be repeated) Supervised original research in specific area of polymer engineering. (Formerly 9841:699)

PLYE:712 Rheo-Optics of Polymers (2 Credits)

Applications of rheo-optical methods as means of determining stress fields in polymeric glasses and fluids during deformation, rheo-optical properties of polymers in glassy, rubbery and fluid states. Theory of dynamic birefringence and its application to mechanical relaxations of amorphous and semi-crystalline polymers, and recent experimental results. (Formerly 9841:712)

PLYE:715 Advanced Characterization of Functional Polymers (3 Credits)

Prerequisites: PLYE 611 and PLYE 623 or equivalent (with permission of instructor). This course will focus on the advanced structural and functional property characterization techniques including optical, electrical, magnetic and others. A particular focus will be the influence of the history of polymer processing on these properties. (Formerly 9841:715)

PLYE:720 Molecular Aspects of Polymer Rheology (2 Credits)

Prerequisite: PLYE 621. Molecular theory for concentrated solutions and melts of flexible homopolymers, molecular rheology of miscible polymer blends, block copolymers, and liquid crystalline polymers. (Formerly 9841:720)

PLYE:721 Rheology & Processing Two-Phase Polymer Systems (2 Credits)

Prerequisite: PLYE 622 or equivalent. Particle-particle interactions, mixing devices and design, theoretical hydrodynamics of suspensions of rigid particles, experimental studies of rheological behavior, phenomenological theories representing suspension behavior, dispersion of droplets to form an emulsion, phase morphology development and rheological properties of blends. (Formerly 9841:721)

PLYE:722 Advanced Modelling of Polymer Processing (2 Credits)

Prerequisite: Permission of instructor. Modeling of processing operations including extrusion molding, fiber and film processing, computer-aided design. (Formerly 9841:722)

PLYE:723 Rheology & Processing of Elastomers (2 Credits)

Interpretation of rheological properties and critical study and analysis of processing operations including behavior in internal mixers, screw extruders, die systems and vulcanization molding. (Formerly 9841:723)

PLYE:724 Advanced Extrusion & Compounding (2 Credits)

Principles of operation and flow in single and twin screw extruders, screw design, characteristics of internal mixers, analysis and simulation of flow. (Formerly 9841:724)

PLYE:725 Chemorheology & Processing of Thermosets (2 Credits)

Prerequisite: PLYE 621 or PLYE 622. Rheological behavior of thermosets, vulcanization of rubbers, time-temperature-transition relationships in thermosets, reaction injection molding, compression/transfer molding, pultrusion. (Formerly 9841:725)

PLYE:727 Advanced Polymer Rheology (2 Credits)

Prerequisite: PLYE 621 or equivalent. Second level course in non-linear constitutive equation for viscoelastic, viscoplastic, viscoelastic-plastic polymeric materials. Utility and applicability to polymer processing problems. (Formerly 9841:727)

PLYE:728 Numerical Methods in Polymer Engineering (3 Credits)

Prerequisites: PLYE 621, PLYE 622, PLYE 623, and PLYE 631. Basics of generally accepted numerical methods. Numerical problems in polymer solid mechanics and technological applications. Numerical problems in polymer fluid mechanics and polymer processing. Commercial softwares. (Formerly 9841:728)

PLYE:731 Stress Analysis of Polymers & Composites (2 Credits)

Prerequisite: PLYE 631. The design of rubber mounts, bearings and sandwich components with demonstration of finite element methods. Classical plates and shells theories with applications to composite structures. (Formerly 9841:731)

PLYE:745 Liquid Crystals (2 Credits)

Prerequisite: Permission of instructor. Structure of low molecular weight and polymeric liquid crystals, characterization, physical properties including optical properties, phase transitions, structure-property relationships, processing of polymeric species. (Formerly 9841:745)

PLYE:747 Polymer Colloids (3 Credits)

Prerequisite: Permission of instructor. Colloidal dispersions, phase stability, aggregation structures, thermodynamics, kinetics of phase transitions in polymer colloids. Emulsion and solution polymerization, organic/inorganic hybrid materials, coating technology. Rheology of colloidal polymers. (Formerly 9841:747)

PLYE:749 Phase Transitions in Polymer Blends and Alloys (3 Credits)

Prerequisite: Permission of instructor. Elucidating thermodynamics of polymer blends, block copolymers, crystalline/liquid crystalline polymers, and kinetics of phase transitions. Structure development and modeling of reactive polymer blends. (Formerly 9841:749)

PLYE:761 Injection and Compression Molding Fundamentals (2 Credits)

Prerequisite: Permission of instructor. This course provides fundamental knowledge in physical, thermal and rheological properties required for injection and compression molding including theoretical and experimental aspects of various molding processes. (Formerly 9841:761)

PLYE:770 Polymer Nanocomposites (3 Credits)

Prerequisite: Permission of instructor. Develops understanding on synthesis, characterization, processing and properties of polymer nanocomposite materials involving nanoscale fillers in conjunction with thermosetting, thermoplastic, and elastomeric polymer matrices. (Formerly 9841:770)

PLYE:773 Advanced Polymer Coating Technology (2 Credits)

Prerequisite: PLYE 641 or equivalent. The polymeric binders used in radiation-curable coatings for electronic packaging and waterborne coatings will be stressed. The chemistry of dyes and the coatings science of pigments will be presented. The chemistry of polymer degradation will also be covered. (Formerly 9841:773)

PLYE:777 Modeling of Nanoscale Materials (3 Credits)

Prerequisite: Permission of instructor. Introduces molecular simulation methods (Monte Carlo, molecular dynamics) and their application to polymer-related materials at the molecular and coarse-grain levels. (Formerly 9841:777)

PLYE:778 Advanced Functional Polymers (2 Credits)

Prerequisites: PLYE 611 and PLYE 641. This course focuses on the recent development of functional polymers for applications as advanced materials and smart devices, which requires the attendant to possess some prior knowledge of polymer science and polymer engineering from such 600 level course(s) as mentioned above. (Formerly 9841:778)

PLYE:797 Advanced Topics in Polymer Engineering (2-3 Credits)

(May be repeated) Prerequisite: Permission of instructor. Advanced special topics intended for Ph.D. students in polymer engineering. (Formerly 9841:797)

PLYE:898 Preliminary Research (1-15 Credits)

(May be repeated) Prerequisites: Completion of qualifying examination, approval of Student Advisory Committee. Preliminary investigation of Ph.D. dissertation subject. (Formerly 9841:898)

PLYE:899 Doctoral Dissertation (1-15 Credits)

(May be repeated) Prerequisite: Completion of candidacy examination of Student Advisory Committee. Original research by a Ph.D. candidate. (Formerly 9841:899)

Polymer Science (PLYS)

PLYS:601 Polymer Chemistry (4 Credits)

Prerequisite: CHEM 264 and CHEM 314 or equivalent course or permission of instructor. Introduction to fundamentals and practical aspects of (co)polymer synthesis and reactions of polymers; use of polymerization kinetics and thermodynamics to understand polymerization mechanisms; structure-reactivity relationships. (Formerly 9871:601)

PLYS:604 Special Projects in Polymer Science (1-3 Credits)

Prerequisite: permission. Research projects of limited nature assigned to student entering polymer science program. Intended to familiarize student with typical problems and techniques in this field. (Formerly 9871:604)

PLYS:607 Seminar in Polymer Science I (1 Credit)

Prerequisite: limited to first-and second-year resident graduate students. Participants are to present a 25-minute lecture on some aspect of polymer science and to participate in discussions of lectures presented by other seminar participants. (Formerly 9871:607)

PLYS:608 Seminar in Polymer Science II (1 Credit)

Prerequisite: limited to first-and second-year resident graduate students. Participants are to present a 25-minute lecture on some aspect of polymer science and to participate in discussions of lectures presented by other seminar participants. (Formerly 9871:608)

PLYS:613 Polymer Science Laboratory (3 Credits)

Pre/Corequisite: PLYS 601 or PLYS 631 or PLYS 674. Laboratory experiments focused on common techniques for polymer molecular characterization and characterization of polymer morphology, with a few polymer synthesis experiments. (Formerly 9871:613)

PLYS:615 Laboratory Computer Applications in Polymer Science (3 Credits)

Prerequisites: Basic knowledge of computer programming and permission of instructor. Laboratory use of computers in polymer science research for data acquisition, data analysis, graphing, and preparation of reports and thesis. (Formerly 9871:615)

PLYS:631 Polymer Physics I (4 Credits)

Prerequisites: 2 semester of undergraduate physics or permission of instructor. First half of an overview of polymer physics including the deal chain, chain in dilute solution, solution thermodynamics, polymer blends, and gels and networks. (Formerly 9871:631)

PLYS:632 Polymer Physics II (4 Credits)

Prerequisite: PLYS 631 or permission of instructor. Phenomenological description of viscoelasticity in polymers; molecular models for chain dynamics of solutions and melts; mechanical properties of polymers; polymer crystallization; electrical properties. (Formerly 9871:632)

PLYS:674 Polymer Characterization (2 Credits)

Prerequisites: 2 semesters of undergraduate chemistry and 2 semesters of undergraduate physics and PLYS 631 or permission of instructor. Principles of operation, strategies for experimentation design and concepts of data interpretation for most important characterization techniques applied in polymer science and engineering. (Formerly 9871:674)

PLYS:685 Introduction to Biomacromolecules (2 Credits)

Prerequisites: 2 semesters of undergraduate chemistry or permission of instructor. Develops understanding of biomacromolecular structure and function, hierarchical self-assembly, functions of biological materials (e.g. silk, collagen) and principles for bio-inspired materials design. (Formerly 9871:685)

PLYS:699 Master's Thesis (1-6 Credits)

Prerequisite: permission. For properly qualified candidate for master's degree. Supervised original research in polymer science, under direction of faculty member, followed by submission of thesis. (Formerly 9871:699)

PLYS:701 Polymer Technology I (2 Credits)

Principles of compounding and testing, processing principles and types of operation, design principles. (Formerly 9871:701)

PLYS:702 Polymer Technology II (2 Credits)

Prerequisite: PLYS 701. Rubber industry, rubber compounding and processing, vulcanization methods, physical testing, plastics preparation and compounding, manufacturing processes. Lecture/laboratory. (Formerly 9871:702)

PLYS:703 Polymer Technology III (2 Credits)

Prerequisite: PLYS 702. Flow properties, extrusion, calendaring and milling, molding, mixing, bond operations, engineering properties, rubber springs, viscoelastic analysis design consideration. Lecture/laboratory. (Formerly 9871:703)

PLYS:704 Condensation Polymerization (2 Credits)

Prerequisite: CHEM 463. Survey of the theory and practice of condensation polymerization. Numerous commercial examples are presented with special emphasis being placed on the properties and applications of polymers prepared by this technique. Structure-property relationships are highlighted for each major polymer class. (Formerly 9871:704)

PLYS:705 Free Radical Reactions in Polymer Science (2 Credits)

Prerequisite: CHEM 463. Covers the kinetics and mechanisms of free radical initiated reactions encountered in polymer science, including polymerization methods, detailed considerations of the initiation, propagation and termination steps in vinyl polymerizations and copolymerization, preparation of block and graft copolymers by free radical initiated reactions and the mechanisms of free radical induced polymer degradation reactions. (Formerly 9871:705)

PLYS:706 Ionic & Monomer Insertion Reactions (2 Credits)

Prerequisite: CHEM 463 or permission of instructor. Covers the scope, kinetics and mechanisms of polymerizations initiation by anions, carbenium ions and onium ions as well as polymerizations induced by coordination catalysts. Living polymerizations, molecular weights, molecular weight distributions, stereo-chemistry, solvent effects, counterion effects, temperature effects, Ziegler-Natta catalysis, olefin metathesis, functionalization of polymers, graft and block copolymer synthesis. (Formerly 9871:706)

PLYS:711 Special Topics: Polymer Science (1-3 Credits)

Prerequisite: permission. Topics of current interest in polymer science, encompassing chemistry, physics or technological aspects of macromolecular substances, including laboratory work where applicable. (Formerly 9871:711)

PLYS:712 Special Topics: Polymer Science (2 Credits)

Prerequisite: permission. Topics of current interest in polymer science, encompassing chemistry, physics or engineering aspects of macromolecular science. (Formerly 9871:712)

PLYS:720 Elastomers (2 Credits)

Pre/Corequisites: PLYS 601 and PLYS 631 or equivalent as determined by instructor. The course will provide a comprehensive coverage of the fundamental aspects of elastic soft materials, their chemical, physical and mechanical properties as related to their current technological applications. (Formerly 9871:720)

PLYS:899 Doctoral Dissertation (1-16 Credits)

Open to properly qualified students accepted as candidates for Doctor of Philosophy in Polymer Science depending on the availability of staff and facilities. (Formerly 9871:899)

Polymer Science and Polymer Engineering (PSPE)

PSPE:605 Polymer Physical Chemistry (4 Credits)

Fundamentals of polymer chain characteristics, common polymerization types, and overview of polymer physical chemical behavior. (Formerly 9801:605)

PSPE:615 Polymer Characterization (4 Credits)

Prerequisite: PSPE 605. Introduction to widely used polymer characterization techniques (3cr) with accompanying experiments (1cr). (Formerly 9801:615)

PSPE:635 Rheology, Processing and Evaluation of Polymeric Materials (4 Credits)

Prerequisite: PSPE 605. Introduction to several types of polymer processing and several tests of properties (3cr) with accompanying lab environments (1cr). (Formerly 9801:635)

PSPE:645 Research, Problem Solving and Communication of Technical Information (3 Credits)

Prerequisite: PSPE 605. Introduction to the research and development enterprise, problem solving, and the communication of technical information to various audiences. (Formerly 9801:645)

PSPE:665 Emerging Markets & Technologies (3 Credits)

Prerequisites: PSPE 605, PSPE 615, and PSPE 635. Overview of emerging markets and technologies involving polymers as well as analyses of these technologies with respect to life cycle, carbon footprint, and sustainability. (Formerly 9801:665)

Elastomer Science and Engineering, Certificate

This 15 credit certificate program is designed for technical scientists and engineers with a minimum of a Bachelor of Science degree to gain knowledge in the field of Elastomer Science and Engineering. It is ideal for new employees entering the elastomer industry to further their career advancement.

Code	Title	Hours
Core Courses		
PLYE:631	Engineering Properties of Solid Polymers	2
PLYE:723	Rheology & Processing of Elastomers	2
PLYS:631	Polymer Physics I	4
or PSPE:605	Polymer Physical Chemistry	
PLYS:674	Polymer Characterization	2
PLYS:720	Elastomers	2
Elective Courses		
600 or 700 level courses in Polymer Science or Polymer Engineering		3
Total Hours		15

Master of Polymer Science and Polymer Engineering

This degree prepares individuals with a bachelor's degree in a technical area to work in polymer or polymer-related industries, consulting, or venture capital firms in non-research position requiring both a broad familiarity with fundamentals of polymer science and polymer engineering and some knowledge business and law. The program deepens technical knowledge in the polymer field while providing non-technical skills needed by team leaders, managers, and supervisors to make technology-minded decisions.

Admission Requirements

- Bachelor's degree in a STEM (Science, Technology, Engineering, or Mathematics) discipline
- GRE

- Personal Statement
- Resume
- Letters of Recommendation

Degree Requirements

Code	Title	Hours
Technical Core Courses		
PSPE:605	Polymer Physical Chemistry	4
PSPE:615	Polymer Characterization	4
PSPE:635	Rheology, Processing and Evaluation of Polymeric Materials	4
PSPE:645	Research, Problem Solving and Communication of Technical Information	3
PSPE:665	Emerging Markets & Technologies	3
Business and Law Core Courses		
MGMT:601	Business Analytics and Information Strategy	3
SCM:678	Project Management	3
LAWX:800	Fundamentals of Intellectual Property	3
Electives		
Select three credits of the following from Polymer Science and Polymer Engineering or Business:		3
ACCT:601	Financial Accounting	
FIN:602	Managerial Finance	
SCM:670	Management of Supply Chains and Operations	
SCM:675	Global Supply Chain Management	
MKTG:620	Strategic Marketing	
MKTG:625	Brand Management	
MKTG:635	Digital Marketing	
PLYE:797	Advanced Topics in Polymer Engineering	
PLYS:631	Polymer Physics I	
PLYS:711	Special Topics: Polymer Science	
PLYS:712	Special Topics: Polymer Science	
Total Hours		30

Polymer Engineering, MSPE Master of Science in Polymer Engineering

The major emphases of the graduate program in polymer engineering are in polymer processing, engineering performance and structural and rheological characterization of polymers.

Students in Polymer Engineering will earn the degree of Master of Science in Polymer Engineering. Requirements for the degree are as follows:

- Complete courses as developed in a plan of study approved by the student's advisor and the department chair.
- A minimum of 30 credits of graduate coursework must be earned.
- A total of 24 credit hours of lecture courses and 6 credit hours of research must be completed.

Code	Title	Hours
Polymer Engineering Core		
PLYE:611	Fundamentals of Polymer Structure Characterization	3
PLYE:621	Rheology of Polymer Fluids	3
PLYE:641	Polymer Chem & Thermodynamics	3
PLYE:650	Introduction to Polymer Engineering	3
Polymer Engineering 600-level Electives		
Select six credits of the following:		6
PLYE:601	Seminar in Polymer Engineering	
PLYE:622	Analysis & Design of Polymer Processing Operations I	
PLYE:623	Analysis & Design of Polymer Processing Operations II	
PLYE:631	Engineering Properties of Solid Polymers	
PLYE:651	Polymer Engineering Laboratory	
PLYE:661	Polymerization Reactor Engineering	
PLYE:675	Carbon-Polymer Nanotechnology	
PLYE:680	Polymer Coatings	
Technical Electives		
Select six credits of the following:		6
CIVE:681	Advanced Engineering Materials	
MECE:622	Continuum Mechanics	
PLYS:613	Polymer Science Laboratory	
PLYS:674	Polymer Characterization	
PLYE:666	Research Methods	
PLYE:797	Advanced Topics in Polymer Engineering	
Thesis		
PLYE:699	Masters Thesis	6
Total Hours		30

Thesis and Oral Defense

Each candidate must pass an oral examination in defense of the thesis.

Submit the written master's thesis to the Graduate School by the required deadlines.

Polymer Engineering, PhD

Doctor of Philosophy in Polymer Engineering

The School of Polymer Science and Polymer Engineering administers a graduate program in which students, with primarily engineering backgrounds, are guided through a course of study and research under the supervision of a faculty member. Students may be admitted directly to the Ph.D. program upon screening of their qualifications and recommendation by the department chair and dean.

Students will earn the degree of Doctor of Philosophy in Polymer Engineering.

Requirements in the interdisciplinary field of Polymer Engineering for that degree are as follows:

- Complete courses as developed in a plan of study approved by the student's advisor and the department chair.

- A minimum of 96 credits of graduate work must be earned.
- A total of 36 credit hours of lecture courses and 60 credit hours of research must be completed.
- Twelve credit hours of the 60 credits must be dissertation research.

Code	Title	Hours
Polymer Engineering Core		
PLYE:611	Fundamentals of Polymer Structure Characterization	3
PLYE:621	Rheology of Polymer Fluids	3
PLYE:641	Polymer Chem & Thermodynamics	3
PLYE:650	Introduction to Polymer Engineering	3
Polymer Engineering 600-level Electives		
Select ten credits of the following:		10
PLYE:601	Seminar in Polymer Engineering ¹	
PLYE:622	Analysis & Design of Polymer Processing Operations I ²	
PLYE:623	Analysis & Design of Polymer Processing Operations II	
PLYE:631	Engineering Properties of Solid Polymers	
PLYE:651	Polymer Engineering Laboratory ³	
PLYE:661	Polymerization Reactor Engineering	
PLYE:675	Carbon-Polymer Nanotechnology	
PLYE:680	Polymer Coatings	
Mathematics Electives		
Select three credits of the following:		3
MATH:532	Introduction to Partial Differential Equations	
MATH:535	Systems of Ordinary Differential Equations	
MATH:538	Advanced Engineering Mathematics I	
MATH:539	Advanced Engineering Mathematics II	
MATH:627	Advanced Numerical Analysis I	
MATH:628	Advanced Numerical Analysis II	
Technical Electives		
Select two credits of the following:		2
CIVE:681	Advanced Engineering Materials	
MECE:622	Continuum Mechanics	
PLYS:613	Polymer Science Laboratory	
PLYS:674	Polymer Characterization	
PLYE:xxx	Approved Elective Course in Polymer Engineering	
Polymer Engineering 700-level Electives		
Select nine credits of the following:		9
PLYE:712	Rheo-Optics of Polymers	
PLYE:715	Advanced Characterization of Functional Polymers	
PLYE:720	Molecular Aspects of Polymer Rheology	
PLYE:723	Rheology & Processing of Elastomers	
PLYE:724	Advanced Extrusion & Compounding	
PLYE:725	Chemorheology & Processing of Thermosets	
PLYE:727	Advanced Polymer Rheology	
PLYE:728	Numerical Methods in Polymer Engineering	
PLYE:731	Stress Analysis of Polymers & Composites	
PLYE:745	Liquid Crystals	
PLYE:747	Polymer Colloids	
PLYE:749	Phase Transitions in Polymer Blends and Alloys	

PLYE:761	Injection and Compression Molding Fundamentals
PLYE:770	Polymer Nanocomposites
PLYE:773	Advanced Polymer Coating Technology
PLYE:777	Modeling of Nanoscale Materials
PLYE:778	Advanced Functional Polymers
PLYE:797	Advanced Topics in Polymer Engineering
Total Hours	36

- 1 Doctoral students are also required to take PLYE:601 two times to earn two credits.
- 2 PLYE:622 is a prerequisite for PLYE:651.
- 3 PLYE:651 is a required elective class for doctoral students.

Electives may be taken from other departments such as polymer science, chemical engineering, mechanical engineering, physics, mathematics, computer science, or other engineering departments with the adviser's approval.

Research - 60 Credits

Students may take a combination of PLYE:898 Preliminary Research and PLYE:899 Doctoral Dissertation to meet this requirement, however, a minimum of 12 credits of the total 60 required must be of PLYE:899.

Research Proposal

Each doctoral student must

1. present his/her research proposal and
2. pass an oral examination of basic knowledge of polymer engineering during his/her proposal defense to be held within 18 months of entry into the program.

Dissertation and Oral Defense

Each candidate must pass an oral examination in defense of the dissertation.

Submit the written Doctoral Dissertation to the Graduate School by the required deadlines.

Transfer of Credits from Master's Degree

A student receiving a Master of Science degree from The University of Akron in Polymer Engineering may use all lecture course credits toward the 36 lecture course credit requirement.

A student entering with a master's degree or graduate credits from another institution may be given 18 credit hours toward the lecture course requirement.

Polymer Materials and Engineering at Beijing University of Chemical Technology, BE/ Polymer Science, MS

This five-year program involves initial completion of three years of BE coursework in Polymer Materials and Engineering at BUCT followed by two years of graduate coursework and research in the School of Polymer Science and Polymer Engineering at The University of Akron. BUCT will award the BE degree in Polymer Materials and Engineering

to the students of this program after completion of the fourth year of coursework at The University of Akron.

Students will be admitted as undergraduate guest students at The University of Akron after completing three years of BE coursework at BUCT. Students intending to enroll in the BE/MS program will consult the faculty counselors both at BUCT and The University of Akron during their study at BUCT. The admission committee of the School of Polymer Science and Polymer Engineering will evaluate the applications of potential students in their third year. Students meeting the requirements for graduate admission after satisfactory completion of the first year coursework will begin the second year of study with full admission to the graduate school. The MS degree in Polymer Science is awarded at the completion of the MS degree requirements, which would typically be at the end of two years of study at The University of Akron

Requirements for the master's degree coursework at The University of Akron are identical to the standard requirements for the MS in Polymer Science.

Master of Science in Polymer Science Degree Requirements

Code	Title	Hours
Core Courses		
PLYS:601	Polymer Chemistry	4
PLYS:607	Seminar in Polymer Science I	1
PLYS:613	Polymer Science Laboratory	3
PLYS:631	Polymer Physics I	4
PLYS:674	Polymer Characterization	2
PLYS:685	Introduction to Biomacromolecules	2
Elective Courses		
Select eight credit hours of elective courses appropriate to student's area of interest		8
Thesis		
Select six credits		6
Total Hours		30

Cumulative Exam

Pass one cumulative exam.

Written Pre-thesis Literature Review

A written review of the literature will be submitted (in the fall of the second year for full-time students) to the adviser and thesis reader in advance of the completion of the thesis. This literature review receives a grade from each faculty member.

Formal Seminar

A public discussion referred to as a departmental "formal seminar" is required which reviews the literature pertinent to the research problem.

Seminars

Attendance at and participation in seminar-type discussions scheduled by the department.

Foreign Language Requirement

Satisfy the foreign language requirement for the master's degree by meeting the requirements of Plan C. This is satisfied with computer

proficiency, which is met by completing PLYS:613 Polymer Science Laboratory as part of the core curriculum.

Polymer Materials and Engineering at Beijing University of Chemical Technology, BE/Polymer Engineering, MS

This five-year program involves initial completion of three years of BE coursework in Polymer Materials and Engineering at BUCT followed by two years of graduate coursework and research in the School of Polymer Science and Polymer Engineering at The University of Akron. BUCT will award the BE degree in Polymer Materials and Engineering to the students of this program after completion of the fourth year of coursework at The University of Akron.

Students will be admitted as undergraduate guest students at The University of Akron after completing three years of BE coursework at BUCT. Students intending to enroll in the BE/MS program will consult the faculty counselors both at BUCT and The University of Akron during their study at BUCT. The admission committee of the School of Polymer Science and Polymer Engineering will evaluate the applications of potential students in their third year. Students meeting the requirements for graduate admission after satisfactory completion of the first year coursework will begin the second year of study with full admission to the graduate school. The MS degree in Polymer Engineering is awarded at the completion of the MS degree requirements, which would typically be at the end of two years of study at The University of Akron

Requirements for the master's degree coursework at The University of Akron are identical to the standard requirements for the MS in Polymer Engineering as follows:

- Complete courses as developed in a plan of study approved by the student's advisor and the department chair.
- A minimum of 30 credits of graduate coursework must be earned.
- A total of 24 credit hours of lecture courses and 6 credit hours of research must be completed.

Code	Title	Hours
Polymer Engineering Core		
PLYE:611	Fundamentals of Polymer Structure Characterization	3
PLYE:621	Rheology of Polymer Fluids	3
PLYE:641	Polymer Chem & Thermodynamics	3
PLYE:650	Introduction to Polymer Engineering	3
Polymer Engineering 600-level Electives		
Select six credits of the following:		6
PLYE:601	Seminar in Polymer Engineering	
PLYE:622	Analysis & Design of Polymer Processing Operations I	
PLYE:623	Analysis & Design of Polymer Processing Operations II	
PLYE:631	Engineering Properties of Solid Polymers	
PLYE:651	Polymer Engineering Laboratory	
PLYE:661	Polymerization Reactor Engineering	
PLYE:675	Carbon-Polymer Nanotechnology	

PLYE:680	Polymer Coatings	
Technical Electives		
Select six credits of the following:		6
CIVE:681	Advanced Engineering Materials	
MECE:622	Continuum Mechanics	
PLYS:613	Polymer Science Laboratory	
PLYS:674	Polymer Characterization	
PLYE:666	Research Methods	
PLYE:797	Advanced Topics in Polymer Engineering	
Thesis		
PLYE:699	Masters Thesis	6
Total Hours		30

Thesis and Oral Defense

Each candidate must pass an oral examination in defense of the thesis.

Submit the written master's thesis to the Graduate School by the required deadlines

Polymer Science, MS

The Master of Science degree is awarded for the completion of a prescribed program of course studies, cumulative exams, a formal presentation, and a research project that leads to the preparation of a thesis describing the research in a scholarly manner.

Master of Science in Polymer Science Degree Requirements

Code	Title	Hours
Core Courses		
PLYS:601	Polymer Chemistry	4
PLYS:607	Seminar in Polymer Science I	1
PLYS:613	Polymer Science Laboratory	3
PLYS:631	Polymer Physics I	4
PLYS:674	Polymer Characterization	2
PLYS:685	Introduction to Biomacromolecules	2
Elective Courses		
Select eight credit hours of elective courses appropriate to student's area of interest		8
Thesis		
Select six credits		6
Total Hours		30

Cumulative Exam

Pass one cumulative exam.

Written Pre-thesis Literature Review

A written review of the literature will be submitted (in the fall of the second year for full-time students) to the adviser and thesis reader in advance of the completion of the thesis. This literature review receives a grade from each faculty member.

Formal Seminar

A public discussion referred to as a departmental "formal seminar" is required which reviews the literature pertinent to the research problem.

Seminars

Attendance at and participation in seminar-type discussions scheduled by the department.

Foreign Language Requirement

Satisfy the foreign language requirement for the master's degree by meeting the requirements of Plan C. This is satisfied with computer proficiency, which is met by completing 9871:613 Polymer Science Laboratory as part of the core curriculum.

Polymer Science, PhD

Doctor of Philosophy in Polymer Science

An interdisciplinary program leading to the Doctor of Philosophy in Polymer Science is administered by the School of Polymer Science and Polymer Engineering. Graduates from the four main disciplines (chemistry, physics, biomaterials, and engineering) are guided into the appropriate courses of study and research in that field under the supervision of a faculty member. Students may be admitted directly to the Ph.D. program upon screening of their qualifications and recommendation by the Admission Committee.

In addition to satisfying the general requirements of the Graduate School, a student working toward the Doctor of Philosophy in Polymer Science must meet the following requirements:

- Complete a course of study prescribed by the student's advisory committee based on the committee's judgment of the student's background and on the result of any special examinations it might impose. This course will consist of a minimum of, but usually more than, 38 credits in graduate courses, or their equivalent, plus sufficient Ph.D. research credits to make a total of 84 credits (exclusive of Master of Science thesis credit).
- Attendance and participation in seminar-type discussions scheduled by the department.
- At least 18 credits of graduate course work and all dissertation credits must be completed at the University.

There is a university minimum residence time requiring one year, although graduate students starting with a B.S. or B.A. typically spend four years in residence.

Code	Title	Hours
Core Courses		
PLYS:601	Polymer Chemistry	4
PLYS:607	Seminar in Polymer Science I	1
PLYS:613	Polymer Science Laboratory	3
PLYS:631	Polymer Physics I	4
PLYS:632	Polymer Physics II	4
PLYS:674	Polymer Characterization	2
PLYS:685	Introduction to Biomacromolecules	2
Electives		
Select eighteen credits appropriate to the student's area of interest.		18
Doctoral Dissertation		
Select forty six credits		46
Total Hours		84

Cumulative Examinations

Pass six cumulative examinations which are given once a month for eight months of the year (none in June, July, August, or December). Candidates must begin taking cumulative exams after completion of their second semester. Thereafter, students are required to take all of the exams until they pass six. (A maximum of 24 total cumulative examinations may be taken)

Formal Seminar and Research Presentation

Present a public discussion referred to as a departmental "formal seminar," which reviews the literature pertinent to the research problem and then a "research presentation," which presents the student data.

Seminars

Attendance at and participation in seminar-type discussions scheduled by the department is required.

Foreign Language Requirement

Satisfy the foreign language requirement for the doctoral degree by meeting the requirements of Plan C. This is satisfied with computer proficiency, which is met by completing PLYS:613 Polymer Science Laboratory as part of the core curriculum.

Dissertation and Oral Defense

Pass an oral defense upon completion of a written research dissertation.

College of Health and Human Sciences

The College of Health and Human Sciences is comprised of seven schools that encompass different aspects of the healthcare spectrum. The schools are Allied Health, Counseling, Disaster and Emergency Services, Exercise and Nutrition Sciences, Nursing, Social Work and Family Sciences, and Speech-Language Pathology and Audiology.

The College of Health and Human Sciences brings an interprofessional educational and collaborative approach to health care. This bold new approach significantly improves patient outcomes as doctors, nurses, dietitians, social workers and other health providers work together to treat the whole patient.

Students work side by side with talented and caring faculty members and professionals throughout the community and benefit from close college ties with health systems such as the Cleveland Clinic Foundation, Summa Health System, Akron Children's Hospital. The college focuses on graduating students prepared to excel as professionals in an evolving health care environment.

College Website (<https://www.uakron.edu/health/>)

- Child and Family Development (p. 161)
- Counseling (p. 163)
- Exercise and Nutrition Sciences (p. 169)
- Nursing (p. 172)
- Social Work and Family Sciences (p. 188)
- Speech-Language Pathology and Audiology (p. 195)

Child and Family Development

- Child & Family Development, MA (p. 162)

Child and Family Development (CHFD)

CHFD:501 American Families in Poverty (3 Credits)

Prerequisite: Permission of instructor. Overview of the issues, trends, and social policies affecting American families living in poverty. Online section available. (Formerly 3760:501)

CHFD:503 Home-Based Intervention Theory (3 Credits)

Prerequisite: Admission to Certificate Program. Overview of home-based intervention to include philosophy and description of this programming as well as assessment of family, their home and community environment. (Formerly 1820:503)

CHFD:504 Middle Childhood and Adolescence (3 Credits)

Prerequisite: Permission of instructor. The influences of middle childhood and adolescent behavior on the family and the influences of the family environment on middle childhood and adolescent development. (Formerly 3760:504)

CHFD:505 Home-Based Intervention Internship (3-5 Credits)

Prerequisite: CHFD 504. Gives students the opportunity to apply knowledge of home-based intervention in actual delivery process working with families in their homes under the direct supervision of trained, experienced home-based intervention therapists. (Formerly 1820:505)

CHFD:506 Family Financial Management (3 Credits)

Analysis of the family as a financial unit including financial problems and their resolution, decision-making patterns and financial practices behavior. Cases, exercises, problems and computer analysis. (Formerly 3760:506)

CHFD:540 Family Crisis (3 Credits)

Study of family stress and crisis including internal and external variables and their influence on degree of disorganization, coping and recovery. Includes theory, research and application dimensions. (Formerly 3760:540)

CHFD:541 Family Relationships in Middle and Later Years (3 Credits)

Study of family patterns and problems during middle and later years of life with emphasis on psychological and biological changes and economic and social adequacy. Research and trends in gerontology. (Formerly 3760:541)

CHFD:542 Human Sexuality (3 Credits)

Prerequisite: permission of instructor. Introduction to problems and values. Emphasis is on the role of values in intimate relationships, the diverse dimensions of sexual responsibility. (Formerly 3760:542)

CHFD:546 Culture, Ethnicity & Family (3 Credits)

Prerequisite: Permission of instructor. Study of the role of culture and ethnicity in adaptation of the family system to environment. Program applications considered. Online section available. (Formerly 3760:546)

CHFD:548 Before & After School Child Care (2 Credits)

Study of the development, implementation and evaluation of school-age child-care programs for before and after school and vacation periods. (Formerly 3760:548)

CHFD:560 Organization & Supervision of Child Care Centers (3 Credits)

Theory, principles and procedures involved in establishing and operating centers for infants, toddlers, preschool and school-age children. (Formerly 3760:560)

CHFD:561 Case Management for Children & Families I (3 Credits)

Provides an overview of Case Management basics in a multi-systems collaborative context. Includes roles, values, principles, state and service systems, and service coordination. (Formerly 3760:561)

CHFD:562 Case Management for Children & Families II (3 Credits)

Prerequisite: CHFD 561 or permission of instructor. Provides in-depth exploration of Case Management principles and practice. Emphasis on process and functions, assessment, cross-system service planning and coordination, advocacy, and cultural diversity. (Formerly 3760:562)

CHFD:564 Home-Based Intervention Techniques & Practice (3 Credits)

Prerequisite: CHFD 503. Provides intervention techniques and skill areas required for home-based intervention and learning opportunities for matching techniques with specific family problems. (Formerly 1820:504)

CHFD:585 Seminar in Child and Family Development (1-3 Credits)

Exploration and evaluation of current developments in selected areas. (Formerly 3760:585)

CHFD:590 Workshop in Family & Consumer Sciences (1-3 Credits)

Investigation of current issues or topic in selected areas of family and consumer sciences. May be an off-campus study tour or an on-campus full-time group meeting. (Formerly 3760:590)

CHFD:594 Practicum in Parent & Family Education (3 Credits)

Prerequisites: CHFD 596 and CHFD 605. Provides on-site opportunities to apply parent and family education skills. Includes a review of strategies, ethical considerations, and supervision by the on-site director. (Formerly 3760:594)

CHFD:596 Parent Education (3 Credits)

Prerequisite: permission of the instructor. Practical application that reviews and analyzes parent education methods with major emphasis on the evaluation of parent education programs. Online section available. (Formerly 3760:596)

CHFD:601 Divorce Mediation (3 Credits)

Prerequisite: Admission to the Graduate Certificate Program on Divorce Mediation. Overview of divorce mediation process includes guidelines for negotiating separation and divorce agreements, division of personal and real property, support, custody, and future plans. (Formerly 1800:601)

CHFD:602 Family in Lifespan Perspective (3 Credits)

Study of individual and family development across life span. Emphasis on adjustment patterns and interpersonal competence. Implications for education theory research and social policy. (Formerly 3760:602)

CHFD:604 Orientation to Graduate Studies in Child and Family Development (1 Credit)

Introduction to the concepts and processes necessary for graduate study in the interdisciplinary field of child and family development. (Formerly 3760:604)

CHFD:605 Developmental Parent-Child Interactions (3 Credits)

Prerequisite: permission of the instructor. Study of reciprocal interactions between parent and child from birth to adulthood. Consideration of cross-culture studies, historical and societal influences and various family characteristics and structures. Online course. (Formerly 3760:605)

CHFD:607 Family Dynamics (3 Credits)

Development of techniques in home economics programs utilizing role theory, exchange theory and systems theory as understood through the study of the family across the life cycle. (Formerly 3760:607)

CHFD:610 Child Development Theories (3 Credits)

Prerequisite: permission of the instructor. A comparative study of developmental theories of the child within the family context. Application of the theories to child rearing in the family will be emphasized. (Formerly 3760:610)

CHFD:665 Development in Infancy & Early Childhood (3 Credits)

Analysis of research and theoretical frameworks regarding infant and child development from conception through age five. Implications for guidance and education. (Formerly 3760:665)

CHFD:680 Grant & Proposal Writing (3 Credits)

An important organizational function is acquiring resources to sustain and grow critical programs and funding through grants is one such avenue. Developing effective grant writing skills are essential to acquire competitive funding from government agencies and private foundations alike. This course will provide students with the background necessary to develop a competitive funding proposal. (Formerly 3760:680)

CHFD:685 Research Methods in Child and Family Development (3 Credits)

Research methods emphasizing the scientific method, data collection techniques, ethical considerations, and statistics as they apply to research with children and families. (Formerly 3760:685)

CHFD:687 Divorce Mediation Practicum (2 Credits)

Prerequisite: CHFD 601. Practical application of divorce mediation procedures. Review of strategies and ethical considerations. (Formerly 1800:602)

CHFD:688 Advanced Internship in Child and Family Development (5 Credits)

Prerequisite: Permission of advisor or instructor. A minimum of 200 hours of supervised experience in an approved community setting to acquire skills related to area of specialization. (Formerly 3760:688)

CHFD:694 Master's Project (5 Credits)

Prerequisite: Permission of advisor. The development, implementation, and evaluation of a community-based, supervised project that makes a significant contribution to the field. (Formerly 3760:694)

CHFD:697 Individual Investigation in Family Development (1-3 Credits)

Prerequisite: permission of graduate advisor only. Individual pursuit and analysis in specific area of student's interest and design under direction of faculty advisor. (Formerly 3760:697)

CHFD:698 Individual Investigation in Child Development (1-3 Credits)

Prerequisite: permission of graduate advisor only. Individual pursuit and analysis in specific area of student's interest and design under direction of faculty advisor. (Formerly 3760:698)

CHFD:699 Masters Thesis in Child & Family Development (5 Credits)

Prerequisite: Placement of advisor. Supervised research in a specialized area of Child & Family Development that contributes to the field and may lead to publication. (Formerly 3760:699)

Graduate Record Examination within the past five years preceding the application with the following scores: 147 on verbal, 141 on quantitative, and 4.0 on analytical writing.

- Submission of the following:
 - University of Akron Admissions Application
 - Three letters of recommendation
 - Statement of purpose
 - Resume

Program faculty will review all applications upon receipt and may require an interview with any applicant. Admissions decisions are reported to the Graduate School.

Accepted students will be expected to comply with the following requirements:

- Complete the course of study with a minimum of 33 credits.
- These credits will include:
 - Foundation courses focused on orientation to child and family development as an interdisciplinary field.
 - Core courses in the Child and Family Therapy specialization.
 - Elective options, selected in consultation with academic advisor, from within department or in another discipline. These are chosen to strengthen student's professional goals.
- Complete one of the following Capstone options:
 - Master's thesis: the thesis option involves the design and evaluation of original research in an appropriately related area commensurate with the student's background and area of pursuit.
 - Master's project: the project option involves the design, development, implementation, and evaluation of original and creative programs and/or resource materials with an outside organization.
 - Master's Practicum: The practicum is designed to give students supervised, professional experience in a professional setting, and the opportunity to connect that experience to the scholarship in that particular field.
 - Apply for graduation upon successful completion of an approved thesis/project proposal or enrollment in practicum, and by posted University graduation application deadlines (<https://nam11.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.uakron.edu%2Fgradsch%2Fdocs%2Fdeadlines.pdf&data=04%7C01%7Crpatton%40uakron.edu%7C4e3a4e72133b46ce8c2808d9747a39a1%7Ce8575dedd7f94ecea4aa%7C0%7C0%7C637668890571599861%7CUnknown%7CTWFpbGZsb3d8eyJWljiMC4wLjAwMDAiLCJQIjoiV2luMzliLCJBTiI6IjE%7C1000&sdata=gDLHU1JuFzWX3nArt7Tydx5v6d4u3FLtqgmc9ns%2BBBrU%3D&reserved=0>).

Child & Family Development, MA

Admission Requirements

The admissions requirements for the Masters Degree in Child and Family Development program are as follows:

- Minimum GPA of 3.0 for four years of undergraduate study or 3.25 for the last two years of undergraduate study.
- Applicants to the Child and Family Development program with a 3.5 or higher undergraduate GPA are exempted from the Graduate Record Examination. For all other students, completion of general

Program Requirements

Code	Title	Hours
Foundational Courses		7
CHFD:604	Orientation to Graduate Studies in Child and Family Development	1
SOWK:622	Fundamentals of Research I	3
CHFD:680	Grant & Proposal Writing	3
Core Courses		15
CHFD:602	Family in Lifespan Perspective	3
CHFD:605	Developmental Parent-Child Interactions	3

CHFD:607	Family Dynamics	3
CHFD:610	Child Development Theories	3
CHFD:665	Development in Infancy & Early Childhood	3
Elective Options		6
Select six credits of coursework relevant to student's academic plan. Courses taken outside of the Child and Family Development Program must be approved by faculty advisor.		
Capstone		5
Pick one of the following (for a total of 5 credits):		
CHFD:688	Advanced Internship in Child and Family Development	5
CHFD:694	Master's Project	5
CHFD:699	Masters Thesis in Child & Family Development	5
TOTAL CREDITS:		33

Counseling

- Clinical Mental Health Counseling, MA (p. 167)
- Counseling Children and Adolescents, Certificate (p. 167)
- Couple and Family Therapy, Certificate (p. 167)
- Marriage and Family Therapy, MA (p. 168)
- School Counseling, MA (p. 168)

Counseling (COUN)

COUN:515 Mental Illness & Media (2 Credits)

Mental illness is often portrayed negatively the media. This course focuses on mental illness, stigma, and how movies portray specific mental disorders. (Formerly 5600:515)

COUN:526 Career Education (2 Credits)

Prerequisite: junior, senior or graduate standing. Examination of current career education models and programs with emphasis on infusion of career education activities into elementary and secondary curriculum. (Formerly 5600:526)

COUN:550 Counseling Problems Related to Life-Threatening Illness & Death (3 Credits)

Prerequisite: permission. Consideration of the global issues, current research, coping behavior, support systems and family and individual needs in regard to life-threatening situations. (Formerly 5600:550)

COUN:590 Workshop: Educational Guidance & Counseling (1-3 Credits)

Special instruction designed as in-service and/or upgrading individuals on current issues and practices in counseling. (Formerly 5600:590)

COUN:591 Workshop: Educational Guidance & Counseling (1-3 Credits)

Special instruction designed as in-service and/or upgrading individuals on current issues and practices in counseling. (Formerly 5600:591)

COUN:592 Workshop: Educational Guidance & Counseling (1-3 Credits)

Special instruction designed as in-service and/or upgrading individuals on current issues and practices in counseling. (Formerly 5600:592)

COUN:593 Workshop: Educational Guidance & Counseling (1-4 Credits)

Special instruction designed as in-service and/or upgrading individuals on current issues and practices in counseling. (Formerly 5600:593)

COUN:594 Counseling Institute (1-4 Credits)

In-service programs for counselors and other helping professionals. (Formerly 5600:594)

COUN:600 Professional Orientation & Ethics (2 Credits)

Addresses professional orientation and ethical standards in the counseling profession as well as an introduction to School of Counseling. (Formerly 5600:600)

COUN:601 Research and Program Evaluation in Counseling (3 Credits)

Overview of research methods and statistics, understanding and conducting counseling research, and program assessment and evaluation knowledge. (Formerly 5600:601)

COUN:602 Introduction to Counseling (2 Credits)

Understanding guidance and counseling principles including organization, operation and evaluation of guidance programs (designed for non-counseling major). (Formerly 5600:602)

COUN:610 Counseling Skills for Teachers (3 Credits)

Prerequisite: COUN 631 or permission. The study and practice of selected counseling techniques that can be applied by teachers in working with students, parents and colleagues. (Formerly 5600:610)

COUN:619 Traumatology (1 Credit)

This course will provide introductory instruction on the impacts or trauma, assessment strategies, and treatment strategies when treating victims of traumas and violent experiences. (Formerly 5600:619)

COUN:620 Issues in Sexuality for Counselors (3 Credits)

A seminar covering, in addition to changing current topics, sexuality across the lifespan, diversity and sexual orientation, and assessment. (Formerly 5600:620)

COUN:621 Counseling Youth At Risk (3 Credits)

This course is designed to prepare counselors and other helping professionals to work with at-risk children and adolescents in school and community settings. (Formerly 5600:621)

COUN:622 Introduction to Play Therapy (3 Credits)

Prerequisites: enrolled in a master's or doctoral program in counseling or related field, or special nondegree students (i.e., professional counselor). This course is designed to give students an introduction to play therapy from a child-centered perspective. Students will develop competencies in child-centered play therapy. (Formerly 5600:622)

COUN:623 Marriage & Family Counseling/Therapy Ethics & Professional Identity (3 Credits)

This course is designed to help students learn about marriage and family counseling/therapy as a distinct profession and about its corresponding ethical codes. (Formerly 5600:623)

COUN:631 Introduction to School Counseling (3 Credits)

Prerequisite: Admission to the Counseling program. Introductory class; examines the role of school counselors and counseling practices in elementary, middle and high school settings. (Formerly 5600:631)

COUN:635 Introduction to Clinical Counseling (2 Credits)

Overview of clinical counseling identity, philosophy, roles, work settings, laws, advocacy, and related professional duties. (Formerly 5600:635)

COUN:636 College Admission Counseling I (3 Credits)

Through readings, websites, class activities, discussion, and experiential projects students will learn the fundamental skills needed to assist counselees in the college admission process. (Formerly 5600:636)

COUN:637 College Admission Counseling II (3 Credits)

Prerequisite: COUN 636. Students will continue to enhance their knowledge in guiding students through the college admission process through extensive field work at surrounding college campus locations. (Formerly 5600:637)

COUN:640 Counseling Adolescents (3 Credits)

Prerequisite: Graduate student in counseling or related field. The examination of the physical, cognitive, emotional, and social developmental processes of the adolescent as these affect learning performance in a diverse population will be addressed. (Formerly 5600:640)

COUN:643 Counseling: Theory & Philosophy (3 Credits)

Examination of major counseling theories including philosophical and theoretical underpinnings and related treatment approaches. (Formerly 5600:643)

COUN:645 Tests & Appraisal in Counseling (3 Credits)

Prerequisites: COUN 601. Study of the nature of tests and appraisal in counseling including reliability, validity, test construction and selection, administration, scoring, and basic interpretation of selected measures. (Formerly 5600:645)

COUN:646 Multicultural Counseling (3 Credits)

Examination of multicultural counseling theories, research and treatment approaches necessary to serve culturally diverse persons. (Formerly 5600:646)

COUN:647 Career Development & Counseling Across the Life-Span (3 Credits)

Addresses career development and choice over the lifespan including personal, family, and societal characteristics that affect career counseling-related treatment approaches. (Formerly 5600:647)

COUN:648 Individual & Family Development Across the Life-Span (3 Credits)

Examination of individual and family development theories of human behavior, learning and personality with an emphasis on understanding the relationship between the individual and his/her family. (Formerly 5600:648)

COUN:649 Counseling & Personnel Services in Higher Education (3 Credits)

Prerequisite: COUN 635 or permission of instructor. Counseling services as related to psychological needs and problems of the college student. (Formerly 5600:649)

COUN:650 Filial Therapy (3 Credits)

Prerequisite: COUN 590 or COUN 622 and graduate student in counseling or related field. This course is designed to train students how to teach parents specific child-centered play therapy skills to use with their children. (Formerly 5600:650)

COUN:651 Techniques of Counseling (3 Credits)

Study of selected counseling techniques used to establish an effective counseling relationship and facilitate the treatment process. (Formerly 5600:651)

COUN:652 Techniques of MFT (3 Credits)

Prerequisites: COUN 655 and COUN 669. This experiential and didactic course provides students with core knowledge and practice of effective interventions related to Marriage and Family Therapy. Students will gain experience with various Marriage and Family Therapy-related techniques that may be used with individuals, couples and families. (Formerly 5600:652)

COUN:653 Group Counseling (4 Credits)

Prerequisite: COUN 651 or COUN 655 or COUN 669. Knowledge and understanding of theory, research, and techniques necessary for conducting group counseling sessions. An experiential component is included. (Formerly 5600:653)

COUN:655 Marriage & Family Therapy: Theory & Techniques (3 Credits)

An overview of the theory and techniques of marital and family therapy, including exposure to the history, terminology and contributions of significant persons in the field. (Formerly 5600:655)

COUN:656 Assessment Methods & Treatment Issues in Marriage & Family Therapy (3 Credits)

Prerequisites: COUN 655 and COUN 669. Provides advanced counseling students with the knowledge and skills in assessment methods, techniques, and instruments relevant to the practice of marriage and family therapy. (Formerly 5600:656)

COUN:657 Consultant: Counseling (3 Credits)

Prerequisites: COUN 631, COUN 651 or permission. Examination of consultation models with focus on process and product. (Formerly 5600:657)

COUN:659 Leadership, consultation and collaboration in school counseling (3 Credits)

Prerequisites: Admission to the Counseling program and COUN 631, or permission. School counselors serve as leaders and advocates in school settings. Collaboration is critical to the work of school counselors. This course will introduce students to the American School Counselor Association's (ASCA) national model, comprehensive school counseling programs, examine school counselor leadership practices and community engagement. Leadership and consultation in school counseling. (Formerly 5600:659)

COUN:660 Counseling Children (3 Credits)

Prerequisite: Graduate student in counseling or related field. This course is designed as an entry level course for counselors, school counselors, school psychologists, or other professionals preparing to engage in therapeutic work with children. It is not a class in diagnosis of childhood disorders. (Formerly 5600:660)

COUN:661 Seminar in Guidance (2 Credits)

Prerequisites: COUN 645, COUN 647, COUN 653 and COUN 657. Primary models for understanding and modifying children's behavior in classroom including technique development and review of guidance materials and programs. (Formerly 5600:661)

COUN:662 Diagnosis in Counseling (3 Credits)

Principles of the diagnostic process, and the use of current diagnostic tools, such as the current edition of the Diagnostic and Statistical Manual of Mental Disorders and International Classification of Diseases. (Formerly 5600:662)

COUN:663 School Counseling Seminar (3 Credits)

Prerequisites: Admission to the Counseling program and COUN 631. A seminar designed for perspective school counselors to learn developmentally appropriate counseling strategies. These strategies will include learning techniques that foster academic achievement, career and college readiness and personal social development techniques. (Formerly 5600:663)

COUN:664 Advanced Diagnosis in Counseling (3 Credits)

Prerequisite: COUN 662. Advanced principles of the diagnostic process and differential diagnosis through in-depth practice with current diagnostic tools, such as the current edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM) and International Classification of Diseases. (Formerly 5600:664)

COUN:665 Seminar in Counseling Practice (3 Credits)

Prerequisite: COUN 635 or permission. Study of topics of concern to a student specializing in community and college counseling. Topics may differ each semester according to students' needs. (Formerly 5600:665)

COUN:666 Treatment in Clinical Counseling (3 Credits)

Prerequisite: COUN 662. Addresses treatment planning and interventions for prevention and recovery from mental disorders common in clinical practice. (Formerly 5600:666)

COUN:667 Marital Therapy (3 Credits)

In-depth study of theories and interventions which focus on the nature and quality of marital relationships. (Formerly 5600:667)

COUN:669 Systems Theory in Family Therapy (3 Credits)

In-depth exploration of systems theory in family therapy. Major assumptions of systems theory will be examined and the implications for interventions will be explored. (Formerly 5600:669)

COUN:673 PrePracticum in MFT (1-2 Credits)

Prerequisites: COUN 623, COUN 655, and COUN 669. Addresses clinical knowledge and skills needed for Practicum, including the therapeutic process documentation, supervision, and special needs. (Formerly 5600:673)

COUN:674 Prepracticum in Counseling (2 Credits)

Prerequisites: COUN 651 and COUN 662. Addresses clinical knowledge and skills needed for Practicum, including the counseling process, documentation, supervision, and special topics. (Formerly 5600:674)

COUN:675 Practicum in Counseling (5 Credits)

Prerequisites: See program/degree student handbook for required prerequisites, as course prerequisites may differ based on program/degree. Supervised clinical experience including direct counseling services and related professional duties. (Formerly 5600:675)

COUN:676 Practicum in Counseling II (2-5 Credits)

Prerequisite: COUN 675. Advanced supervised counseling experience. (Formerly 5600:676)

COUN:685 Master's Internship (3 Credits)

Prerequisite: COUN 675. Must be repeated for a minimum of 6 credit hours. May be repeated for a maximum of 12 credit hours. Paid or unpaid supervised clinical experience accomplished immediately following completion of COUN 675. Credit/noncredit. (Formerly 5600:685)

COUN:695 Field Experience: Masters (1-10 Credits)

Prerequisites: permission of advisor and department chair. Placement in selected setting for purpose of acquiring experiences and/or demonstration skills related to student's counseling program. (Formerly 5600:695)

COUN:697 Independent Study (1-3 Credits)

(May be repeated for a total of nine credits) Prerequisites: permission of advisor and department chair. Specific area of investigation determined in accordance with student needs. (Formerly 5600:697)

COUN:698 Masters Problem (2-4 Credits)

Prerequisite: permission of advisor. In-depth study of a research problem in education. Student must be able to demonstrate critical and analytical skills in dealing with a problem in educational guidance and counseling. (Formerly 5600:698)

COUN:699 Masters Thesis (4-6 Credits)

Prerequisites: permission of advisor and department chair. In-depth study and analysis of counseling problem. (Formerly 5600:699)

COUN:702 Advanced Counseling Practicum (4 Credits)

(May be repeated for a total of 12 credit hours) Prerequisite: COUN 675, COUN 720/DSM, COUN 710. Supervised counseling experience in selected settings. (Formerly 5600:702)

COUN:707 Supervision in Counseling Psychology I (4 Credits)

Prerequisite: doctoral residency or permission. Instruction and experience in supervising graduate student in counseling. (Formerly 5600:707)

COUN:708 Supervision in Counseling Psychology II (4 Credits)

Prerequisite: doctoral residency or permission. Instruction and experience in supervising graduate student in counseling. (Formerly 5600:708)

COUN:709 Introduction to Counseling Psychology (2 Credits)

Prerequisite: Graduate standing in the Collaborative Program in Counseling Psychology. Introduction to historical foundations of and recent developments in counseling psychology, with an emphasis on contemporary research literature in the field. (Formerly 5600:709)

COUN:710 Theories of Counseling & Psychotherapy (4 Credits)

Prerequisite: PSYC 630 or departmental permission. Major systems of individual psychotherapy explored within a philosophy of science framework. Freudian, behavioral, Rogerian, cognitive and other. Includes research, contemporary problems and ethics. (Formerly 5600:710)

COUN:711 Vocational Behavior (4 Credits)

Prerequisite: PSYC 630 or departmental permission. Theories and research on vocational behavior and vocational counseling. Topics include major theories on vocational behavior, empirical research on these theories, applied work in vocational counseling and applied research. (Formerly 5600:711)

COUN:712 Principles & Practice of Individual Intelligence Testing (4 Credits)

Prerequisites: PSYC 630 or graduate standing in school psychology, and instructor's permission. History, principles and methodology of intelligence testing, supervised practice in administration, scoring and interpretation of individual intelligence tests for children and adults. (Formerly 5600:712)

COUN:713 Professional, Ethical & Legal Issues in Counseling Psychology (4 Credits)

Prerequisite: doctoral residency or permission. Examination of major issues in the field such as the counselor as a professional and as a person, and issues, problems and trends in counseling. (Formerly 5600:713)

COUN:714 Evaluation of Mental Status (3 Credits)

Overview of methods for evaluating mental and emotional status including objective personality testing. (Formerly 5600:714)

COUN:715 Research Design in Counseling I (3 Credits)

Prerequisite: doctoral residency or permission. Study of research designs, evaluation procedures and review of current research. (Formerly 5600:715)

COUN:716 Research Design in Counseling II (3 Credits)

Prerequisite: doctoral residency or permission. This course is designed for doctoral students utilizing the qualitative approach for conducting research. Theory, methods, and design of qualitative inquiry are reviewed. (Formerly 5600:716)

COUN:717 Issues of Diversity in Counseling Psychology (4 Credits)

Prerequisites: PSYC 630; one semester of practicum work. Critical examination and application of research and theory in counseling diverse populations, focusing on race/ethnicity, sex/gender, sexual orientation, age, disability, and spirituality. (Formerly 5600:717)

COUN:718 History & Systems in Psychology (2 Credits)

Prerequisite: PSYC 630. Philosophical and scientific antecedents of psychology and details of the development of systematic viewpoints in the 19th and 20th centuries. (Formerly 5600:718)

COUN:720 Topical Seminar: Guidance & Counseling (1-4 Credits)

Prerequisite: permission of instructor. A topical study with a variety of disciplinary input. Staffing will be by department faculty and other professionals in counseling and related fields. A maximum of six credits may be applied to a degree. (Formerly 5600:720)

COUN:722 Introduction to Play Therapy (3 Credits)

Prerequisites: enrolled in a master's or doctoral program in counseling or related field, or special nondegree students (i.e., professional counselor). This course is designed to give students an introduction to play therapy from a child-centered perspective. Students will develop competencies in child-centered play therapy. (Formerly 5600:722)

COUN:723 Legal and Ethical Issues in Counselor Education (4 Credits)

Prerequisite: admission into the Counselor Education and Supervision Program. Examination of major ethical/legal issues in the field of counseling and marriage & family therapy. (Formerly 5600:723)

COUN:724 Pedagogy in Counselor Education and Supervision: Theory and Practice (3 Credits)

This course provides an in-depth study of instructional principles, pedagogy, and evaluation procedures in counselor education and supervision. (Formerly 5600:724)

COUN:725 Doctoral Professional Seminar in Counselor Education (3 Credits)

Prerequisite: admission to the doctoral program in Counselor Education and Supervision To be taken the first fall term upon admission. Required of all Counselor Education & Supervision doctoral students. Professional issues in the counseling field, doctoral identity acculturation, and development are covered. (Formerly 5600:725)

COUN:726 Doctoral Research Proposal in Counselor Education (3 Credits)

Prerequisites: COUN 715, EDFN 744. This course provides theoretical and practical aspects of designing dissertation research in counseling and counselor education and supervision and successfully defending a draft of a proposal design. (Formerly 5600:726)

COUN:728 Advanced Diversity in Counselor Education (3 Credits)

This course examines issues of human diversity broadly, including knowledge, awareness and skills especially related to mental health service and training in counselor education and supervision. (Formerly 5600:728)

COUN:730 Use of Assessment Data (4 Credits)

Prerequisite: Doctoral level status. Study of the methods and materials used to assess individuals and the effective use of the data obtained leading to professional decisions reading the diagnosis of individual's present condition, and recommendations for appropriate treatment/intervention. (Formerly 5600:730)

COUN:732 Addiction Counseling I: Theory & Assessment (3 Credits)

Examination of the foundations, theoretical models, assessment strategies, and treatment approaches associated with addictive disorders. (Formerly 5600:732)

COUN:734 Addiction Counseling II: Treatment Planning & Intervention Strategies (3 Credits)

This course is designed to teach graduate-level students the process of treatment planning and range of treatment interventions used with addictive disorders. (Formerly 5600:734)

COUN:737 Clinical Supervision I (4 Credits)

Prerequisite: successful completion of advanced practicum. Instruction and experience supervising graduate students in counseling. (Formerly 5600:737)

COUN:738 Clinical Supervision II (4 Credits)

Prerequisite: successful completion of advanced practicum and successful completion of supervision I. Instruction and experience in supervising graduate students in counseling. (Formerly 5600:738)

COUN:756 Outcome Research in Marriage & Family Therapy (3 Credits)

Prerequisite: COUN 667; EDFN 640, EDFN 741. This course will provide an in-depth examination of marriage and family therapy outcome research. (Formerly 5600:756)

COUN:760 Counseling Children (3 Credits)

Prerequisite: graduate student in counseling or related field. This course is designed as an entry-level course for counselors, school counselors, school psychologists, or other professionals preparing to engage in therapeutic work with children. It is not a class in diagnosis of childhood disorders. (Formerly 5600:760)

COUN:764 Cognitive Assessment (2 Credits)

Prerequisite: PSYC 750 and enrollment in the Collaborative Program in Counseling Psychology, OR instructor's permission. History, principles and methodology of cognitive assessment, supervised practice in administration, scoring and interpretation of individual intelligence tests for late adolescents and adults. (Formerly 5600:764)

COUN:765 Objective Personality Assessment (2 Credits)

Prerequisites: Completion of PSYC 750 and students must be enrolled in the Collaborative Program in Counseling Psychology. Study of the development, administration, and interpretation of objective measures of personality assessment (MMPI, PAI, and selected additional inventories). (Formerly 5600:765)

COUN:766 Applications of Assessment (2 Credits)

Prerequisites: Completion of COUN 764 and COUN 765. Student must be enrolled in the Collaborative Program in Counseling Psychology. Corequisite: 5600:777. Study of integrative report writing and other applications of assessment. (Formerly 5600:766)

COUN:785 Doctoral Internship (3 Credits)

May be repeated for a total of 6 credit hours. Prerequisite: Completion of COUN 702, COUN 737 and COUN 738. Supervised experience in clinical settings, teaching, supervision, or research. 600 clock hours must be completed in over two consecutive semesters. Credit/noncredit. (Formerly 5600:785)

COUN:796 Counseling Psychology Practicum (4 Credits)

(May be repeated for a total of 12 credits) Advanced counseling psychology students will have supervised training with clients in a variety of settings and will focus on supervised development of specialized theoretical applications. (Credit/noncredit.) (Formerly 5600:796)

COUN:797 Independent Reading and/or Research in Counseling Psychology (1-5 Credits)

(May be repeated) Prerequisite: permission of instructor. Independent readings and/or research in an area of counseling psychology under the direction of a faculty member. (Formerly 5600:797)

COUN:895 Field Experience: Doctoral (1-6 Credits)

(May be repeated) Prerequisite: doctoral candidate status. Placement in selected setting for purpose of acquiring experiences and/or developing skills related to student's doctoral program. (Formerly 5600:895)

COUN:897 Independent Study: Educational Guidance & Counseling (1-3 Credits)

(May be repeated for a total of nine credits) Prerequisites: permission of advisor and department chair. Specific area of investigation determined in accordance with student needs. (Formerly 5600:897)

COUN:898 Research Projects in Special Areas (1-2 Credits)

(May be repeated) Prerequisites: permission of advisor and department chair. Study, analysis and reporting of counseling problem. (Formerly 5600:898)

COUN:899 Doctoral Dissertation (1-20 Credits)

Prerequisites: permission of major doctoral advisor and department chair. Study, design and analysis of counseling problem. (Formerly 5600:899)

Clinical Mental Health Counseling, MA

Admission Requirements

- Graduate School Application
- Official transcripts from institutions attended
- Three letters of recommendation.
- School of Counseling Application Supplement Form.
- Interview will be required for applicants who meet admission criteria.

Applications to the master's program in Clinical Mental Health Counseling are accepted on a rolling basis. Applicants are strongly urged to apply as early as possible. For applicants who have complete application materials on file and who are selected for an interview, admission interviews usually begin in January for fall admission cohort and September for spring admission cohort. New admits will not be accepted once the program reaches cohort capacity.

Program Requirements

This course of study focuses on knowledge and skills related to clinical mental health counseling culminating in the opportunity to obtain professional counselor licensure and employment in the mental health field, such as mental health agencies, private practice, and college counseling centers.

The Council for Accreditation of Counseling and Related Educational Programs (CACREP), a specialized accrediting body recognized by the Council of Higher Education Accreditation (CHEA), has conferred accreditation on the Clinical Mental Health Counseling program.

Code	Title	Hours
Educational Foundations		
COUN:601	Research and Program Evaluation in Counseling	3
COUN:646	Multicultural Counseling	3
COUN:648	Individual & Family Development Across the Life-Span	3
Required Core Courses		
COUN:600	Professional Orientation & Ethics	2
COUN:635	Introduction to Clinical Counseling	2
COUN:643	Counseling: Theory & Philosophy	3
COUN:645	Tests & Appraisal in Counseling	3
COUN:647	Career Development & Counseling Across the Life-Span	3
COUN:651	Techniques of Counseling	3
COUN:653	Group Counseling	4
Program Electives		
Select at least one of the following:		3
COUN:620	Issues in Sexuality for Counselors	

COUN:621	Counseling Youth At Risk	
COUN:622	Introduction to Play Therapy	
COUN:640	Counseling Adolescents	
COUN:655	Marriage & Family Therapy: Theory & Techniques	
COUN:660	Counseling Children	
Clinical Counseling Specialty Courses		
COUN:662	Diagnosis in Counseling	3
COUN:664	Advanced Diagnosis in Counseling	3
COUN:666	Treatment in Clinical Counseling	3
COUN:674	Prepracticum in Counseling	2
COUN:675	Practicum in Counseling	5
COUN:714	Evaluation of Mental Status	3
COUN:732	Addiction Counseling I: Theory & Assessment	3
COUN:685	Master's Internship	3
COUN:685	Master's Internship	3
Total Hours		60

Minimum Credit Hours Required for Degree: 60

Counseling Children and Adolescents, Certificate

This certificate will offer specialized training in counseling children and adolescents, which focuses on foundational knowledge and skills in working with children and adolescents in counseling.

Code	Title	Hours
Required courses		6
COUN:660	Counseling Children	
COUN:640	Counseling Adolescents	
Choose one of the following courses:		3
COUN:621	Counseling Youth At Risk	
COUN:622	Introduction to Play Therapy	
COUN:650	Filial Therapy	
Total Hours		9

Couple and Family Therapy, Certificate

This certificate will offer specialized training in couple and family therapy, specifically assessment, diagnosis, ethical considerations, and therapeutic modalities from a relational/systemic perspective.

Program of Study

Code	Title	Hours
Core Courses (both courses required)		
COUN:656	Assessment Methods & Treatment Issues in Marriage & Family Therapy	3
COUN:667	Marital Therapy	3
Family Therapy Theories (choose from one of the courses below)		
COUN:655	Marriage & Family Therapy: Theory & Techniques	
COUN:669	Systems Theory in Family Therapy	
Total Hours		9

Marriage and Family Therapy, MA

Admission Requirements

- Graduate School Application
- Official transcripts from institutions attended
- Three letters of recommendation.
- School of Counseling Application Supplement Form.
- Interview will be required for applicants who meet admission criteria.

Applications to the master's degree program in Marriage and Family Therapy are accepted on a rolling basis until the program reaches its admission capacity. A review of the applications begins in February for Summer and Fall admission and in September for Spring admission. Applicants are strongly urged to apply as early as possible.

Program Requirements

This graduate program is designed to prepare graduates to provide clinical services to individuals, couples, families, and groups from a systemic/relational and multiculturally-informed perspective.

The Marriage and Family Therapy program is accredited by the Commission on Accreditation for Marriage and Family Therapy Education (COAMFTE).

Graduates are eligible to take the National Marriage and Family Therapy Licensure Exam. This program meets licensure requirements for the Marriage and Family Therapy license in Ohio.

Code	Title	Hours
Area I: Marriage and Family Therapy Foundations		
COUN:623	Marriage & Family Counseling/Therapy Ethics & Professional Identity	3
COUN:652	Techniques of MFT	3
COUN:655	Marriage & Family Therapy: Theory & Techniques	3
COUN:656	Assessment Methods & Treatment Issues in Marriage & Family Therapy	3
COUN:667	Marital Therapy	3
COUN:669	Systems Theory in Family Therapy	3
Area II: Clinical Foundations		
COUN:601	Research and Program Evaluation in Counseling	3
COUN:619	Traumatology	1
COUN:620	Issues in Sexuality for Counselors	3
COUN:646	Multicultural Counseling	3
COUN:648	Individual & Family Development Across the Life-Span	3
COUN:653	Group Counseling	4
COUN:662	Diagnosis in Counseling	3
COUN:664	Advanced Diagnosis in Counseling	3
COUN:734	Addiction Counseling II: Treatment Planning & Intervention Strategies	3
Area III: Electives		
COUN:622	Introduction to Play Therapy	3
	or COUN:650 Filial Therapy	
Area IV: Clinical Experience Requirements		
COUN:673	PrePracticum in MFT	2
COUN:675	Practicum in Counseling	5

COUN:685	Master's Internship	3
COUN:685	Master's Internship	3
Total Hours		60

While taking the Required Clinical Experience coursework students must obtain 500 direct client contact hours and 100 supervision hours to graduate.

Students must sign up for Practicum at least one year in advance as space is limited. Sign up with the School of Counseling.

Students must enroll in COUN:673 PrePracticum in MFT twice for a total of two credits.

Students must enroll in COUN:685 Master's Internship twice for a total of six credits.

Students must receive a pass grade on the Master's Comprehensive Examination.

School Counseling, MA

Admission Requirements

- Application to Graduate School
- Undergraduate GPA 2.75
- Statement of good moral character
- Three letters of reference
- Departmental supplemental application
- Program interview

Applications to the master's degree program in School Counseling are accepted on a rolling basis until the program reaches its admission capacity. A review of the applications begins in February for Summer and Fall admission and in September for Spring admission. Applicants are strongly urged to apply as early as possible.

Code	Title	Hours
Educational Foundations		
COUN:601	Research and Program Evaluation in Counseling	3
COUN:646	Multicultural Counseling	3
COUN:648	Individual & Family Development Across the Life-Span	3
Required Core Courses		
COUN:600	Professional Orientation & Ethics	2
COUN:631	Introduction to School Counseling	3
COUN:643	Counseling: Theory & Philosophy	3
COUN:645	Tests & Appraisal in Counseling	3
COUN:647	Career Development & Counseling Across the Life-Span	3
COUN:651	Techniques of Counseling	3
COUN:653	Group Counseling	4
Program Electives		
Select one of the following:		3
COUN:621	Counseling Youth At Risk	
COUN:660	Counseling Children	
COUN:732	Addiction Counseling I: Theory & Assessment	
School Counseling Specialty Courses		
COUN:619	Traumatology	1

COUN:622	Introduction to Play Therapy	3
COUN:640	Counseling Adolescents	3
COUN:655	Marriage & Family Therapy: Theory & Techniques	3
COUN:659	Leadership, consultation and collaboration in school counseling	3
COUN:663	School Counseling Seminar	3
COUN:675	Practicum in Counseling	5
COUN:685	Master's Internship	3
COUN:685	Master's Internship	3
Total Hours		60

Minimum Credit Hours Required for Degree: 60

Exercise and Nutrition Sciences

- Physical Education, Exercise Physiology/Adult Fitness, MS (p. 171)
- Physical Education, Sport Science/Coaching, MS (p. 171)

Exercise Science/Exercise Physiology (EXER)

EXER:500 Musculoskeletal Anatomy I: Upper Extremity (3 Credits)

Prerequisites: BIOL 200, BIOL 201, BIOL 202, BIOL 203 and EXER 201. Designed to address the upper portions of the musculoskeletal system in comprehensive detail. Includes articulations, cytology, histology, and neurological integration with lab and practical experiences. (Formerly 5550:500)

EXER:501 Musculoskeletal Anatomy II: Lower Extremity (3 Credits)

Prerequisites: BIOL 200, BIOL 201, BIOL 202, BIOL 203 and EXER 201. Designed to address the lower portions of the musculoskeletal system in comprehensive detail. Includes articulations, cytology, histology, and neurological integration with lab and practical experiences. (Formerly 5550:501)

EXER:505 Advanced Strength and Conditioning (3 Credits)

This course teaches strength and conditioning programs design for heterogeneous populations. The course covers high-level sport specific exercise prescriptions that aids injury prevention and performance enhancement. (Formerly 5550:505)

EXER:518 Cardiorespiratory Function (3 Credits)

This course is designed to study the normal structure and function of the respiratory system and how it is affected by different types of disease. (Formerly 5550:518)

EXER:526 Nutrition for Sports (3 Credits)

This course will provide an explanation of the consumption, absorption, and recommendation for diet of athletes and the physically active individual. (Formerly 5550:526)

EXER:538 Cardiac Rehab Principles (3 Credits)

This course will teach students the core competencies for cardiac rehab professionals, based upon the American Association of Cardiovascular and Pulmonary Rehabilitation Specialists (AAVCP). (Formerly 5550:538)

EXER:540 Injury Management for Teachers & Coaches (2 Credits)

This course challenges the graduate student to understand ways to provide and care for the safety of individual they teach. (Formerly 5550:540)

EXER:541 Advanced Athletic Injury Management: Upper Extremity (4 Credits)

Prerequisites: BIOL 200, BIOL 201, BIOL 202, BIOL 203 and EXER 240. This course is designed to cover recognition, evaluation, and rehabilitation of upper extremity injuries as well as general medical pathologies of the upper extremity. (Formerly 5550:541)

EXER:565 Psychology of Injury Rehabilitation (2 Credits)

Prerequisites: BIOL 200, BIOL 201, BIOL 202, and BIOL 203. This course will address the cognitive and affective aspects of injury and rehabilitation of injury. Specifically the stages of rehabilitation and techniques to aid in the rehabilitation process. (Formerly 5550:565)

EXER:570 Orthopedic Injury and Pathology (3 Credits)

Prerequisites: BIOL 200, BIOL 201, BIOL 202, and BIOL 203. This course will discuss common musculoskeletal pathology and surgical procedure associated with a physically active population. (Formerly 5550:570)

EXER:600 Biomechanics Applied to Sport and Physical Activity (4 Credits)

Training future professionals in an integrated approach to qualitative diagnosis of motor skills for a variety of professional settings. Required clinical/field experiences. (Formerly 5550:600)

EXER:605 Physiology of Muscular Activity & Exercise (3 Credits)

Functions of body systems and physiological effects of exercise. Laboratory experiences, lectures, discussions. (Formerly 5550:605)

EXER:606 Statistics: Quantitative & Qualitative Methods (3 Credits)

Prerequisite: EDFN 640. Research methods/designs, statistics (application and interpretation), use of computers and appropriate software as they relate to various disciplines in the area of physical activity. (Formerly 5550:606)

EXER:607 Health Behavior Change: Theory to Practice (3 Credits)

This course provides an overview of the CAAHEP performance domains and associated competencies related to behavioral strategies for exercise/physical activity adoption, adherence and maintenance. This course prepares students to assess client readiness to change behavior, and to recommend strategies for behavior modification based on fitness level, disease status, and client goals. (Formerly 5550:607)

EXER:612 General Medical Aspects (3 Credits)

Covers various topics related to sports medicine and general medical conditions. Students will gain perspectives and exposure to a variety of allied health care professionals. (Formerly 5550:612)

EXER:615 Exercise Pathophysiology (3 Credits)

This course prepares students for theoretical and practical aspects of applying physical activity as therapeutic exercise for a wide array of conditions and diseases. Course content explores the epidemiology, etiology, pathophysiology, disease implications and therapeutic interventions of cardiovascular, pulmonary, metabolic, immunological, neuromuscular, psychological, sensory and cognitive disorders consisting of both classroom lectures and hands-on laboratory skills. Course material will cover performance domain standards and guidelines aligning with the recommendation of the CAAHEP Committee on Accreditation for Exercise Sciences (CoAES) to prepare students for the Exercise Physiology profession. Focus on clinical contraindications and safety precautions for each disease and illness will be highlighted. The course is designed to provide the student with understanding of the pathophysiology and exercise responses in these populations in preparation for professional work in the community as an applied or clinical exercise physiologist. (Formerly 5550:615)

EXER:618 Clinical Exercise Testing & Prescription (3 Credits)

This course provides the framework to prepared both the Applied and Clinical Exercise Physiologists for theoretical and practical aspects of fitness assessments, evaluations, testing and prescription. Students will become competent in electrocardiography interpretation and exercise testing protocols. This course will cover performance domain standards and guidelines aligning with the recommendation of the CAAHEP Committee on Accreditation for Exercise Sciences (CoAES) to prepare students for the Exercise Physiology profession. (Formerly 5550:618)

EXER:620 Laboratory Instrumentation Techniques in Exercise (3 Credits)

This is a course designed to provide hands-on laboratory experiences for students in the area of exercise science. (Formerly 5550:620)

EXER:680 Special Topics in Health & Physical Education (2-4 Credits)

(May be repeated) Prerequisite: permission of instructor. Group study of special topics in health and physical education and sports medicine. (Formerly 5550:680)

EXER:695 Field Experience: Masters (1-6 Credits)

Prerequisite: permission of advisor. Participation in a work experience related to physical education. The experience may not be part of current position. Documentation of project required. (Formerly 5550:695)

EXER:697 Independent Study: Physical Education (1-3 Credits)

Prerequisite: Permission of advisor. In-depth analysis of current practices or problems related to physical education. Documentation of the study required. (Formerly 5550:697)

EXER:698 Masters Problem (2-4 Credits)

Prerequisite: permission of advisor. In-depth study of a research problem in education. Student must be able to demonstrate critical and analytical skills in dealing with a problem in physical education. (Formerly 5550:698)

EXER:699 Masters Thesis (4-6 Credits)

Prerequisite: permission of advisor. In-depth research investigation. Student must be able to demonstrate necessary competencies to deal with a research problem in physical education. (Formerly 5550:699)

Physical Education (PHED)

PHED:528 Nutrition for Teachers and Coaches (3 Credits)

Covers nutritional basics and current topics related to teaching physical education/health and coaching athletes. (Formerly 5550:528)

PHED:536 Foundations & Elements of Adapted Physical Education (3 Credits)

Principles, components, and strategies necessary in providing motor activities for handicapped students via application of a neuro-developmental model and alternative methods. Three hour lecture. (Formerly 5550:536)

PHED:546 Instructional Techniques in Secondary Physical Education (3 Credits)

Instructional strategies for secondary physical education. The course content is to improve the teaching skills of students who will be teaching physical education at the secondary level. It is a required course for the physical education licensure. (Formerly 5550:546)

PHED:547 Instructional Techniques for Children in Physical Education (3 Credits)

Instructional strategies for elementary physical education. The course content is to improve the teaching skills of students who will be teaching physical education for children. It is a required course for the physical education licensure. (Formerly 5550:547)

PHED:550 Organization & Administration of Physical Education, Intramurals and Athletics (3 Credits)

General concepts of administration and organization in physical/health education, intramural, and athletic programs. (Formerly 5550:550)

PHED:552 Foundations of Sport Science, Physical and Health Education (3 Credits)

Overview of the emergence of sport science, physical and health education as a profession and the supporting role of underlying scholarly and scientific disciplines. (Formerly 5550:552)

PHED:562 Legal Aspects of Physical Activity (2 Credits)

Overview legal and ethical elements of greatest concern to specialists in sport and physical activity. Cases used to illustrate specific points. Topics vary. (Formerly 5550:562)

PHED:590 Workshop: Physical Education (1-3 Credits)

Practical, intensive, and concentrated involvement with current curricular practices in areas related to physical education. (Formerly 5550:590)

PHED:592 Workshop: Physical Education (1-3 Credits)

Practical, intensive, and concentrated involvement with current curricular practices in areas related to physical education. (Formerly 5550:592)

PHED:594 Student Teaching Colloquium (for Master's Plus Initial Lic.) (2 Credits)

Prerequisites: required physiological foundations courses, required historical/philosophical foundations courses, required program studies courses. Corequisite: PAUS 595. Students who have a bachelor's degree but no teaching licensure and who are completing the master's plus initial licensure program will meet while completing student teaching to discuss concerns about the student teaching experience, to analyze previous learning as it relates to this and future teaching. (Formerly 5550:594)

PHED:595 Practicum: Student Teaching (8 Credits)

Prerequisites: Core courses and program studies courses, each with a 2.5 grade point average. Corequisite: PAUS 594. Student teaching for 16 weeks in primary and secondary school settings. (Formerly 5550:595)

PHED:610 Mastering Teaching and Coaching (3 Credits)

To learn about becoming master teachers and coaches, students will apply effective teaching skills, focus on context, and reflect on the teaching/coaching process. Additional 10 clinical/field hours required. (Formerly 5550:610)

PHED:611 Research & Analysis of Effective Teaching in P.E. (3 Credits)

For the new professional, this course concentrates on research and analysis of skills and professional competencies needed to become an effective teacher of physical education. (Formerly 5550:611)

Sport Studies/Sport Science (SPRT)

SPRT:510 Intro: Sport Sociology (3 Credits)

Provides information to students about the sociological aspects of sport. (Formerly 5550:510)

SPRT:522 Sport Planning/Promotion (3 Credits)

Analysis of marketing/promotions from a sport manager's perspective. Emphasis on marketing strategy, tactics and development in sport delivery systems. (Formerly 5550:522)

SPRT:524 Sports Leadership (3 Credits)

Introduces students to current issues related to leadership, management, and supervision. Examines current sport leadership research and governance structure of amateur and professional sport organizations. (Formerly 5550:524)

SPRT:553 Principles of Coaching (3 Credits)

Basics for becoming a successful coach. Discussion of principles applying to most sports, players and coaches. (Formerly 5550:553)

SPRT:601 Sports Administration & Supervision (3 Credits)

Organizational and administrative efficiency in implementing sports programs (event management, budgeting, public relations); objective and effective procedures for evaluation/selection of personnel; periodic program reviews. (Formerly 5550:601)

SPRT:602 Motor Behavior Applied to Sports (3 Credits)

Coaching education principles related to motor development and motor skill learning. Focus on effective practices for learning and advanced skills teaching for coaches. (Formerly 5550:602)

SPRT:603 Tactics & Strategies in the Science of Coaching (3 Credits)

Course focuses on coaching and teaching the skills, tactics, and strategies in individual and team sports. (Formerly 5550:603)

SPRT:604 Current Issues in Sport and Physical Education (3 Credits)

This course represents a planned experience in interpretation and articulation of information within the context of selected issues in sport. (Formerly 5550:604)

SPRT:609 Motivational Aspects of Physical Activity (3 Credits)

Analysis of factors influencing motivation of motor performance with emphasis on competition, audience effects, aggression. (Formerly 5550:609)

SPRT:630 Business of Sport (3 Credits)

The focus of this course is related to the important knowledge that administrators should have related to the sport business field. (Formerly 5550:630)

Physical Education, Exercise Physiology/Adult Fitness, MS

The student who expects to earn a master's degree in the School of Exercise and Nutrition Sciences is expected to meet the criteria for admission of the Graduate School. Applications for all master's degree programs in the School of Exercise and Nutrition Sciences must be completed and submitted at least six weeks (domestic) or six months (international) before the beginning of the term for which admission is sought in order to allow for adequate processing time.

Exercise Physiology/Adult Fitness Option

This graduate program, requiring a minimum of 34 credits, is designed to prepare students for advanced study in exercise physiology and future employment in adult fitness, corporate fitness and cardiac rehabilitation programs. Special attention is also given to knowledge and practical skills necessary for students preparing for American College of Sports Medicine certifications.

Degree Requirements

Code	Title	Hours
Required Foundation Courses		
EXER:606	Statistics: Quantitative & Qualitative Methods	3
Required Department Courses		
BIOL:565 or EXER:615	Advanced Cardiovascular Physiology Exercise Pathophysiology	3
EXER:618	Clinical Exercise Testing & Prescription	3
EXER:605	Physiology of Muscular Activity & Exercise	3
EXER:607	Health Behavior Change: Theory to Practice	3

EXER:505	Advanced Strength and Conditioning	3
EXER:618	Clinical Exercise Testing & Prescription	3
EXER:620	Laboratory Instrumentation Techniques in Exercise	3
EXER:526	Nutrition for Sports	3
Required Clinical Experience		
Select one of the following:		4
EXER:695	Field Experience: Masters (Minimum of 4 credits)	
EXER:698	Masters Problem	
EXER:699	Masters Thesis (Minimum of 4 credits)	
Electives		
Select at least one of the following:		3
EXER:538	Cardiac Rehab Principles	
EXER:612	General Medical Aspects	
EXER:680	Special Topics in Health & Physical Education	
Total Hours		34

Physical Education, Sport Science/Coaching, MS

Sport Science/Coaching Option

This sport science program option has been designed to meet the needs of individuals interested in advanced training to prepare for a career in the sport industry. Students are prepared to pursue career opportunities in high school, college and recreational sport, coaching and instruction. Additionally, students pursue opportunities related to a career in high school, college or professional sport administration or continue a career in teaching and coaching at the secondary level.

Admission Requirements

In addition to the graduate application and official transcripts applicants must submit a statement of purpose and three letters of recommendation. Applications to the master's program in Sport Science/Coaching must be completed and submitted at least six weeks (domestic) or six months (international) before the beginning of the term for which admission is sought in order to allow for adequate processing time.

Degree Requirements

Code	Title	Hours
Required Foundation Courses		
SPRT:604 or EDFN:624	Current Issues in Sport and Physical Education Seminar in Educational Psychology	3
EDFN:640	Using Research to Inform Practice	3
Required Courses		
PHED:562	Legal Aspects of Physical Activity	2
SPRT:553	Principles of Coaching	3
SPRT:601	Sports Administration & Supervision	3
SPRT:602	Motor Behavior Applied to Sports	3
SPRT:603	Tactics & Strategies in the Science of Coaching	3
SPRT:609	Motivational Aspects of Physical Activity	3
Area of Concentration		
Choose One Area of Concentration in Sport Administration or Coaching:		10-12
<i>Sport Administration</i>		

SPRT:522	Sport Planning/Promotion
SPRT:524	Sports Leadership
SPRT:630	Business of Sport
Select one of the following:	
EXER:695	Field Experience: Masters
EXER:698	Masters Problem
EXER:699	Masters Thesis

Coaching

EXER:540	Injury Management for Teachers & Coaches
PHED:528	Nutrition for Teachers and Coaches
EXER:605	Physiology of Muscular Activity & Exercise
Select one of the following:	
EXER:695	Field Experience: Masters
EXER:698	Masters Problem
EXER:699	Masters Thesis

Electives

Select zero to two credits of the following: 0-2

The following courses are relevant to this degree. The student may select additional courses and/or workshops related to the graduate program.

PHED:590	Workshop: Physical Education
EXER:680	Special Topics in Health & Physical Education

Total Hours 33-37

Nursing

- Acute Care Nurse Practitioner, Certificate (p. 179)
- Adult Gerontological Health Nurse Practitioner Track, MSN (p. 179)
- Adult/Gerontological Nurse Practitioner, Certificate (p. 180)
- Child and Adolescent Acute Care Nurse Practitioner Track, MSN (p. 181)
- Child and Adolescent Health Nurse Practitioner Primary Health Care Track, MSN (p. 182)
- Child and Adolescent Health Nurse Practitioner Primary/Acute Care Track, MSN (p. 183)
- Child and Adolescent Health Nurse Practitioner, Certificate (p. 184)
- Child and Adolescent Health Nursing-Acute Care, Certificate (p. 185)
- Family Nurse Practitioner, Certificate for Certified Adult/Gerontological NPs (p. 185)
- Family Psychiatric/Mental Health Nurse Practitioner Track, MSN (p. 185)
- Family Psychiatric/Mental Health Nurse Practitioner, Certificate (p. 186)
- Nurse Anesthesia Track, DNP (p. 187)
- Nursing Practice, DNP (p. 188)

Nursing (NURS)

NURS:509 International Health (2-3 Credits)

Prerequisite: Admission to MSN program. A comparison of nursing roles and responsibilities in an international environment. The influence of education ethics, government, demography and geography on health care will be considered. (Formerly 8200:509)

NURS:512 Global Perspectives of Health and Health Care (0 Credits)

Prerequisite: Senior or graduate status. (May be repeated for a maximum of 6 credits.) Cultural, political, educational, and economical perspectives of different regions of the world and the impact of these factors on health will be compared and examined. (Formerly 8200:512)

NURS:540 Episodic Primary Care of the Family (4 Credits)

Prerequisites: NURS 608 and NURS 610. Pre/Corequisite: NURS 612. Corequisite: NURS 541. Episodic Primary Care focuses on care of the family throughout the lifespan and treatment of episodic care, wellness, primary, secondary and tertiary care. (Formerly 8200:540)

NURS:541 Episodic Primary Care of the Family Practicum (2 Credits)

Prerequisites: NURS 608 and NURS 610. Pre/Corequisite: NURS 612. Corequisite: NURS 540. Wellness, primary secondary and tertiary care will be the emphasis including health appraisal/risk reduction and common uncomplicated acute illness states of the adult/older adult and family Concepts. Case studies, clinical reasoning and verbal presentations will be incorporated during the practicum experience. (Formerly 8200:541)

NURS:542 Pediatric Primary Care of the Family (4 Credits)

Prerequisites: NURS 608 and NURS 610. Pre/Corequisite: NURS 612. Corequisite: NURS 543. Pediatric Primary Care of the Family focuses on the care of the pediatric patient in the management of medical problems and treatment with emphasis on assessment, diagnosis and pharmacotherapy. (Formerly 8200:542)

NURS:543 Pediatric Primary Care of the Family Practicum (2 Credits)

Prerequisites: NURS 608 and NURS 610. Pre/Corequisite: NURS 612. Corequisite: NURS 542. Care of the pediatric patient in the management of medical problems and treatment with emphasis on assessment, diagnosis and pharmacotherapy incorporating case studies, clinical reasoning papers, and verbal presentations during the practicum experience. (Formerly 8200:543)

NURS:544 Chronic Primary Care of the Family (4 Credits)

Prerequisites: NURS 608 and NURS 610. Pre/Corequisite: NURS 612. Corequisite: NURS 545. Chronic Primary Care of the Family focuses on the management and treatment of chronic medical problems of the family using differential diagnosis and clinical reasoning with emphasis on assessment, diagnosis and pharmacotherapy (Formerly 8200:544)

NURS:545 Chronic Primary Care of the Family Practicum (2 Credits)

Prerequisites: NURS 608 and NURS 610. Pre/Corequisite: NURS 612. Corequisite: NURS 544. Chronic Primary Care of the Family Practicum focuses on the concepts introduced in Chronic Primary Care of the Family. Care of the family in the management of chronic medical problems with emphasis on assessment, diagnosis and pharmacotherapy. Chronic case studies and clinical reasoning papers as well as verbal presentations will be incorporated during the practicum experience. (Formerly 8200:545)

NURS:546 Complex Primary Care of the Family (4 Credits)

Prerequisites: NURS 608 and NURS 610. Pre/Corequisite: NURS 612. Corequisite: NURS 547. Complex Primary Care of the Family focuses on the management and treatment complex chronic and acute health problems of the family with emphasis on assessment, diagnosis, and pharmacotherapy. (Formerly 8200:546)

NURS:547 Complex Primary Care of the Family Practicum (2 Credits)

Prerequisites: NURS 608 and NURS 610. Pre/Corequisite: NURS 612. Corequisite: NURS 546. Care of the family in the management of complex chronic and acute health problems with emphasis on concepts related to assessment, diagnosis and pharmacotherapy. Complex case studies and complex clinical reasoning papers as well as verbal presentations will be incorporate during the practicum experience. (Formerly 8200:547)

NURS:553 School Nurse Practicum I (5 Credits)

Prerequisites: HEDU 521 and HEDU 523. Prerequisite or corequisite: NURS 650. Emphasis on clinical primary health care nursing to enhance positive health behavior outcomes of well children and adolescents with minor conditions in family, community, school contexts. (Formerly 8200:553)

NURS:554 School Nurse Practicum II (5 Credits)

Prerequisite: HEDU 521, HEDU 523, NURS 650, and NURS 553. Emphasis on primary health care nursing to enhance positive health behavior outcomes of children/adolescents with minor common health or behavioral problems and chronic illnesses. (Formerly 8200:554)

NURS:561 Advanced Physiological Concepts in Health Care I (3 Credits)

Prerequisite: Admission to MSN Program. This course presents an in-depth study of physiological processes in the areas of neurological, neuromuscular and cardiovascular physiology and their interrelationship with therapeutic agents. (Formerly 8200:561)

NURS:562 Advanced Physiological Concepts in Health Care II (3 Credits)

Prerequisite: NURS 561. This course presents an in-depth study of physiological processes in the areas of respiratory, renal and endocrine physiology and their interrelationship with therapeutic agents. (Formerly 8200:562)

NURS:589 Special Topics: Nursing (1-4 Credits)

(May be repeated as new topics are presented) Group studies of special topics in nursing. May not be used to meet requirements for the major in nursing. May be used for elective credit. (Formerly 8200:589)

NURS:593 Workshop (1-4 Credits)

(May be repeated as new topics are presented) Selected topics in nursing. May be used to meet undergraduate/graduate requirements at the discretion of the department. (Formerly 8200:593)

NURS:600 Episodic Primary Care of the Family (4 Credits)

Prerequisites: NURS 608, NURS 610, and NURS 612 with grades of B- or better. Episodic Primary Care focuses on care of the patient throughout the lifespan and treatment of episodic care, wellness, primary, secondary and tertiary care. (Formerly 8200:600)

NURS:602 Advanced Adult/Gero Assessment/FNP (2 Credits)

Prerequisites: NURS 608 and admission into the Post MSN FNP Certificate Program for the Pediatric Nurse Practitioner. Advanced adult/gerontological assessment and clinical reasoning for primary health care nursing of adults, with introduction to differential diagnosis and clinical management. (Formerly 8200:602)

NURS:603 Theoretical Basis for Nursing (3 Credits)

Prerequisite: admission to MSN program. Overview of extant nursing science. Evaluation and critique of nursing conceptual models. Analysis of the relationships of theory, research, and practice. (Formerly 8200:603)

NURS:604 Family Assessment Process in Nursing (2 Credits)

Prerequisite: Admission in Graduate Program. Provides advanced practice nurses with information regarding Nursing assessment and interventions techniques that can be used with families in a variety of health care settings. (Formerly 8200:604)

NURS:605 Child & Family Interventions for Psychiatric Nurse Practitioners (3 Credits)

Prerequisites: NURS 610, NURS 611, NURS 650, NURS 661, NURS 665. Introduction to family and child focused interventions related to psychiatric problems. Theories, strategies and evidence-based method with an emphasis upon cognitive-behavioral approaches will be included. (Formerly 8200:605)

NURS:606 Information Management in Advanced Nursing Practice (3 Credits)

Prerequisites: Admission to the MSN Program and STAT 661 or equivalent graduate level statistics course. Pre/Corequisite: NURS 619. This course is focused on nursing informatics to support clinical-decision making in advanced practice and administration. (Formerly 8200:606)

NURS:607 Policy Issues in Nursing (2 Credits)

Prerequisite: Admission to MSN program. Analysis of policy issues that impact on nursing and health care delivery to diverse population(s). Examine methods to shape policy, distribution, and allocation of resources. (Formerly 8200:607)

NURS:608 Pathophysiological Concepts of Nursing Care (3 Credits)

Prerequisite: Admission to MSN program. In-depth study of pathological conditions and related treatment modalities. The course focuses on specific nursing interventions related to these pathophysiological abnormalities. (Formerly 8200:608)

NURS:609 Advanced Pathophysiology for Nurse Anesthetist (3 Credits)

Prerequisite: admission to the MSN program. In-depth study of pathological conditions and related treatment modalities. The course focuses on specific nursing interventions related to these pathophysiological abnormalities. (Formerly 8200:609)

NURS:610 Advanced Health Assessment (3 Credits)

Prerequisites: Admission to one of the Advanced Practice Nursing tracks or permission of instructor and NURS 608. Advanced assessment and clinical reasoning for primary health care nursing of individuals across lifespan, with introduction to differential diagnosis and clinical management. (Formerly 8200:610)

NURS:611 Advanced Mental Health Assessment Across the Lifespan (3 Credits)

Prerequisite: NURS 608 or permission of instructor. Concepts related to psychoneuroimmunology will be examined with application to differential diagnosis of behavioral health disorders commonly used by advanced practice behavioral health nurses. (Formerly 8200:611)

NURS:612 Advanced Clinical Pharmacology (3 Credits)

Prerequisites: Admission to MSN program and NURS 608. Examines principles of pharmacology and therapeutics for major pharmacological agents used by advanced practice nurses to manage common health problems in primary care settings. (Formerly 8200:612)

NURS:613 Nursing Inquiry I: Promoting a Spirit of Inquiry (3 Credits)

Prerequisites: admission to MSN program. Concepts and ethical issues relating to scientific inquiry are examined, emphasizing the phases of the research process. Students participate in critical analysis of nursing research. (Formerly 8200:613)

NURS:614 Advanced Concepts for Family Psychiatric-Mental Health Nurse (3 Credits)

Prerequisites: NURS 610 and NURS 611 (may be taken concurrently) and Acceptance into the Psychiatric Family Nurse Practitioner track or permission of the course faculty. Examination and application of theories for individual, groups and families with complex psychiatric-mental health needs. Emphasis upon development of advanced competencies in conceptualizing and planning interventions. Phenomena from case studies will be used. (Formerly 8200:614)

NURS:615 Family Psychiatric Mental Health Nurse Practitioner: Child/Family (3 Credits)

Prerequisites: NURS 662, NURS 697, and NURS 698. Corequisite: NURS 689. Family/Child focused interventions for psychiatric problems including examination and application of theories for children, adolescents, and families with complex psychiatric-mental health needs. (Formerly 8200:615)

NURS:616 Advanced Pediatric/Adolescent Assessment/FNP (2 Credits)

Prerequisites: NURS 608. Ohio Certificate of Authority as an Adult Nurse Practitioner. Advanced pediatric/adolescent assessment and clinical reasoning for primary health care nursing with introduction to differential diagnosis and clinical management for FNP practice. (Formerly 8200:616)

NURS:617 Advanced Pharmacology:Child/Adolescent Health Nursing/FNP (2 Credits)

Prerequisites: NURS 608 or equivalent course. Certified Adult or Gerontological Nurse Practitioner with Certificate of Authority to practice in Ohio. Emphasis on major categories of pharmacological agents, class of agents, influencing developmental outcomes of children/adolescents in ambulatory, acute and chronic care environments for FNPs. (Formerly 8200:617)

NURS:618 Nursing Inquiry II (3 Credits)

Prerequisite: NURS 613. Emphasis on development of competencies in scientific inquiry. Research practicum will involve a) a pilot study; or b) participation in faculty research. (Formerly 8200:618)

NURS:619 Principles of Evidence Based Practice (3 Credits)

Prerequisite: Admission to the graduate program. Exploration of the role of nursing research on the profession, how evidence-based practice is guided by research to improve nursing practice. (Formerly 8200:619)

NURS:620 Adult/Gerontological Health Nursing NP I (2 Credits)

Prerequisite: Admission to the Adult/Gerontological Nurse Practitioner track or Post-MSN certificate program; prerequisite or corequisite: NURS 610. Research and theory integral to advanced nursing practice of adults/older adults/families with selected common health problems. Emphasis on comprehensive assessment, health promotion, and risk reduction. (Formerly 8200:620)

NURS:621 Adult/Gerontological Health Nursing NP II (2 Credits)

Prerequisites: NURS 610, NURS 620 or its equivalent for the Post-MSN, and NURS 627. Prerequisite or corequisite: NURS 612. Corequisites: NURS 628 and NURS 690. Focuses on problems common to acute illness in adults, older adults in acute, episodic care settings. Multidisciplinary care planning and coordination are emphasized, including transition to community-based care. (Formerly 8200:621)

NURS:622 Adult/Gerontological Health Nursing NP III (2 Credits)

Prerequisites: NURS 621 or the equivalent for the Post-MSN, NURS 628, and NURS 690. Corequisites: NURS 629 and NURS 692. Focuses on nursing care of middle aged/older adults and their families experiencing chronic illness. Emphasizes management of problems common to chronic care and rehabilitation. (Formerly 8200:622)

NURS:624 Adult/Gerontological Health Nursing NP IV (1 Credit)

Prerequisites: NURS 622, NURS 629, and NURS 692. Corequisites: 8200:623 and NURS 694. Integration of knowledge and skills for a population of adults/older adults with emphasis on problems of increasing complexity. Issues integral to APN practice are addressed. (Formerly 8200:624)

NURS:625 Primary Care of the OB Patient/FNP (1 Credit)

Prerequisites: COUN 648, NURS 602, and NURS 612. Application of evidence-based knowledge in the promotion of health and wellness of women during normal pregnancy. Emphasis is on assessment and clinical management of pregnancy. (Formerly 8200:625)

NURS:626 Adult/Gero NP Residency (1-4 Credits)

Prerequisites: NURS 602 and NURS 612 or its equivalent. Corequisites: NURS 620 and NURS 622. Intensive clinical residency to enhance competencies in primary care of adults/elders. Emphasis on positive health behavior outcomes and complex primary health care problems. (Formerly 8200:626)

NURS:627 Adult/Gerontological Health Nursing NP I Practicum (2 Credits)

Prerequisite: admission to the Adult/Gerontological Nurse Practitioner Program or Post-MSN certificate program; prerequisite or corequisite: NURS 610; corequisite: NURS 620 or its equivalent for Post MSN. Practicum with emphasis on comprehensive assessment, health promotion, and risk reduction of the adult/older adult. (Formerly 8200:627)

NURS:628 Adult/Gerontological NP II Practicum (2 Credits)

Prerequisites: admission to Adult/Gerontological NP track or Post-MSN certificate program, NURS 620 or its equivalent to Post-MSN, and NURS 627. Corequisites: NURS 621 or its equivalent for the Post-MSN and NURS 690. Practicum with emphasis on health appraisal/risk reduction and common, uncomplicated acute or chronic illness states of the adult/older adult/families. (Formerly 8200:628)

NURS:629 Adult Gerontological Health Nursing NP III Practicum (2 Credits)

Prerequisites: 8200:628 and NURS 690. Corequisite: NURS 692. Practicum with emphasis on complex chronic illness states and Comorbidities of the adult/older adult. (Formerly 8200:629)

NURS:630 Resource Management in Nursing Settings (3 Credits)

Prerequisite: Admission to Graduate Program or permission of instructor. Examines management of fiscal and human resources in nursing service settings; analyzes impact of economics and labor relations on health and nursing care. (Formerly 8200:630)

NURS:631 Adult/Gero Health Nursing NP IV Practicum (2 Credits)

Prerequisites: Admission to the Adult/Gerontological Nurse Practitioner track or Post-Master's certificate program, NURS 622, NURS 629, and NURS 692. Corequisites: NURS 624 and NURS 694. Synthesis of Adult/Gerontological Nurse Practitioner content. Emphasis on implementation and evaluation of program interventions. Practicum emphasizes severe acute and chronic illness states. (Formerly 8200:631)

NURS:632 Fiscal Management for Nursing Administration (3 Credits)

Prerequisite: Admission to Graduate Program or permission of instructor. Examines management of fiscal resources in nursing service settings. (Formerly 8200:632)

NURS:633 Leadership in Nursing Organizations I (3 Credits)

Prerequisites or corequisites: NURS 630, NURS 632, and NURS 635. Leadership and management theories are utilized to guide practice in the role of nurse administrator. (Formerly 8200:633)

NURS:634 Leadership in Nursing Organizations II (3 Credits)

Prerequisites: NURS 633 and NURS 638. Leadership and management theories are utilized to guide study of the role of nurse administrator. (Formerly 8200:634)

NURS:635 Organizational Behavior in Nursing Settings (3 Credits)

Prerequisites: Admission to Graduate Program or permission of instructor. Examines organizational behavior theories/principles related to systems analysis and assessment of organizational structure in nursing settings. (Formerly 8200:635)

NURS:636 Adult/Gerontological Health Nursing CNS Residency (2-4 Credits)

Prerequisites: 8200:673 and 8200:679. This clinical residency focuses on components of influencing change, systems thinking, leadership within a multidisciplinary collaborative environment using outcome measurement and evaluation. (Formerly 8200:636)

NURS:637 Nurse Anesthesia Residency I (4 Credits)

Prerequisites: NURS 644 and NURS 645. This course introduces the second year student to the art and science of both obstetrical and pediatric anesthesia related theory, research, and practice. (Formerly 8200:637)

NURS:638 Practicum: Nursing Administration I (2 Credits)

Prerequisites: Admission to Graduate Program or permission of instructor. Corequisite: NURS 633. Leadership and management theories are utilized to guide practice in the role of nurse administrator. (Formerly 8200:638)

NURS:639 Practicum: Nursing Administration II (2 Credits)

Prerequisites: NURS 633 and NURS 638. Corequisite: NURS 634. Leadership and management theories are utilized to guide study of the role of nurse administrator. (Formerly 8200:639)

NURS:640 Scientific Components of Nurse Anesthesia (3 Credits)

Prerequisite: admission into the Nurse Anesthesia program. The course presents content dealing with the chemical and physical components of anesthesia agents. (Formerly 8200:640)

NURS:641 Advanced Pharmacology for Nurse Anesthesia I (3 Credits)

Prerequisite: NURS 640. The study of intravenous induction agents, injectable analgesics and inhaled anesthetics commonly used in the administration of general anesthesia. Includes use of muscle relaxants. (Formerly 8200:641)

NURS:642 Anesthesia Techniques, Procedures, and Simulation Lab (4 Credits)

Prerequisite: Admission into the Nurse Anesthesia program. This course provides a general overview of anesthetic concepts and prepares students for their in-hospital residency. The course includes a lecture component and selected laboratory experiences. (Formerly 8200:642)

NURS:643 Advanced Health Assessment and Principles of Nurse Anesthesia I (4 Credits)

Prerequisite: NURS 640. This course focuses on the acquisition of basic skills related to nursing anesthesia care and administration of anesthesia agents, with a focus on equipment. (Formerly 8200:643)

NURS:644 Advanced Pharmacology for Nurse Anesthesia II (3 Credits)

Prerequisite: NURS 641. Focuses on mechanisms of drug transport within the human body for inhaled and injected medications. The effects of accessory drugs are also discussed. (Formerly 8200:644)

NURS:645 Advanced Health Assessment and Principles of Anesthesia II (4 Credits)

Prerequisite: NURS 643. Emphasis on pre-operative anesthesia care including induction techniques. Discusses airway management, fluid therapy, and ventilator use. (Formerly 8200:645)

NURS:646 Nurse Anesthesia Residency II (4 Credits)

Prerequisite: NURS 637. Concentration on the theoretical basis for specific nursing interventions and the rationale for their use in thoracic anesthesia, cardiac anesthesia, vascular anesthesia, and neurosurgical anesthesia management. (Formerly 8200:646)

NURS:647 Professional Roles for Nurse Anesthesia (2 Credits)

Prerequisites: NURS 644 and NURS 645. Discusses issues, concepts and theories related to the professional role of nurse anesthetists. Focuses on leadership/management content as well as professional ethical issues. (Formerly 8200:647)

NURS:648 Nurse Anesthesia Residency III (4 Credits)

Prerequisite: NURS 646. Focuses on the understanding of physiologic and pathophysiologic principles of particular organ systems and the relevant implication that govern anesthetic management. (Formerly 8200:648)

NURS:649 Nurse Anesthesia Residency IV (4 Credits)

Prerequisite: NURS 648. Comprehensive review of basic and advanced anesthetic concepts important to the entry-level nurse anesthetist. (Formerly 8200:649)

NURS:650 Advanced Pediatric/Adolescent Assessment (3 Credits)

Prerequisites: acceptance to Child and Adolescent Health Nursing track or permission of faculty and NURS 608. Corequisite: NURS 651. Advanced pediatric/adolescent assessment and clinical reasoning for primary health care nursing with introduction to differential diagnosis and clinical management. (Formerly 8200:650)

NURS:651 Child & Adolescent Health Nursing I (3 Credits)

Primary health care nursing to enhance positive health behavior outcomes of well children/adolescents and those with minor health disruptions and problems in family/community contexts. (Formerly 8200:651)

NURS:652 Child and Adolescent Health Nursing I Practicum (2 Credits)

Prerequisite: Admission into Child and Adolescent Health Nursing NP track or Post-MSN Child and Adolescent Health NP program. Clinical practicum course emphasizing primary health care nursing to enhance positive health behavior outcomes of well children/adolescents and those with minor health disruption/problems in family/community contexts. (Formerly 8200:652)

NURS:653 Child and Adolescent Health Nursing II Practicum (2 Credits)

Prerequisite: NURS 651. Clinical practicum course emphasizing primary health care nursing to enhance positive health behavior outcomes of children, adolescents with acute and/or chronic health disruption in family/community contexts. (Formerly 8200:653)

NURS:654 Child and Adolescent Health Nursing III Practicum (2 Credits)

Prerequisite: NURS 655. Clinical practicum course emphasis on advanced practice in primary health care using consultation and program development, marketing related to development and health behavior outcomes of children, adolescents and families. (Formerly 8200:654)

NURS:655 Child & Adolescent Health Nursing II (3 Credits)

Emphasis on primary health care nursing to enhance positive health behavior outcomes of children/adolescents with acute and/or chronic health disruptions in family/community contexts. (Formerly 8200:655)

NURS:656 Pharmacology for Child & Adolescent Health Nursing (3 Credits)

Prerequisite: Admission to Graduate Program. Emphasis on major categories of pharmacological agents, that influence developmental outcomes of children/adolescents in ambulatory, acute and chronic care environments. (Formerly 8200:656)

NURS:657 Child & Adolescent Health Nursing III (3 Credits)

Emphasis on advanced practice in primary health care using consultation and program development/marketing related to developmental and health behavior outcomes of children/adolescents and families. (Formerly 8200:657)

NURS:658 Child & Adolescent Health NP Residency (1-4 Credits)

Prerequisites/corequisites: Post-MSN CAH certification program students--NURS 651 and NURS 655 or MSN CAH students: NURS 655 and NURS 657. Opportunity for the advanced graduate nursing practitioner in Child and Adolescent Health. (Formerly 8200:658)

NURS:659 Child and Adolescent Health Nursing IV Practicum (2 Credits)

Prerequisite: NURS 657. Clinical practicum emphasizing integration of knowledge and skills with specific populations of vulnerable children/adolescents and their families. Emphasis on implementation of programmatic interventions and evaluation. (Formerly 8200:659)

NURS:660 Family Psychiatric Mental Health Nurse Practitioner I (2 Credits)

Prerequisites: NURS 608, NURS 610, and NURS 650. Corequisites: NURS 611 and NURS 661. Development of clinical competencies and therapeutic techniques in the delivery of behavioral health care to individuals. Includes 150 hours of clinical practice with a Psychiatric Advanced Practice Nurse Preceptor. (Formerly 8200:660)

NURS:661 Psychiatric Mental Health, APN I (3 Credits)

Prerequisites: Admission to Behavioral Health track, NURS 608, NURS 610, and NURS 650. Corequisites: NURS 611 and NURS 660. Concepts and theories of mental health promotion and disease prevention for individuals and families will be explored with emphasis upon interviewing and integrated treatment. (Formerly 8200:661)

NURS:662 Clinical Psychopharmacology (3 Credits)

Prerequisites: NURS 608, NURS 611, or instructor permission. Examines principles of neuroscience, pharmacology and therapeutics for psychopharmacologic agents used to manage adult mental health problems in variety of treatment settings. (Formerly 8200:662)

NURS:663 Psychiatric Mental Health APN Internship (1-4 Credits)

Prerequisites: NURS 661 and NURS 665. Focuses on behavioral health interventions with families and groups. Theoretical frameworks for direct intervention are examined. (Formerly 8200:663)

NURS:664 Psychiatric Mental Health-Acute, APN II Practicum (2 Credits)

Prerequisites: NURS 610, NURS 660, and NURS 661. Corequisite: NURS 665. Development of clinical competencies in direct intervention therapies with families/groups experiencing the stress of actual or potential health problems. (Formerly 8200:664)

NURS:665 Psychiatric Mental Health-Acute, APN II (3 Credits)

Prerequisites: NURS 610, NURS 660, and NURS 661. Corequisite: NURS 664. Focuses on advanced practice behavioral health nursing with families/groups experiencing the stress of actual or potential health problems. Theoretical frameworks for direct intervention are examined. (Formerly 8200:665)

NURS:666 Psychiatric Mental Health Post MSN Residency (1-4 Credits)

Prerequisites: NURS 662 and NURS 665. Corequisites: NURS 665 and NURS 667. This clinical residency focuses on influencing leadership within a multidisciplinary collaborative environment in complex health systems providing individuals/clients, families and groups with psychiatric mental health care. (Formerly 8200:666)

NURS:667 Psychiatric Mental Health-Chronic, APN III (3 Credits)

Prerequisites: NURS 664 and NURS 665. Corequisite: NURS 668. Focuses on consultation, collaboration, and program development in behavioral health nursing. Frameworks for practice in psychiatric and non-psychiatric settings are discussed. (Formerly 8200:667)

NURS:668 Psychiatric Mental Health-Chronic, APN III Practicum (2 Credits)

Prerequisites: NURS 664 and NURS 665. Corequisite: NURS 667. Development of clinical competencies in consultation, collaboration, and program development in behavioral health nursing practice. Practice is in psychiatric and non-psychiatric settings. (Formerly 8200:668)

NURS:669 Family Psychiatric Mental Health NP. Role Synthesis Practicum (2 Credits)

Prerequisites: NURS 615 and NURS 689. Corequisite: NURS 670. Integration of knowledge and skill related to behavioral health nursing: emphasizes integration of advanced practice nursing roles and implementation and evaluation of a programmatic intervention. (Formerly 8200:669)

NURS:670 Family Psychiatric Mental Health NP. Role Synthesis (3 Credits)

Prerequisites: NURS 615 and NURS 689. Corequisite: NURS 669. Integration of knowledge and skill related to behavioral health nursing: emphasizes integration of advanced practice nursing roles and implementation and evaluation of a programmatic intervention. (Formerly 8200:670)

NURS:672 Independent Study: Nursing (1-4 Credits)

Opportunity for advanced graduate nursing practice in a selected area of specialization. (Formerly 8200:672)

NURS:680 Child and Adolescent Health Nursing IV (3 Credits)

Prerequisite: NURS 657. Integration of evidenced based knowledge and skills related to programmatic interventions and evaluation in primary health care nursing with a specified population of vulnerable children/adolescents and their families. (Formerly 8200:680)

NURS:685 Child and Adolescent Health Nursing - Acute Care III (3 Credits)

Prerequisites: NURS 653 and NURS 655. Advanced practice in acute/critical intensive care areas with children with complex acute/critical/chronic conditions, responding to rapidly changing clinical conditions, recognizing/ managing emerging crises, organ dysfunction and failure. (Formerly 8200:685)

NURS:686 Child and Adolescent Health Nursing - Acute Care III Practicum (2 Credits)

Prerequisites: NURS 653 and NURS 655. Clinical practicum emphasizing advanced practice in acute/critical intensive areas with children with complex acute/critical/chronic conditions, responding to rapidly changing conditions, recognizing/managing emerging crises, organ dysfunction and failure. (Formerly 8200:686)

NURS:687 Child/Adolescent Health Nursing-Acute Care IV (3 Credits)

Prerequisites: NURS 685 and NURS 686. Integration of knowledge/skills in acute care with children with complex, acute/critical/chronic conditions. Emphasis on stabilization, minimizing complications, providing physical/psychological care to restore maximal health potential and reduce health risks. (Formerly 8200:687)

NURS:688 Child and Adolescent Health Nursing-Acute Care IV Practicum (2 Credits)

Clinical practicum to integrate knowledge/skills in acute care with children with complex/acute/critical/chronic conditions. Emphasis on stabilization strategies to minimize complications, providing physical/psychological care, restoring maximal health to reduce health risks. (Formerly 8200:688)

NURS:689 Family Psychiatric Mental Health Nurse Practitioner. Child/Family Practicum (2 Credits)

Prerequisites: NURS 697 and NURS 698. Corequisite: NURS 615. Focuses on behavioral health interventions with children, adolescents, and families. Clinical practicum in behavioral health interventions with children, adolescents, and families. 150 hours of clinical practice. (Formerly 8200:689)

NURS:690 Clinical Management I (3 Credits)

Prerequisites: admission to the Adult/Gerontological Nursing Practitioner track or the Post-MSN Adult/Gerontological NP certificate program, NURS 620 or its equivalent for the Post-MSN, and NURS 627. Corequisites: NURS 621 and NURS 628. Clinical Management of common chronic and acute problems of adults in primary health care settings. Focus on episodic management using differential diagnosis and clinical reasoning. (Formerly 8200:690)

NURS:691 Acute Care Nurse Practitioner I (4 Credits)

Prerequisites: NURS 608, NURS 610, and NURS 612. Focuses on common chronic and acute problems of adults in primary/tertiary health care settings. Emphasis on health promotion and risk assessment. (Formerly 8200:691)

NURS:692 Clinical Management II (3 Credits)

Prerequisites: NURS 621 or its equivalent for the Post-MSN, and NURS 628. Corequisites: NURS 622 and NURS 629. Clinical Management of complex, chronic health problems of adults in primary health care settings. Focus on long term management using differential diagnosis and clinical reasoning. (Formerly 8200:692)

NURS:693 Acute Care Nurse Practitioner II (4 Credits)

Prerequisite: NURS 691. Corequisite: NURS 692. Focus is on advanced nursing interventions related to system specific health care problems of adults in tertiary care settings. (Formerly 8200:693)

NURS:694 Clinical Management III (3 Credits)

Prerequisites: NURS 622 or its equivalent for Post-MSN, and NURS 629. Corequisites: 8200:623 and NURS 624. Clinical Management of complex health problems of adults/older adults using consultation, collaboration, and referral in selected primary health care settings. (Formerly 8200:694)

NURS:695 Acute Care Nurse Practitioner III (4 Credits)

Prerequisite: NURS 693. Corequisite: NURS 696. Focus of the course is on nursing management of patients with complex health care problems. (Formerly 8200:695)

NURS:696 Clinical Reasoning (1 Credit)

Prerequisite: NURS 693. Corequisite: NURS 695. Focus is on integration of abnormal laboratory, radiologic and morphologic findings as they relate to advanced nursing care of the acutely ill individual. (Formerly 8200:696)

NURS:697 Psychiatric Disorders Across Lifespan and Group Modalities Practicum (2 Credits)

Prerequisites: NURS 611, NURS 660, and NURS 661. Corequisites: NURS 662 and NURS 698. Development of clinical competencies in consultation, collaboration, and program development with groups in behavioral health nursing practice. 150 hours of clinical practice in psychiatric and non-psychiatric settings. (Formerly 8200:697)

NURS:698 Psychiatric Disorders Across the Lifespan and Group Modalities (3 Credits)

Prerequisites: NURS 611, NURS 660, and NURS 661. Corequisites: NURS 662 and NURS 697. Explore concepts related to the management of psychiatric disorders with an emphasis on combining psychotherapy, pharmacology, and complementary/alternative approaches with group modalities. (Formerly 8200:698)

NURS:699 Masters Thesis (1-6 Credits)

Prerequisite: NURS 613. Supervised research in a specific area of advanced nursing. (Formerly 8200:699)

NURS:700 Information Management in Health Care (3 Credits)

Prerequisites: Doctoral standing or special approval from the department. This course focuses on nursing informatics to support clinical decision making in advanced nursing practice. (Formerly 8200:700)

NURS:701 Advanced Seminar in Clinical Genomics and Health (3 Credits)

Prerequisites: Admission to the DNP program or permission of the Department of Nursing graduate program. A focus on genetics and genomics analyzing the essentials of advanced practice care and genetic diagnostics, therapies, and counseling in area of interest. (Formerly 8200:701)

NURS:703 Classroom Teaching (4 Credits)

Prerequisite: Admission to the Nursing Education Certificate program, Post-Baccalaureate. You should also possess the basic technical skills necessary to participate in an online course. (Formerly 8200:703)

NURS:704 Clinical Teaching & Evaluation (4 Credits)

Prerequisite: Admission to the Nursing Education Certificate Program, Post Baccalaureate. This course focuses on teaching in clinical and learning resource center (LRC) settings and basic principle of online education. Application of principles will be demonstrated in a practicum based clinical and learning resource center setting. Student evaluations in the clinical setting will be addressed. (Formerly 8200:704)

NURS:705 Clinical Nurse Scholar I (3 Credits)

Prerequisites: NURS 603 and doctoral standing or approval from the Department of Nursing graduate program. Transition to clinical scholar leader role with emphasis on epistemology guiding advanced practice. Integration of theory and evidenced-based practice principles to achieve health outcomes. (Formerly 8200:705)

NURS:706 Clinical Nurse Scholar II (4 Credits)

Prerequisites: NURS 700 and NURS 705. Translation and integration of theory and scientific evidence guiding clinical practice using culturally sensitive approaches to design innovative interventions. (Formerly 8200:706)

NURS:707 Clinical Scholar Residency (3 Credits)

Prerequisite: NURS 706. Synthesis of components of clinical scholar leader role comprises residency. Advanced leadership and clinical scholarship skills used to develop and evaluate approaches to healthcare problems. (Formerly 8200:707)

NURS:708 DNP Project I (3 Credits)

Prerequisite: NURS 705. Corequisite: NURS 706. Faculty-preceptor-directed project that will contribute to nursing practice knowledge. Includes oral defense and publishable manuscript. May register for 2 to 6 hours. (Formerly 8200:708)

NURS:709 DNP Project II (3 Credits)

Prerequisite: NURS 708. This course guides the completion of a faculty and preceptor-directed clinical project that contributes to nursing practice knowledge. Culminates in an oral defense of the project and a publishable manuscript. (Formerly 8200:709)

NURS:710 Advanced Healthcare Statistics (3 Credits)

Prerequisite: Admission to DNP program. The course focuses on an in depth examination of descriptive statistics, correlation, regression, multiple regression sets, scaling, nonlinear transformation, missing data, and interactive effects; including manipulation of data, integrating understanding of inference and probability. (Formerly 8200:710)

NURS:711 Nursing Curriculum Development (2 Credits)

Prerequisite: Admission to the Nursing Education Certificate, post-baccalaureate. Students should also possess the basic technical skills necessary to participate in an online course. (Formerly 8200:711)

NURS:712 Fiscal Management in Healthcare (3 Credits)

This course examines the role and the required skills for the Doctor of Nursing Practice (DNP) graduate as a nurse leader in the understanding of the business acumen and the financials of health care. (Formerly 8200:712)

NURS:713 Advanced Leadership in Health Care (3 Credits)

Prerequisite: Doctoral standing or special approval from department. This course focuses on leadership competencies of doctoral-prepared advanced practice nurses. (Formerly 8200:713)

NURS:714 Synthesis and Application of Evidence for Advanced Practice Nurses (3 Credits)

Prerequisite: Doctoral standing or special approval from department/admission to the program. This course focuses on concepts, models and methods for implementation of evidence-based nursing practice at both individual clinician and system levels. (Formerly 8200:714)

NURS:715 Fundamentals of Public Health Epidemiology (3 Credits)

This course introduces principles, methods, and application of epidemiology. The course covers the history of epidemiology, concepts of disease causation and prevention, measures of disease frequency and excessive risk, epidemiologic study designs, causal inference, and epidemiological methods to identify and estimate public health problems and to work out effective solutions for these problems. (Formerly 8200:715)

NURS:800 Doctoral Dissertation II (1 Credit)

Prerequisite: NURS 899 and permission of the dissertation chairperson. Continuing enrollment to complete the doctoral dissertation research. (Formerly 8200:800)

NURS:810 History & Philosophy of Nursing Science (3 Credits)

Prerequisite: Admission to the Ph.D. Program or permission of the professor. Examines the nature of metaphysics and epistemology and the influence of contemporary Eastern and Western philosophies on the developing epistemology of disciplinary nursing knowledge. (KSU 70710) (Formerly 8200:810)

NURS:815 Theory Construction & Development in Nursing (3 Credits)

Prerequisites: Admission to the Ph.D. Program and NURS 810. Examines strategies for theory development including logical-empirical-deductive and inductive approaches. Emphasis will be on elements and strategies used in theory building. (KSU 70715) (Formerly 8200:815)

NURS:820 Introduction to Nursing Knowledge Domains (3 Credits)

Prerequisites: NURS 815, NURS 825 and NURS 830. Introductory seminar analyzing selected theoretical and methodological approaches to knowledge development in nursing. Emphasis on critical analysis of knowledge in areas of special interest. (Formerly 8200:820)

NURS:824 Foundations of Scholarly Inquiry in Nursing (3 Credits)

Prerequisites: Admission to the Doctoral Program, Permission of Instructor. Corequisite: NURS 810. This course examines diverse paradigms and research methods as the foundation for scholarly inquiry in nursing knowledge development. Students begin building a foundation for focused intellectual inquiry in a substantive area of nursing. (Formerly 8200:824)

NURS:825 Quantitative Research Methods (3 Credits)

Prerequisite: Admission to the Ph.D. Program or permission of the professor. Extends students' knowledge of the theory and practice of quantitative research in nursing. Focus is on the major types of quantitative design in nursing science. Theoretical and procedural issues related to design, measurement and data management with a substantive area of nursing inquiry are emphasized. (Formerly 8200:825)

NURS:827 Advanced Healthcare Statistics I (3 Credits)

Prerequisite: Admission to the Ph.D. Program or permission of the professor. Prerequisite or corequisite: NURS 825. Comprehension of bivariate and multivariate descriptive and inferential statistics designed for nurse researchers. Applications to research problems in nursing. (Formerly 8200:827)

NURS:830 Qualitative Research Methods (3 Credits)

Prerequisite: Admission to the Ph.D. Program or permission from the instructor. Selected qualitative research methods used to study nursing phenomena. Philosophical bases; design, data collection and analysis; evaluation of rigor; and ethical issues for major qualitative methods will be analyzed with regard to nursing phenomena. (KSU 70730) (Formerly 8200:830)

NURS:835 Nursing & Health Care Policy (3 Credits)

Prerequisite: Admission to the Ph.D. Program or permission of the professor. Critical examination of theories and processes of formulating state/national health care policy. Focus on health issues, the political and legislative process, and contemporary policy dilemmas. (KSU 70735) (Formerly 8200:835)

NURS:836 Advanced Interdisciplinary Leadership for the Health Science (4 Credits)

Prerequisite: Admission to the PhD program or permission of instructor. Seminar on advanced leadership in healthcare and the health sciences to assist students to become leaders within practice, academe, and the community. (Formerly 8200:836)

NURS:837 Advanced Healthcare Statistics II (3 Credits)

Prerequisite: NURS 827 and admission to the Ph.D. Program or permission of instructor. Application of bivariate and multivariate descriptive and inferential statistics to research problems in nursing. (Formerly 8200:837)

NURS:840 Nursing Science Seminar I (3 Credits)

Prerequisite: NURS 820. Seminar on critical analysis and synthesis of theoretical models and empirical research that form the foundation for the student's research. Funding sources are examined. (KSU 86091, 86191, 86291, 86391) (Formerly 8200:840)

NURS:845 Advanced Methods for Research (3 Credits)

Prerequisites: NURS 825, NURS 827, and admission to the PhD program. Prerequisite or Corequisite: NURS 837. Focuses on integration and application of components of quantitative research design in nursing through application of multivariate design principles to existing data sets. Advanced topics in methods, statistics, and measurements are addressed. (Formerly 8200:845)

NURS:846 AMNR: Measurement in Nursing Research (3 Credits)

Prerequisite: NURS 820. Theories and concepts related to measurement and nursing research including techniques for construction, testing, and refining of instruments with assessment of reliability and validity. (Formerly 8200:846)

NURS:847 AMNR: Application of Qualitative Methods (3 Credits)

Prerequisite: NURS 820. Theory, data collection and analysis used in qualitative nursing research with a focus on phenomenology, grounded theory and ethnography. (Formerly 8200:847)

NURS:848 AMNR: Program Evaluation in Nursing (3 Credits)

Prerequisite: NURS 820. Seminar and lecture: analysis of theories and models of program evaluation and their relationships to designs, processes, techniques, and outcomes in nursing-related evaluations. (Formerly 8200:848)

NURS:849 AMNR: Grant Development and Funding (3 Credits)

Prerequisite: NURS 820. Advanced seminar on critical analysis of proposal and grant development, funding, peer review, and advocacy process with emphasis on the development of a grant proposal. (Formerly 8200:849)

NURS:850 Nursing Science Seminar II (3 Credits)

Prerequisite: NURS 820 and NURS 840. Seminar on advancement and development of scholarship through critical evaluation of scientific work. (Formerly 8200:850)

NURS:883 Evaluation of Nursing Education (3 Credits)

Application of evaluation and measurement principles to nursing education. Emphasis on evaluation as both process and outcome. Includes evaluation of program, curriculum, course, and learner. (Formerly 8200:883)

NURS:884 Practicum: Academic Role of the Nurse Educator (3 Credits)

Prerequisites: NURS 883. Precepted study and practice in classroom and clinical teaching. Presentation of a researchable topic. Course may be waived based on submission of an approved portfolio. (Formerly 8200:884)

NURS:892 Field Experience in Nursing (1-12 Credits)

Prerequisite: Admission to the Ph.D. program or permission of instructor. Individual enrollment in field experience, practicum, or internship settings related to nursing. (Formerly 8200:892)

NURS:895 Special Topics in Nursing (2-6 Credits)

Study of important topics in nursing practice, research, or the profession. Offering in response to existing interests and opportunities. Topics will be announced when scheduled. (Formerly 8200:895)

NURS:896 Individual Investigation in Nursing (1-3 Credits)

Prerequisite: Admission to the Ph.D. program or permission of instructor. Individual enrollment for independent study in nursing carried out by student under supervision of a doctoral faculty council member. (Formerly 8200:896)

NURS:898 Research in Nursing (1-15 Credits)

Prerequisite: Admission to the Ph.D. program or permission of instructor. Research carried out by a student under faculty supervision. In-depth inquiry should result in a paper or appropriate product. (Formerly 8200:898)

NURS:899 Doctoral Dissertation (1-15 Credits)

Prerequisite: Advancement to candidacy. (May be repeated.) Independent dissertation research under the guidance of a faculty chairperson and a dissertation committee. (KSU 80199) (Formerly 8200:899)

Acute Care Nurse Practitioner, Certificate

The Post-Master's Acute Care Nurse Practitioner certificate program prepares acute care nurse practitioners to provide advanced practice nursing care to acutely and/or critically ill adults. The program requires one calendar year of intense study including advanced clinical practice and theory. The program is built upon a core of advanced assessment, pathophysiology, and pharmacology. Acute Care Nurse Practitioners are prepared to conduct comprehensive physical assessments, appraise health risks and promote health behaviors, order and interpret diagnostic tests, diagnose and manage commonly occurring health problems and diseases. The program consists of 16 credits of graduate level course work and 525 hours of clinical practice. The necessary coursework needed is dependent upon the coursework that was completed in your previous master's degree. A gap analysis will be completed to identify the specific courses that will be needed to complete this certificate.

Admission Criteria

- Current unrestricted State of Ohio RN license.
- Hold an MSN degree from a professionally accredited nursing program.
- Minimum of a 3.0 GPA on a 4.0 scale for the master's degree program.
- Recent acute/critical care experience (within the past three years).
- A 300 word essay describing professional goals.
- Completion of the following prerequisite courses: graduate level pharmacology, pathophysiology, and advanced assessment.
- Completion of an interview with the selection committee.
- Advanced Cardiac Life Support (ACLS) Certification.

Please contact the School of Nursing at (330) 972-7555 before applying.

Program of Study

Code	Title	Hours
NURS:691	Acute Care Nurse Practitioner I	4
NURS:692	Clinical Management II	3
NURS:693	Acute Care Nurse Practitioner II	4
NURS:695	Acute Care Nurse Practitioner III	4
NURS:696	Clinical Reasoning	1
Total Hours		16

Adult Gerontological Health Nurse Practitioner Track, MSN

Expected Outcomes of the Program

- Apply scientific theories and research to implement the advanced nursing role
- Demonstrate competency according to national standards and guidelines in the advanced nursing role to provide safe quality care
- Use knowledge of legal, ethical, fiscal, policy, and leadership issues to impact the delivery of care to diverse populations
- Identify evidence-based practice/quality improvement within the advanced practice nursing role to improve systems and patient outcomes

- Use information technologies, communication, and interprofessional collaboration to enhance healthcare delivery and patient outcomes
- Demonstrate competency in personal, professional, and leadership development

Admission

- Baccalaureate degree in a nursing program accredited by the NLN Commission for Nursing Education Accreditation (CNEA), the Accreditation Commission for Education in Nursing (ACEN), or AACN's Commission on Collegiate Nursing Education (CCNE). A baccalaureate degree in nursing from a foreign institution must be recognized by The University of Akron.
- 3.00 GPA on a 4.00 scale for BSN and all previous nursing degrees.
- Three letters of reference from a recent employer; a member of the nursing profession; a former faculty member.
- 300-word essay describing professional goals.
- Current unrestricted State of Ohio Registered Nurse license.
- Interview prior to admission to the program.

Applicants for the clinical tracks are required to have a minimum of 12 months registered nurse experience current within the last five years prior to entrance into the graduate program. The RN experience must be relevant to the area of interest.

Admission Procedures

The student should access the online graduate application through the Graduate School webpage. Questions regarding admissions may be directed to the School of Nursing Graduate Program Office (330) 972-7555.

The School of Nursing Graduate Admission and Progression Committee and the Assistant Director of Graduate Programs will review and make decisions for applications. The admit decision will be sent to the Graduate School. Applicants will receive notification of the admission decision via an e-letter from the Graduate School and a letter from the School of Nursing.

Instructional Program

The Master of Science in Nursing curriculum includes a minimum of 30 credit hours of study depending on the specialty track. The advanced practice tracks include Adult/Gerontological Health Nursing, Family Psychiatric Mental Health Nursing, Child and Adolescent Health Nursing (Primary, Acute, Dual), and Nurse Anesthesia. Graduates are prepared for advanced practice as nurse practitioners or nurse anesthetists. The curriculum is based on theory and research both in nursing and in related disciplines. It provides the foundation for doctoral study and for ongoing professional development.

Program Specific Requirement:

STAT:661 Statistics for Life Sciences or equivalent graduate level statistics course. Receives no credit toward the degree.

Nursing Core

The curriculum consists of a core of 14 credit hours. These courses encompass advanced theory, evidence-based practice, information management in nursing, health policy, and pathophysiological concepts. Core courses are required of all students.

Note: Students are required to obtain a 'B-' or better in any given course in order to progress in the program while maintaining good academic standing.

Code	Title	Hours
NURS:603	Theoretical Basis for Nursing	3
NURS:606	Information Management in Advanced Nursing Practice	3
NURS:607	Policy Issues in Nursing	2
NURS:608	Pathophysiological Concepts of Nursing Care	3
NURS:619	Principles of Evidence Based Practice	3
Total Hours		14

Adult Gerontological Health Nurse Practitioner Track

Meets eligibility requirements for certification through American Nurses Credentialing Center [ANCC] and American Academy of Nurse Practitioners [AANP].

Note: Students are required to obtain a 'B-' or better in any given course in order to progress in the program while maintaining good academic standing.

Courses required to progress in the Adult Gerontological Health Nurse Practitioner track:

Code	Title	Hours
NURS:610	Advanced Health Assessment	3
NURS:612	Advanced Clinical Pharmacology	3
NURS:620	Adult/Gerontological Health Nursing NP I	2
NURS:621	Adult/Gerontological Health Nursing NP II	2
NURS:622	Adult/Gerontological Health Nursing NP III	2
NURS:624	Adult/Gerontological Health Nursing NP IV	1
NURS:627	Adult/Gerontological Health Nursing NP I Practicum	2
NURS:628	Adult/Gerontological NP II Practicum	2
NURS:629	Adult Gerontological Health Nursing NP III Practicum	2
NURS:631	Adult/Gero Health Nursing NP IV Practicum	2
NURS:690	Clinical Management I	3
NURS:692	Clinical Management II	3
NURS:694	Clinical Management III	3
Total Hours		30

Adult/Gerontological Nurse Practitioner, Certificate

The Post-MSN certificate program is designed to prepare Adult/Gerontological Clinical Nurse Specialists who are seeking preparation in the role of nurse practitioner as providers of primary health care to adults and older adults. Upon completion of the 17 credit program, the student is eligible to sit for Nurse Practitioner certification examination.

Admission Criteria

- Current unrestricted State of Ohio RN license.
- Hold an MSN degree from a professionally accredited nursing program (clinical master's preferred).
- Have a minimum GPA of 3.0 on a 4.0 scale for MSN program.
- Minimum of 2-3 years recent clinical experience in adult or gerontological health care.
- Complete an application to The University of Akron Graduate School.
- Submit a 300 word essay describing professional goals.
- Submit a resume outlining prior education and work related experiences.
- Complete the following prerequisite courses: graduate level pathophysiology, advanced assessment, advanced clinical pharmacology.
- Completion of an interview with the Adult/Gerontological Health Nursing faculty.

Program of Study

Code	Title	Hours
NURS:620	Adult/Gerontological Health Nursing NP I	2
NURS:627	Adult/Gerontological Health Nursing NP I Practicum	2
NURS:628	Adult/Gerontological NP II Practicum	2
NURS:629	Adult Gerontological Health Nursing NP III Practicum	2
NURS:690	Clinical Management I	3
NURS:692	Clinical Management II	3
NURS:694	Clinical Management III	3
Total Hours		17

Students must complete a minimum of 450 clinical hours for eligibility to sit for certification.

Child and Adolescent Acute Care Nurse Practitioner Track, MSN

Expected Outcomes of the Program

- Apply scientific theories and research to implement the advanced nursing role
- Demonstrate competency according to national standards and guidelines in the advanced nursing role to provide safe quality care
- Use knowledge of legal, ethical, fiscal, policy, and leadership issues to impact the delivery of care to diverse populations
- Identify evidence-based practice/quality improvement within the advanced practice nursing role to improve systems and patient outcomes
- Use information technologies, communication, and interprofessional collaboration to enhance healthcare delivery and patient outcomes
- Demonstrate competency in personal, professional, and leadership development

Admission

- Baccalaureate degree in a nursing program accredited by the NLN Commission for Nursing Education Accreditation (CNEA), the Accreditation Commission for Education in Nursing (ACEN), or

AACN's Commission on Collegiate Nursing Education (CCNE). A baccalaureate degree in nursing from a foreign institution must be recognized by The University of Akron.

- 3.00 GPA on a 4.00 scale for BSN and all previous nursing degrees.
- Three letters of reference from a recent employer; a member of the nursing profession; a former faculty member.
- 300-word essay describing professional goals.
- Current resume or CV
- Current unrestricted State of Ohio Registered Nurse license.
- Interview prior to admission to the program.

Applicants for the Child and Adolescent Health Nurse Practitioner (clinical) Tracks are required to have 12 to 24 months current, hospital-based Pediatric Registered Nurse experience prior to acceptance into the graduate program. The Graduate Admissions and Progressions Committee will make the final determination for acceptance should there be concerns regarding the suitability of clinical experience.

Admission Procedures

The student should access the online graduate application through the Graduate School web page. Questions regarding admissions may be directed to the School of Nursing Graduate Program Office (330) 972-7555.

The School of Nursing Graduate Admission and Progression Committee and the Assistant Director of Graduate Programs will review and make decisions for applications. The admit decision will be sent to the Graduate School. Applicants will receive notification of the admission decision via an e-letter from the Graduate School and a letter from the School of Nursing.

Instructional Program

The Master of Science in Nursing curriculum includes a minimum of 30 credit hours of study depending on the specialty track. The advanced practice tracks include Adult/Gerontological Health Nursing, Family Psychiatric Mental Health Nursing, Child and Adolescent Health Nursing (Primary, Acute, Dual), and Nurse Anesthesia. Graduates are prepared for advanced practice as nurse practitioners or nurse anesthetists. The curriculum is based on theory and research both in nursing and in related disciplines. It provides the foundation for doctoral study and for ongoing professional development.

Program Specific Requirement:

STAT:661 Statistics for Life Sciences or equivalent graduate level statistics course. Receives no credit toward the degree.

Nursing Core

The curriculum consists of a core of 14 credit hours. These courses encompass advanced theory, evidence-based practice, information management in nursing, health policy, and pathophysiological concepts. Core courses are required of all students.

Note: Students are required to obtain a 'B-' or better in any given course in order to progress in the program while maintaining good academic standing.

Code	Title	Hours
NURS:603	Theoretical Basis for Nursing	3
NURS:606	Information Management in Advanced Nursing Practice	3
NURS:607	Policy Issues in Nursing	2
NURS:608	Pathophysiological Concepts of Nursing Care	3
NURS:619	Principles of Evidence Based Practice	3
Total Hours		14

Child and Adolescent Acute Care Nurse Practitioner Track

The Child and Adolescent Acute Care Nurse Practitioner track (28 credit hours) focuses on the integration of evidenced based knowledge and skills in acute/critical care with children and adolescents with complex, acute, critical, and chronic health conditions. Emphasis is on advanced practice in emergency departments, sub-specialty clinics, acute areas of hospitals, and intensive care units with children with complex, acute, critical, and chronic health conditions.

Note: Students are required to obtain a 'B-' or better in any given course in order to progress in the program while maintaining good academic standing.

Courses required to progress in the Child and Adolescent Acute Care Nurse Practitioner Track:

Code	Title	Hours
FCSC:585	Seminar in Family & Consumer Sciences	1-3
NURS:650	Advanced Pediatric/Adolescent Assessment	3
NURS:651	Child & Adolescent Health Nursing I	3
NURS:652	Child and Adolescent Health Nursing I Practicum	2
NURS:653	Child and Adolescent Health Nursing II Practicum	2
NURS:655	Child & Adolescent Health Nursing II	3
NURS:656	Pharmacology for Child & Adolescent Health Nursing	3
NURS:685	Child and Adolescent Health Nursing - Acute Care III	3
NURS:686	Child and Adolescent Health Nursing - Acute Care III Practicum	2
NURS:687	Child/Adolescent Health Nursing-Acute Care IV	3
NURS:688	Child and Adolescent Health Nursing-Acute Care IV Practicum	2
Total Hours		27-29

Child and Adolescent Health Nurse Practitioner Primary Health Care Track, MSN

Expected Outcomes of the Program

- Apply scientific theories and research to implement the advanced nursing role.
- Demonstrate competency according to national standards and guidelines in the advanced nursing role to provide safe quality care.
- Use knowledge of legal, ethical, fiscal, policy, and leadership issues to impact the delivery of care to diverse populations.

- Identify evidence-based practice/quality improvement within the advanced practice nursing role to improve systems and patient outcomes.
- Use information technologies, communication, and interprofessional collaboration to enhance healthcare delivery and patient outcomes.
- Demonstrate competency in personal, professional, and leadership development.

Admission

- Baccalaureate degree in a nursing program accredited by the NLN Commission for Nursing Education Accreditation (CNEA), the Accreditation Commission for Education in Nursing (ACEN), or AACN's Commission on Collegiate Nursing Education (CCNE). A baccalaureate degree in nursing from a foreign institution must be recognized by The University of Akron.
- 3.00 GPA on a 4.00 scale for BSN and all previous nursing degrees.
- Three letters of reference from a recent employer; a member of the nursing profession; a former faculty member.
- 300-word essay describing professional goals.
- Current resume or CV
- Current unrestricted State of Ohio Registered Nurse license.
- Interview prior to admission to the program

Applicants for the Child and Adolescent Health Nurse Practitioner (clinical) Tracks are required to have 12 to 24 months current, hospital-based Pediatric Registered Nurse experience prior to acceptance into the graduate program. The Graduate Admissions and Progressions Committee will make the final determination for acceptance should there be concerns regarding the suitability of clinical experience.

Admission Procedures

The student should access the online graduate application through the Graduate School webpage. Questions regarding admissions may be directed to the School of Nursing Graduate Program Office (330) 972-7555.

The School of Nursing Graduate Admission and Progression Committee and the Assistant Director of Graduate Programs will review and make decisions for applications. The admit decision will be sent to the Graduate School. Applicants will receive notification of the admission decision via an e-letter from the Graduate School and a letter from the School of Nursing.

Instructional Program

The Master of Science in Nursing curriculum includes a minimum of 30 credit hours of study depending on the specialty track. The advanced practice tracks include Adult/Gerontological Health Nursing, Family Psychiatric Mental Health Nursing, Child and Adolescent Health Nursing (Primary, Acute, Dual), and Nurse Anesthesia. Graduates are prepared for advanced practice as nurse practitioners or nurse anesthetists. The curriculum is based on theory and research both in nursing and in related disciplines. It provides the foundation for doctoral study and for ongoing professional development.

Program Specific Requirement:

STAT:661 Statistics for Life Sciences or equivalent graduate level statistics course. Receives no credit toward the degree.

Nursing Core

The curriculum consists of a core of 14 credit hours. These courses encompass advanced theory, evidence-based practice, information management in nursing, health policy, and pathophysiological concepts. Core courses are required of all students.

Note: Students are required to obtain a 'B-' or better in any given course in order to progress in the program while maintaining good academic standing.

Code	Title	Hours
NURS:603	Theoretical Basis for Nursing	3
NURS:606	Information Management in Advanced Nursing Practice	3
NURS:607	Policy Issues in Nursing	2
NURS:608	Pathophysiological Concepts of Nursing Care	3
NURS:619	Principles of Evidence Based Practice	3
Total Hours		14

Child and Adolescent Health Nurse Practitioner Primary Health Care Track

The Child and Adolescent Health Nurse Practitioner track (Primary Health Care) (28 credit hours) meets certification requirements through the Pediatric Nursing Certification Board (PNCB). Emphasis is on advanced nursing practice with primary health care needs of children and adolescents.

Note: Students are required to obtain a 'B-' or better in any given course in order to progress in the program while maintaining good academic standing.

Course required to progress in the Child and Adolescent Nurse Practitioner Primary Health Care Track:

Code	Title	Hours
FCSC:585	Seminar in Family & Consumer Sciences	1-3
NURS:650	Advanced Pediatric/Adolescent Assessment	3
NURS:651	Child & Adolescent Health Nursing I	3
NURS:652	Child and Adolescent Health Nursing I Practicum	2
NURS:653	Child and Adolescent Health Nursing II Practicum	2
NURS:654	Child and Adolescent Health Nursing III Practicum	2
NURS:655	Child & Adolescent Health Nursing II	3
NURS:656	Pharmacology for Child & Adolescent Health Nursing	3
NURS:657	Child & Adolescent Health Nursing III	3
NURS:659	Child and Adolescent Health Nursing IV Practicum	2
NURS:680	Child and Adolescent Health Nursing IV	3
Total Hours		27-29

Child and Adolescent Health Nurse Practitioner Primary/Acute Care Track, MSN

Expected Outcomes of the Program

- Apply scientific theories and research to implement the advanced nursing role
- Demonstrate competency according to national standards and guidelines in the advanced nursing role to provide safe quality care
- Use knowledge of legal, ethical, fiscal, policy, and leadership issues to impact the delivery of care to diverse populations
- Identify evidence-based practice/quality improvement within the advanced practice nursing role to improve systems and patient outcomes
- Use information technologies, communication, and interprofessional collaboration to enhance healthcare delivery and patient outcomes
- Demonstrate competency in personal, professional, and leadership development

Admission

- Baccalaureate degree in a nursing program accredited by the NLN Commission for Nursing Education Accreditation (CNEA), the Accreditation Commission for Education in Nursing (ACEN), or AACN's Commission on Collegiate Nursing Education (CCNE). A baccalaureate degree in nursing from a foreign institution must be recognized by The University of Akron.
- 3.00 GPA on a 4.00 scale for BSN and all previous nursing degrees.
- Three letters of reference from a recent employer; a member of the nursing profession; a former faculty member.
- 300-word essay describing professional goals.
- Current resume or CV
- Current unrestricted State of Ohio Registered Nurse license.
- Interview prior to admission to the program.

Applicants for the Child and Adolescent Health Nurse Practitioner (clinical) Tracks are required to have 12 to 24 months current, hospital-based Pediatric Registered Nurse experience prior to acceptance into the graduate program. The Graduate Admissions and Progressions Committee will make the final determination for acceptance should there be concerns regarding the suitability of clinical experience.

Admission Procedures

The student should access the online graduate application through the Graduate School webpage. Questions regarding admissions may be directed to the School of Nursing Graduate Program Office (330) 972-7555.

The School of Nursing Graduate Admission and Progression Committee and the Assistant Director of Graduate Programs will review and make decisions for applications. The admit decision will be sent to the Graduate School. Applicants will receive notification of the admission decision via an e-letter from the Graduate School and a letter from the School of Nursing.

Instructional Program

The Master of Science in Nursing curriculum includes a minimum of 30 credit hours of study depending on the specialty track. The advanced practice tracks include Adult/Gerontological Health Nursing, Family Psychiatric Mental Health Nursing, Child and Adolescent Health Nursing (Primary, Acute, Dual), and Nurse Anesthesia. Graduates are prepared for advanced practice as nurse practitioners or nurse anesthetists. The curriculum is based on theory and research both in nursing and in related disciplines. It provides the foundation for doctoral study and for ongoing professional development.

Program Specific Requirement:

STAT:661 Statistics for Life Sciences or equivalent graduate level statistics course. Receives no credit toward the degree.

Nursing Core

The curriculum consists of a core of 14 credit hours. These courses encompass advanced theory, evidence-based practice, information management in nursing, health policy, and pathophysiological concepts. Core courses are required of all students.

Note: Students are required to obtain a 'B-' or better in any given course in order to progress in the program while maintaining good academic standing.

Code	Title	Hours
NURS:603	Theoretical Basis for Nursing	3
NURS:606	Information Management in Advanced Nursing Practice	3
NURS:607	Policy Issues in Nursing	2
NURS:608	Pathophysiological Concepts of Nursing Care	3
NURS:619	Principles of Evidence Based Practice	3
Total Hours		14

Child and Adolescent Health Nurse Practitioner Primary/Acute Care Track

The Child and Adolescent Health Nurse Practitioner track (Primary/Acute Care) (38 credit hours) focuses on the integration of evidenced based knowledge and skills in primary and acute care with children with complex, acute, critical, and chronic health conditions. Emphasis is on advanced practice in emergency departments, sub-specialty clinics, acute areas of hospitals, and intensive care units with children with complex, acute, critical, and chronic health conditions.

Note: Students are required to obtain a 'B-' or better in any given course in order to progress in the program while maintaining good academic standing.

Courses required to progress in the Child and Adolescent Health Nurse Practitioner Primary/Acute Care Track:

Code	Title	Hours
FCSC:585	Seminar in Family & Consumer Sciences	1-3
NURS:650	Advanced Pediatric/Adolescent Assessment	3
NURS:651	Child & Adolescent Health Nursing I	3
NURS:652	Child and Adolescent Health Nursing I Practicum	2
NURS:653	Child and Adolescent Health Nursing II Practicum	2
NURS:654	Child and Adolescent Health Nursing III Practicum	2

NURS:655	Child & Adolescent Health Nursing II	3
NURS:656	Pharmacology for Child & Adolescent Health Nursing	3
NURS:657	Child & Adolescent Health Nursing III	3
NURS:659	Child and Adolescent Health Nursing IV Practicum	2
NURS:680	Child and Adolescent Health Nursing IV	3
NURS:685	Child and Adolescent Health Nursing - Acute Care III	3
NURS:686	Child and Adolescent Health Nursing - Acute Care III Practicum	2
NURS:687	Child/Adolescent Health Nursing-Acute Care IV	3
NURS:688	Child and Adolescent Health Nursing-Acute Care IV Practicum	2

Total Hours 37-39

Child and Adolescent Health Nurse Practitioner, Certificate

This ten credit hour Post-MSN certificate program is designed for those acute care pediatric nurse practitioners who hold an MSN and a national certification as a pediatric nurse practitioner and are seeking preparation for the primary care pediatric nurse practitioner role. Post-MSN students will be assessed on an individual basis and may be required to complete additional courses from the Child and Adolescent Health Nursing track in order to achieve the competencies required to sit for certification as a pediatric primary care nurse practitioner.

Admission

- Current unrestricted State of Ohio APRN license with national certification in Pediatrics.
- Hold an MSN degree from a professionally accredited nursing program.
- Minimum of a 3.0 GPA on a 4.0 scale for the master's degree program.
- A minimum of one year of clinical experience in a pediatric setting.
- Complete an interview with the program coordinator.

Program of Study

Code	Title	Hours
NURS:654	Child and Adolescent Health Nursing III Practicum	2
NURS:657	Child & Adolescent Health Nursing III	3
NURS:659	Child and Adolescent Health Nursing IV Practicum	2
NURS:680	Child and Adolescent Health Nursing IV	3
Total Hours		10

Each practicum course requires 150 hours of supervised clinical practice.

Nurse practitioners in other areas of practice will be assessed on an individual basis through a gap analysis, and may be required to complete additional courses from the Child and Adolescent Health Nursing track in order to achieve the competencies required to sit for certification as a pediatric primary care nurse practitioner.

Child and Adolescent Health Nursing- Acute Care, Certificate

The ten credit hour Post-MSN Child and Adolescent Health Nursing-Acute Care certificate program is designed for those primary care pediatric nurse practitioners who hold an MSN and a national certification as a pediatric nurse practitioner and are seeking preparation for the acute care pediatric nurse practitioner role. Post MSN students will be assessed on an individual basis and may be required to complete additional courses from the Child and Adolescent Health Nursing track in order to achieve the competencies required to sit for certification as a pediatric acute care nurse practitioner.

Admission Criteria

- Current unrestricted State of Ohio APRN license with national certification in Pediatrics.
- Hold an MSN degree from a professionally accredited nursing program.
- Minimum of a 3.0 GPA on a 4.0 scale for the master's degree program.
- A minimum of one year of clinical experience in a pediatric setting.
- Complete an interview with the program coordinator.

Program of Study

Code	Title	Hours
NURS:685	Child and Adolescent Health Nursing - Acute Care III	3
NURS:686	Child and Adolescent Health Nursing - Acute Care III Practicum	2
NURS:687	Child/Adolescent Health Nursing-Acute Care IV	3
NURS:688	Child and Adolescent Health Nursing-Acute Care IV Practicum	2
Total Hours		10

Each practicum course requires 150 hours of supervised clinical practice.

Nurse practitioners in other areas of practice will be assessed on an individual basis through a gap analysis, and may be required to complete additional courses from the Child and Adolescent Health Nursing track in order to achieve the competencies required to sit for certification as a pediatric acute care nurse practitioner.

Family Nurse Practitioner, Certificate for Certified Adult/Gerontological NPs

The Post-MSN Family Nurse Practitioner Certificate program is designed for Adult and/or Gerontological Nurse Practitioners to prepare them to take the Family Nurse Practitioner certification exam and practice as a Family Nurse Practitioner. The necessary coursework needed is dependent upon the coursework that was completed in your previous master's degree. A gap analysis will be completed to identify the specific courses that will be needed to complete this certificate.

Required Courses

Code	Title	Hours
NURS:650	Advanced Pediatric/Adolescent Assessment	3
NURS:651	Child & Adolescent Health Nursing I	3
NURS:656	Pharmacology for Child & Adolescent Health Nursing	3
NURS:658	Child & Adolescent Health NP Residency (consisting of 225 clinical hours)	1-4
Total Hours		10-13

Family Psychiatric/Mental Health Nurse Practitioner Track, MSN

Expected Outcomes of the Program

- Apply scientific theories and research to implement the advanced nursing role
- Demonstrate competency according to national standards and guidelines in the advanced nursing role to provide safe quality care
- Use knowledge of legal, ethical, fiscal, policy, and leadership issues to impact the delivery of care to diverse populations
- Identify evidence-based practice/quality improvement within the advanced practice nursing role to improve systems and patient outcomes
- Use information technologies, communication, and interprofessional collaboration to enhance healthcare delivery and patient outcomes
- Demonstrate competency in personal, professional, and leadership development

Admission

- Baccalaureate degree in a nursing program accredited by the NLN Commission for Nursing Education Accreditation (CNEA), the Accreditation Commission for Education in Nursing (ACEN), or AACN's Commission on Collegiate Nursing Education (CCNE). A baccalaureate degree in nursing from a foreign institution must be recognized by The University of Akron.
- 3.00 GPA on a 4.00 scale for BSN and all previous nursing degrees.
- Three letters of reference from a recent employer; a member of the nursing profession; a former faculty member.
- 300-word essay describing professional goals.
- Current unrestricted State of Ohio Registered Nurse license.
- Interview prior to admission to the program.

Applicants for the clinical tracks are required to have a minimum of 12 months registered nurse experience current within the last five years. The RN experience must be relevant to the area of interest.

Admission Procedures

The student should access the online graduate application through the Graduate School webpage. Questions regarding admissions may be directed to the School of Nursing Graduate Program Office (330) 972-7555.

The School of Nursing Graduate Admission and Progression Committee and the Assistant Director of Graduate Programs will review and make decisions for applications. The admit decision will be sent to the Graduate School. Applicants will receive notification of the admission

decision via an e-letter from the Graduate School and a letter from the School of Nursing.

Instructional Program

The Master of Science in Nursing curriculum includes a minimum of 30 credit hours of study depending on the specialty track. The advanced practice tracks include Adult/Gerontological Health Nursing, Family Psychiatric Mental Health Nursing, Child and Adolescent Health Nursing, and Nurse Anesthesia. Graduates are prepared for advanced practice as nurse practitioners or nurse anesthetists. The curriculum is based on theory and research both in nursing and in related disciplines. It provides the foundation for doctoral study and for ongoing professional development.

Program Specific Requirement:

STAT:661 Statistics for Life Sciences or equivalent graduate level statistics course. Receives no credit toward the degree.

Nursing Core

The curriculum consists of a core of 14 credit hours. These courses encompass advanced theory, evidence-based practice, information management in nursing, health policy, and pathophysiological concepts. Core courses are required of all students.

Note: Students are required to obtain a 'B-' or better in any given course in order to progress in the program while maintaining good academic standing.

Code	Title	Hours
NURS:603	Theoretical Basis for Nursing	3
NURS:606	Information Management in Advanced Nursing Practice	3
NURS:607	Policy Issues in Nursing	2
NURS:608	Pathophysiological Concepts of Nursing Care	3
NURS:619	Principles of Evidence Based Practice	3
Total Hours		14

Additional Requirements

The following courses must be completed before starting the Family Psychiatric/Mental Health Nurse Practitioner track courses:

Code	Title	Hours
NURS:608	Pathophysiological Concepts of Nursing Care	3
NURS:610	Advanced Health Assessment	3

Family Psychiatric/Mental Health Nurse Practitioner Track

The Family Psychiatric/Mental Health Nurse Practitioner track (26 credit hours) provides the educational preparation necessary to provide primary mental healthcare at an advanced level to individuals of all ages and families. Preparation as a Family Psychiatric/Mental Health Nurse Practitioner is emphasized and includes clinical supervision of individuals and families, differential diagnosis and management of psychiatric and mental health disorders, medication management, psychotherapeutic interventions, and case management. Graduates of the Family Psychiatric/Mental Health Nurse Practitioner track are eligible to sit for certification from the American Nurses Credentialing

Center (ANCC) as a Family Psychiatric/Mental Health Nurse Practitioner (FPMHNP).

Note: Students are required to obtain a 'B-' or better in any given course in order to progress in the program while maintaining good academic standing.

Courses required to progress in the Family Psychiatric Mental Health Nurse Practitioner track:

Code	Title	Hours
NURS:611	Advanced Mental Health Assessment Across the Lifespan	3
NURS:615	Family Psychiatric Mental Health Nurse Practitioner: Child/Family	3
NURS:660	Family Psychiatric Mental Health Nurse Practitioner I	2
NURS:661	Psychiatric Mental Health, APN I	3
NURS:662	Clinical Psychopharmacology	3
NURS:669	Family Psychiatric Mental Health NP: Role Synthesis Practicum	2
NURS:670	Family Psychiatric Mental Health NP: Role Synthesis	3
NURS:689	Family Psychiatric Mental Health Nurse Practitioner: Child/Family Practicum	2
NURS:697	Psychiatric Disorders Across Lifespan and Group Modalities Practicum	2
NURS:698	Psychiatric Disorders Across the Lifespan and Group Modalities	3
Total Hours		26

Family Psychiatric/Mental Health Nurse Practitioner, Certificate

This post-master's certificate program is designed for the non-psychiatric primary and acute care Nurse Practitioner who is looking to enhance their knowledge and skill set to effectively care for individuals with complex psychiatric and mental health needs across the lifespan. The program is designed to prepare participants to sit for the ANCC certification examination for Family Psychiatric-Mental Health Nurse Practitioners.

This certificate offers the opportunity to augment your master's degree with additional nursing specialty area knowledge and skills. The necessary coursework needed is dependent upon the coursework that was completed in your previous master's degree. A gap analysis will be completed to identify the specific courses that will be needed to complete this certificate.

Admission Requirements

- Current unrestricted State of Ohio RN license.
- Hold an MSN degree from a professionally accredited nursing program (clinical Master's required).
- Minimum GPA of 3.0 on a 4.0 scale for MSN program.
- Minimum of 2-3 years recent clinical experience as a nurse practitioner.
- Application to The University of Akron Graduate School.
- 300 word essay describing professional goals.
- Resume outlining prior education and work related experiences.

- Three letters of reference from a recent employer, an APRN co-worker, a former faculty member.
- Completion of the following prerequisite courses: graduate level pathophysiology, advanced assessment, advanced clinical pharmacology.
- Interview with Psychiatric Mental Health Nurse Practitioner faculty.

operating room, labor, and delivery step down telemetry units, neonatal intensive care, emergency room, pediatric intensive care, post-anesthesia care units, and cardiac catheterization labs.

See the Nurse Anesthesia Program webpage (<https://www.uakron.edu/nursing/academic-programs/graduate-programs/msn/anesthesia.dot>) for additional program information and forms required for the application.

Required Courses

Code	Title	Hours
NURS:611	Advanced Mental Health Assessment Across the Lifespan	3
NURS:660	Family Psychiatric Mental Health Nurse Practitioner I	2
NURS:661	Psychiatric Mental Health, APN I	3
NURS:662	Clinical Psychopharmacology	3
NURS:697	Psychiatric Disorders Across Lifespan and Group Modalities Practicum	2
NURS:698	Psychiatric Disorders Across the Lifespan and Group Modalities	3
NURS:615	Family Psychiatric Mental Health Nurse Practitioner: Child/Family	3
NURS:689	Family Psychiatric Mental Health Nurse Practitioner: Child/Family Practicum	2
NURS:669	Family Psychiatric Mental Health NP: Role Synthesis Practicum	2
NURS:670	Family Psychiatric Mental Health NP: Role Synthesis	3
Total Hours		26

Nurse Anesthesia Track, DNP

The Doctor of Nursing Practice specializing in Nurse Anesthesia focuses on anesthetic management in various clinical settings to patients in every stage of life. The nurse anesthesia track provides the leadership skills needed to transform evidence-based care into practice, and measure outcomes.

Admission Requirements

- Baccalaureate degree in a nursing program accredited by the National League for Nursing Accreditation Commission or Commission on Collegiate Nursing Education. The University of Akron recognizes a baccalaureate degree in nursing from a foreign institution.
- 3.00 GPA on a 4.00 scale for BSN and all previous nursing degrees.
- 3.00 GPA on a 4.00 scale for science GPA.
- CCRN certification required prior to the interview for the Nurse Anesthesia program.
- Three letters of reference from a recent employer; a member of the nursing profession; a former faculty member.
- Essay, a 300-word position paper describing professional goals, purpose in seeking graduate education, and why The University of Akron Nurse Anesthesia Track.
- Current unrestricted State of Ohio Registered Nurse license.
- Interview required before admission to the program.
- A minimum of one year of current ADULT critical care experience before the interview. Current experience is defined as one consecutive year of adult critical care nursing. The following does not constitute critical care experience for admission to The University of Akron:

Core Courses

Code	Title	Hours
NURS:561	Advanced Physiological Concepts in Health Care I	3
NURS:562	Advanced Physiological Concepts in Health Care II	3
NURS:603	Theoretical Basis for Nursing	3
NURS:607	Policy Issues in Nursing	2
NURS:619	Principles of Evidence Based Practice	3

Nursing Anesthesia Courses

Code	Title	Hours
NURS:609	Advanced Pathophysiology for Nurse Anesthetist	3
NURS:637	Nurse Anesthesia Residency I	4
NURS:640	Scientific Components of Nurse Anesthesia	3
NURS:641	Advanced Pharmacology for Nurse Anesthesia I	3
NURS:642	Anesthesia Techniques, Procedures, and Simulation Lab	4
NURS:643	Advanced Health Assessment and Principles of Nurse Anesthesia I	4
NURS:644	Advanced Pharmacology for Nurse Anesthesia II	3
NURS:645	Advanced Health Assessment and Principles of Anesthesia II	4
NURS:646	Nurse Anesthesia Residency II	4
NURS:647	Professional Roles for Nurse Anesthesia	2
NURS:648	Nurse Anesthesia Residency III	4
NURS:649	Nurse Anesthesia Residency IV	4

DNP Courses

Code	Title	Hours
NURS:700	Information Management in Health Care	3
NURS:705	Clinical Nurse Scholar I	3
NURS:706	Clinical Nurse Scholar II	4
NURS:707	Clinical Scholar Residency	3
NURS:708	DNP Project I	3
NURS:709	DNP Project II	3
NURS:710	Advanced Healthcare Statistics	3
NURS:712	Fiscal Management in Healthcare	3
NURS:713	Advanced Leadership in Health Care	3
NURS:714	Synthesis and Application of Evidence for Advanced Practice Nurses	3
NURS:715	Fundamentals of Public Health Epidemiology	3
NURS:848	AMNR: Program Evaluation in Nursing	3

Minimum Required Credits: 93

Program Specific Requirement: STAT:661 Statistics for Life Sciences or equivalent graduate level statistics course. Receives no credit toward the degree.

DNP Clinical/Internship Experience

Students must complete a DNP Clinical/Internship Experience of 540 clock hours.

Nursing Practice, DNP Admission Requirements

Please contact the School of Nursing before applying.

- Current unrestricted licensure as an advanced practice registered nurse (APRN).
- A master's degree in nursing with an advanced practice focus from an accredited university with a cumulative grade point average of 3.0 on a 4.0 scale.
- Three letters of recommendation from individuals who can address the applicant's potential to succeed in the DNP graduate program and who can attest to clinical expertise.
- Letter of verification of master's degree clinical hours from the institution where the master's degree was earned.
- Pre-admission interview.
- A 300 word essay describing professional goals and area of interest for the capstone project.

Development of the curriculum is structured by four broad areas of knowledge described in the AACN's Essentials of Doctoral Education for Advanced Practice Nursing (2006). Acquisition of knowledge within the areas of Scientific/Physiologic Foundation for Advanced Evidence Based Practice; Leadership Information Management; Practice Inquiry; and Advanced Specialty Practice, will be demonstrated by the student's development of essential competencies. The following outcome competencies are expected.

Graduates of the program will:

- Use appropriate theories and concepts to identify health-related phenomena of interest.
- Design and deliver interventions that can withstand scientific analysis.
- Evaluate health care delivery and nursing practices using sound evaluation principles.
- Use evaluation and other methods to account for quality of care and patient safety for focus populations.
- Critically appraise and/or use sources informing best evidence, i.e. epidemiology, statistics, health data, and/or methodologies.
- Deliver and evaluate care processes and outcomes based on best evidence.
- Analyze and define critical choices among health care technologies and information systems toward the betterment of care processes and outcomes.
- Understand the dynamics of health care policy and financing at the organizational and national levels.
- Provide or assist in the leadership of collaborative, inter-professional teams in health care delivery.

Program Description

The University of Akron Professional Doctor of Nursing Practice (DNP) program requires a minimum of 71 graduate credit hours and 1,040

clinical hours for those students entering with a baccalaureate in nursing degree from an accredited program. Post-master's entry requires:

1. 37 credits of DNP courses;
2. 540 clinical practice hours; and
3. transfer from the student's master's degree in nursing program a minimum of 34 credits of nursing and advanced practice role-specific coursework, which includes 500 clinical hours (or is taken as part of the DNP program).

The minimum passing grade for each course is a "B." Students earning a grade less than "B" will be required to repeat the course the next time it is offered. A student will not be permitted to enroll in the next course until the course is repeated. A course can be repeated only one time in the DNP program. A second course grade below the grade of "B" will result in dismissal from the DNP program.

Core Courses

Code	Title	Hours
NURS:603	Theoretical Basis for Nursing	3
NURS:607	Policy Issues in Nursing	2
NURS:608	Pathophysiological Concepts of Nursing Care	3
NURS:610	Advanced Health Assessment	3
or NURS:611	Advanced Mental Health Assessment Across the Lifespan	
or NURS:650	Advanced Pediatric/Adolescent Assessment	
NURS:612	Advanced Clinical Pharmacology	3
NURS:619	Principles of Evidence Based Practice	3
Total Hours		17

Specialty Courses - 12-34 Credits

Specialty courses vary according to the particular current MSN advanced practice concentration (includes 500-700 clinical hours).

DNP Courses - Minimum of 37 Credits and Includes 540 Clinical Hours

Code	Title	Hours
NURS:700	Information Management in Health Care	3
NURS:705	Clinical Nurse Scholar I	3
NURS:706	Clinical Nurse Scholar II	4
NURS:707	Clinical Scholar Residency	3
NURS:708	DNP Project I	3
NURS:709	DNP Project II	3
NURS:710	Advanced Healthcare Statistics	3
NURS:712	Fiscal Management in Healthcare	3
NURS:713	Advanced Leadership in Health Care	3
NURS:714	Synthesis and Application of Evidence for Advanced Practice Nurses	3
NURS:715	Fundamentals of Public Health Epidemiology	3
NURS:848	AMNR: Program Evaluation in Nursing	3
Total Hours		37

Social Work and Family Sciences

- Cognitive Behavior Therapy, Certificate (p. 192)
- Social Work, MSW (p. 192)

Social Work - School of (SOWK)

SOWK:558 Adult Day Care (3 Credits)

Prerequisite: Permission of instructor. Planning, development, implementing, evaluating, and delivery of adult day-care services. (Formerly 7750:558)

SOWK:580 Special Topics: Social Work & Social Welfare (1-3 Credits)

Prerequisite: Permission of instructor. Analysis of current social work and social welfare theory and policy, settings, innovative interventions and trends in delivery systems in relation to selected areas of concern. Topics and credits variable. (Formerly 7750:580)

SOWK:597 Individual Investigations in Social Work (1-3 Credits)

Prerequisites: Permission and prearrangement with instructor. Individual readings, research or projects in area of interest in social welfare theory or institutional operations or in social work practice under guidance of social work faculty member. Preparation of report paper appropriate to nature of topic. For social work major. (Formerly 7750:597)

SOWK:601 Foundation Field Practicum (3 Credits)

This course is to be taken in the first semester of the MSW program. A one semester, 200 clock-hour, supervised internship at a social service agency. Credit/Noncredit (Formerly 7750:601)

SOWK:602 Foundation Field Practicum (3 Credits)

Prerequisites: Second of two field practicum courses to be taken in the first year of the MSW program. A two-semester, 400 clock hour, supervised internship at a social service agency. Credit/Noncredit. (Offered only Spring Semester.) (Formerly 7750:602)

SOWK:603 Advanced Field Practicum (3 Credits)

Prerequisites: First of two field practicum courses to be taken in the second year of the MSW program. A two-semester, 500 clock hour, supervised internship in a social service agency, based on the student's concentration and specialization. Credit/Noncredit. (Offered only Fall Semester.) (Formerly 7750:603)

SOWK:604 Advanced Field Practicum (3 Credits)

Prerequisites: Second of two field practicum courses to be taken in the second year of the MSW program. A two-semester, 500 clock hour, supervised internship in a social service agency, based on the student's concentration and specialization. Credit/noncredit. (Offered only Spring Semester.) (Formerly 7750:604)

SOWK:605 Social Work Practice with Small Systems (3 Credits)

Prerequisite: Graduate status or permission of instructor. Provides the basic knowledge, skills, professional ethics and values necessary for beginning social work practice with small client systems. (Formerly 7750:605)

SOWK:606 Social Work Practice with Large Systems (3 Credits)

Prerequisite: SOWK 605. Provides the basic knowledge, skills, and strategies of social work practice with task groups, organizations and communities. (Formerly 7750:606)

SOWK:607 Advanced Practice with Small Systems I (3 Credits)

Prerequisite: Second level graduate student or permission of instructor. This course focuses on the differential assessment of individuals, families and small groups and the application of a range of theory bases. (Formerly 7750:607)

SOWK:608 Advanced Practice with Small Systems II (3 Credits)

Prerequisite: SOWK 607 or permission of instructor. As a continuation of Advanced Practice I, this course focuses on the development and implementation of intervention strategies with and on behalf of small systems. (Formerly 7750:608)

SOWK:611 Dynamics of Racism & Discrimination (3 Credits)

Prerequisite: Graduate status or permission of instructor. Provides knowledge of analyzing and understanding the factors leading to and sustaining racism, sexism, homophobia, and the like, at micro and macro levels. (Formerly 7750:611)

SOWK:612 Foundation Field Practice (3 Credits)

Prerequisite: Graduate status and in the first semester of field experience. This course is to be taken in the first semester of the MSW program. A two-semester, 200 clock hours per semester (400 clock hours for both semesters), supervised internship at a community-based agency. Credit/noncredit. Offered fall only. (Formerly 7750:612)

SOWK:613 Advanced Field Practice I (3 Credits)

Prerequisite: Graduate status and in the second semester of field education. This course is the second of two field practicum courses to be taken in the first year of the MSW program. A two-semester, 200 clock hours per semester (400 clock hours for both semesters), supervised internship at a community-based agency. Credit/noncredit. Offered Spring only. (Formerly 7750:613)

SOWK:614 Advanced Field Practice II (3 Credits)

Prerequisite: Graduate status and in the third semester of field education. This course is to be taken in the third semester of the MSW program. 250 hours per semester and 17 hours of supervised field experience at health and human services agencies. Credit/noncredit. (Formerly 7750:614)

SOWK:615 Advanced Field Practice III (3 Credits)

Prerequisite: Graduate status and in the fourth semester of field experience. This course is to be taken in the fourth semester of the MSW program. 250 hours per semester and 17 hours of supervised field experience at health and human services agencies. Credit/noncredit. (Formerly 7750:615)

SOWK:622 Fundamentals of Research I (3 Credits)

Prerequisite: Graduate status or permission of instructor. This course provides an Introduction to the logic of scientific inquiry, the research process, and the relationship between research and social work practice. (Formerly 7750:622)

SOWK:623 Fundamentals of Research II (3 Credits)

Prerequisite: SOWK 622, statistics course, or permission of instructor. Provides students with an understanding of quantitative and qualitative methodologies and the use of descriptive and inferential statistics in analyzing research data. (Formerly 7750:623)

SOWK:624 Ethics and Professional Behavior (3 Credits)

Prerequisites: Graduate Status or permission of instructor. This course provides an exploration of values and ethics related to social work theory, research, policy, and practice with individuals, families, groups, organizations, and communities. (Formerly 7750:624)

SOWK:625 Diversity and Difference in Practice (3 Credits)

Prerequisite: Graduate standing or permission. This course provides foundation on diversity and difference related to social work practice; analyzing and understanding racism, sexism, homophobia and discrimination at all practice levels. (Formerly 7750:625)

SOWK:626 Advancing Human Rights and Social Policy (3 Credits)

Prerequisites: Graduate status or permission of instructor. This course will examine the historical, philosophical, and value bases of advancing human rights and advocating for social welfare as well as the relationship between social work practice, policy and service delivery. (Formerly 7750:626)

SOWK:627 Science of Social Work (3 Credits)

Prerequisite: Graduate standing or permission. This course provides the student with the logic of scientific inquiry, quantitative and qualitative methodologies, the research process and the relationship between research and social work practice. (Formerly 7750:627)

SOWK:628 Human Behavior and the Social Environment (3 Credits)

Prerequisites: Graduate standing or permission. This course focuses on human behavior and life cycle development of people as individuals, members of families, groups, organizations and communities. (Formerly 7750:628)

SOWK:629 Advanced Social Work Practice: Evaluation (3 Credits)

This course provides students with methods of evaluating programs in agencies, including approaches, measurements, designs, data collection and analysis employed in program outcome research. (Formerly 7750:629)

SOWK:631 Human Behavior & Social Environment: Small Social Systems (3 Credits)

Prerequisite: Graduate status or permission of instructor. This course focuses on understanding the human behavior and life cycle development of people as individuals and as members of families and other small groups. (Formerly 7750:631)

SOWK:632 Human Behavior & Social Environment: Large Systems (3 Credits)

Prerequisites: SOWK 631 or permission of instructor. This course focuses on the human behavior of people as members of larger social systems including formal and informal organizations, communities and institutions. (Formerly 7750:632)

SOWK:633 Advanced Social Work Practice: Assessments (3 Credits)

Prerequisite: Graduate status or permission. This course provides the student with the knowledge relative to advanced generalist social work practice, engagement, psychosocial assessment, barriers to the professional relationships, and intervention. (Formerly 7750:633)

SOWK:634 Advanced Social Work Practice: Interventions (3 Credits)

Prerequisite: Admission into the MSW program. This course provides students with interventions with individuals, families, groups, and communities and the application of a range of theory bases. (Formerly 7750:634)

SOWK:646 Social Welfare Policy I (3 Credits)

Prerequisite: Graduate status or permission of instructor. Examines the historical, philosophical and value bases of social welfare as well as the relationship between social work practice, policy and service delivery. (Formerly 7750:646)

SOWK:647 Social Welfare Policy II (3 Credits)

Prerequisite: SOWK 646 or permission of instructor. This course prepares students with the beginning skills to engage in social problem/policy analysis. (Formerly 7750:647)

SOWK:650 Advanced Standing Integrative Seminar (6 Credits)

Prerequisite: Advanced standing. Provides an integrative view of social work practice with an emphasis on values, foundation knowledge and skills, and evaluation of professional interventions. (Formerly 7750:650)

SOWK:651 Foundation in Addiction Studies (3 Credits)

This introductory course provides a broader understanding of theories and issues in the addictions field. The course explores the theories of addiction related to: legal and ethical issues; diversity and cultural competence; and the roll of addictions in the current health care delivery system. (Formerly 7750:651)

SOWK:652 Addiction Assessment and Treatment Planning (3 Credits)

Examines a broad range of instruments, tools and strategies available for the identification and assessment of substance abuse problems. Content includes four modules; Screening, brief intervention, and referral (SBIRT); assessment; diagnosis; and treatment planning. (Formerly 7750:652)

SOWK:653 Evidence-Based Practices for Addictions (4 Credits)

Focuses on knowledge and skills needed for the development and implementation of prevention strategies, treatment approaches, and recovery maintenance in the addictions field. Emphasis is placed on selection and utilization of evidence-based practices. (Formerly 7750:653)

SOWK:654 Addiction Treatment Modalities and Models (3 Credits)

Emphasis on enhancement of knowledge and development of skills for use of evidence-based group and family therapy practices as they apply to work with people struggling with substance-related problems. (Formerly 7750:654)

SOWK:655 Psychopharmacology in Addiction Treatment (2 Credits)

Explores effects of psychoactive drugs of abuse and principles of pharmacotherapy in the treatment of substance use disorders. (Formerly 7750:655)

SOWK:656 Social Work Practice with Gays & Lesbians (3 Credits)

Prerequisite: Second level graduate status or permission of instructor. This course examines gay and lesbian culture and lifestyles, discrimination based on sexual orientation, and intervention strategies appropriate to practice with gays and lesbians. (Formerly 7750:656)

SOWK:657 Child Welfare I (3 Credits)

Prerequisite: Admission into the MSW program. This course provides students with an advanced in-depth exploration of structure and functioning of social services designed to help children, and of practice of social work in child-welfare settings. (Formerly 7750:657)

SOWK:658 Child Welfare II (3 Credits)

Prerequisite: Admission into the MSW program or departmental consent. The course provides an in-depth exploration of structure and functioning of social services designed to help children and social work practice in child-welfare settings. (Formerly 7750:658)

SOWK:659 Motivational Interviewing for Social Work Practice (3 Credits)

Prerequisite: Admission to MSW program or departmental consent. This course presents students with an overview of the basic concepts of the trans-theoretical model of change and Motivational Interviewing for social work practice. (Formerly 7750:659)

SOWK:660 Cognitive Behavioral Therapy I: The Basics (3 Credits)

This course covers Cognitive Behavioral Therapy (CBT) conceptual foundations, assessments, developing a case conceptualization and intervention plan, implementing CBT interventions, and termination and relapse prevention. Extensive use of role play and self-evaluation of skill development is a key component. (Formerly 7750:660)

SOWK:661 Cognitive Behavioral Therapy II: Beyond the Basics (3 Credits)

Prerequisite: SOWK 660. An introduction to the third generation Cognitive Behavioral Therapies (Mindfulness, Dialectical Behavioral Therapy, Acceptance Commitment Therapy, etc.). The course includes disorder-specific protocols with an emphasis on psychological mechanisms that apply across a range of disorders, ie. transdiagnostically. (Formerly 7750:661)

SOWK:662 Psychopathology (3 Credits)

Prerequisite: Admission into the MSW program or departmental consent. The course provides students with an examination of the symptoms, theories, and psychosocial aspects of mental illness, and the role of the social worker in the treatment of mental disorders. (Formerly 7750:662)

SOWK:663 Psychopathology & Social Work (3 Credits)

Prerequisite: Second level graduate student or permission of instructor. An examination of the symptoms, theories, and psychosocial aspects of mental illness, and the role of the social worker in the treatment of mental disorders. (Formerly 7750:663)

SOWK:664 Social Work Practice with Families and Children (3 Credits)

Prerequisite: Admission into the MSW program. The course provides students with theories, models, strategies and techniques used in working with families and children in their environment. (Formerly 7750:664)

SOWK:665 Supervision & Staff Development (3 Credits)

Prerequisite: second level graduate student or permission of instructor. An examination of the purpose, functions, and theories of supervision; the impact of cultural, ethnic and racial differences in supervision/staff development; and problems encountered. (Formerly 7750:665)

SOWK:666 Global Health Disparities (3 Credits)

Prerequisite: Admission to the College of Health and Human Sciences. This course provides a fundamental understanding of the purpose, function and importance of understanding global health disparities. The course examines the disparities in health condition and health care among minority populations for several specific diseases. The most significant current health care problems facing populations in the United States and the world will be identified. These conditions are significant health concerns in the majority population as well as minority population. It brings to light the behavioral and cultural characteristics of the global populations that contribute to the disproportionate presence of the disease in that population, and the disparity in treatment available. Furthermore, the course will introduce the students to view globally and act locally regarding to specific health problem of interest to the student or that demonstrate local needs, thus preparing students to potential paths of future program design. (Formerly 7750:666)

SOWK:667 Trauma-Informed Social Work Practice (3 Credits)

Prerequisite: Admission into the MSW program or departmental consent. The course provides students with an overview of the concepts of the impact of traumatic experiences on both clients and those who work with them, with an emphasis on empirically validated therapies. (Formerly 7750:667)

SOWK:671 Social Work Administration (3 Credits)

Prerequisite: second level graduate student or permission of instructor. This course focuses on supervisory and managerial roles and functions as they are carried out at different hierarchical levels in human service organizations. (Formerly 7750:671)

SOWK:672 Community Organization & Planning (3 Credits)

Prerequisite: must have completed first year of master's program. Required for all second year students concentrating on Macro Practice sequence. Prepares students to work in communities and in public and private agencies. (Formerly 7750:672)

SOWK:673 Strategies of Community Organization (3 Credits)

Prerequisite: second level graduate student or permission of instructor. Emphasizes the historical development and application of several community strategies used to identify community problems, and how to organize and empower diverse community groups. (Formerly 7750:673)

SOWK:674 Community, Economic Systems & Social Policy Analysis (3 Credits)

Prerequisite: second level graduate student or permission of instructor. This course provides a base for understanding economic systems and analyzing the political framework at federal, state, and local levels and their impact on communities. (Formerly 7750:674)

SOWK:675 Program Evaluation (3 Credits)

Prerequisite: second level graduate student or permission of instructor. This course provides students with methods of evaluating programs in agencies, including approaches, measurement, design, data collection and analyses employed in program outcome research. (Formerly 7750:675)

SOWK:676 Fiscal Management of Social Agencies (3 Credits)

Prerequisite: second level graduate student or permission of instructor. This elective course concentrates on the financial management of social administration, financial planning and management, principles of economic and fiscal exchange, accountability and fiscal accounting. (Formerly 7750:676)

SOWK:677 Direct Practice Research (3 Credits)

Prerequisite: Graduate standing. This course provides students with an advanced knowledge about the methodology of single system design and skills to implement an evaluation study of their intervention with clients. (Formerly 7750:677)

SOWK:678 Family Financial Management (3 Credits)

This course is an on-line class. It is designed to help students gain an appreciation and working knowledge of the individual/family as a complex and ever-changing financial unit. We will look at the social and cultural practices that contribute to our view of money and financial management. We will also examine the American social class system and our attitudes toward appearances, status, savings and financial security. We will look at patterns of decision making and a range of financial practice behaviors as well as the profiles of families as they go through the family development cycle. We will also explore how families prepare for the unforeseen, and work toward the resolution of family financial problems. Case studies, exercises, quizzes, and on-line discussions will aid us in this process. (Formerly 7750:678)

SOWK:680 Aging & Social Work Practice (3 Credits)

Prerequisite: second level graduate student or permission of instructor. An examination and evaluation of aging programs and policies, demographic trends and the changing role of social work service providers. (Formerly 7750:680)

SOWK:681 Aging: Policies & Programs (3 Credits)

Prerequisite: second level graduate student or permission of instructor. An examination and evaluation of aging programs and policies, demographic trends and the changing role of social work service providers. (Formerly 7750:681)

SOWK:685 Social Work Practice: Family & Children (3 Credits)

Prerequisite second level graduate student or permission of instructor. Examines the major problems encountered by children and families in the life cycle and explores intervention strategies and programs to address their needs and strengths. (Formerly 7750:685)

SOWK:686 Social Welfare Policy & Services: Family & Children (3 Credits)

Prerequisite: second level graduate student or permission of instructor. Examines the federal and state laws, policies, and services governing children and families, including the supportive, supplemental and substitutive aspects of services. (Formerly 7750:686)

SOWK:690 Advanced Practice & Policy in Substance Abuse (3 Credits)

Prerequisite: second level graduate student or permission of instructor. This course provides students the knowledge and skill base necessary for managing and practice with people involved in substance abuse, evaluating programs, and preventive work. (Formerly 7750:690)

SOWK:691 Social Work Values and Ethics (3 Credits)

Prerequisite: Full admission to Graduate program in social work. This elective ethics course focuses on practical or applied ethics. Fundamentals of moral reasoning and ethical decision-making in social work practice are reviewed. Utilized are case materials that illustrate application of normative ethics and standards in the NASW Code of Ethics. (Formerly 7750:691)

SOWK:692 Group Work Practice (3 Credits)

Prerequisite: Full admission to the graduate program in social work. Examines the fundamental knowledge and skills required for social work practice with groups across multiple client systems. Knowledge of social work values and ethics is applied as it relates to all aspects of group work. Dynamics of working with special populations will be emphasized (e.g., the effect of the addictive processes on group therapy, age-appropriate communication with children). (Formerly 7750:692)

SOWK:693 Special Topics for Advanced Social Work Practice (1-3 Credits)

Prerequisite: admission to the MSW Program or permission of the program director. Detailed analysis and study of current practice issues and considerations faced by social work practitioners providing services and interventions at advanced levels. (Formerly 7750:693)

SOWK:694 Theories & Procedures in Addiction Studies (3 Credits)

Prerequisite: Full admission to the graduate program in social work. Explores historical perspective of substance abuse in society, models and theories that describes addiction and the effects of addiction on individuals and families; effects of addiction in individuals; techniques and practices that have positive outcomes in treatment and prevention fields; and professional issues facing the addiction field. (Formerly 7750:694)

SOWK:695 Health Care: Planning & Policy Issues (3 Credits)

Prerequisite: second level graduate student or permission of instructor. This course is designed to orient students to the planning and policy issues in health care, and how social work can interface with health care. (Formerly 7750:695)

SOWK:696 Epidemiologic Analysis of Health & Social Problems (3 Credits)

Prerequisite: second level graduate student or permission of instructor. This course applies the epidemiological method to social work practice, such as treatment groups, making administrative decisions, in planning and evaluation, and doing preventive work. (Formerly 7750:696)

Cognitive Behavior Therapy, Certificate

The Cognitive Behavior Therapy Certificate, offered in conjunction with the MSW degree, affords students an opportunity to master competencies of both traditional and third-generation CBTs. Knowledge and skills learned in the classroom are applied in field practicum under the supervision of CBT-proficient clinicians.

Students must be enrolled in the master's degree program in the School of Social Work. The certificate will be granted with the degree.

Required Courses

Code	Title	Hours
SOWK:663	Psychopathology & Social Work	3
SOWK:660	Cognitive Behavioral Therapy I: The Basics	3
SOWK:661	Cognitive Behavioral Therapy II: Beyond the Basics	3
SOWK:603	Advanced Field Practicum	3

SOWK:604	Advanced Field Practicum	3
Total Hours		15

Social Work, MSW

The curriculum of the MSW Program is designed to prepare students for advanced level professional practice in social work. The program provides a rigorous intellectual base, an opportunity for effective skill development, and an educational perspective that views human diversity as desirable and enriching to society.

The MSW Program offers:

- Preparation for the advanced practice of social work
- A degree program accredited by the Council on Social Work Education
- Full-time & Part-time
- Day, evening, & weekend courses
- Regional field placements
- Advanced standing program for qualifying students with a BSW

The degree program is accredited by the Council on Social Work Education.

Admission Requirements

The MSW Program is committed to diversity in the student body. An applicant for admission as a degree candidate in social work (either full-time, part-time, or advanced standing) must fulfill the general admission requirements of both the Graduate School and the MSW Program prior to admission. The applicant must therefore complete application forms for both the Graduate School and the MSW Program. It is the applicant's responsibility to make sure that all required application materials have been received. Applications for full-time, part-time, and advanced standing will be reviewed starting February 1. Applications for Advanced Standing must be received by March 31. Full-time and part-time applications must be received by June 1. All application materials must be received by these dates. Full-time and part-time admissions are available only for the fall semester.

The applicant must submit the following to the Graduate School:

- Graduate application form accompanied by the application fee.
- An official transcript from each college or university attended (must include content in liberal arts coursework) sent directly to the Graduate School.

The applicant must submit the following to the School of Social Work:

- An essay of 3-5 typed pages explaining:
 - why he/she wants to be a social worker;
 - why a graduate degree is felt to be necessary to fulfill his/her personal or professional objectives;
 - his/her views regarding diversity in society;
 - a situation in which he/she was the recipient/provider of help, emotionally, socially, or economically, and if/how this situation impacted the desire to pursue an advanced degree in social work.
- A recent resume which highlights social work or human service experience.
- Three letters of reference/recommendation forms (including one from immediate supervisor, if employed).

- A completed Application Checklist.
- Preferred Program Format Form.

In addition, applicants to MSW program must have:

- Undergraduate degree in social work or a related field.
- Minimum GPA of 3.00 in all coursework taken prior to application for admission to the MSW full-time or part-time program.
- Well-balanced liberal arts curriculum.
- Interview with a member of the faculty may also be required.

Admission to the master’s degree program is on a selective basis and is determined by the academic preparation and personal qualifications of the applicant. Intellectual maturity, emotional stability, motivation, and the capacity to work with people are essential qualifications.

Openings for admission are limited, and competition is considerable. Individuals who have the strongest qualifications in terms of the MSW program’s admission criteria are selected for admission. Students admitted to the MSW program must register for courses the same calendar year they are accepted. Students must indicate their intention to enroll by the deadline indicated in the letter of acceptance.

The Advanced Standing option is an accelerated track of the MSW program that is completed in 11 months. Enrollment for the Advanced Standing is highly competitive, and limited to applicants who have excelled in all elements of an undergraduate social work program accredited by the Council on Social Work Education.

Students should indicate their preference for Advanced Standing in their application to the MSW program. The requirements for Advanced Standing include:

- A baccalaureate degree in social work completed within the last five years from a program accredited by the Council on Social Work Education;
- A minimum overall GPA of 3.2 and a minimum GPA in social work courses of 3.5 on a 4.0 scale;
- Demonstration of superior performance in field practicum as evidenced by submission of undergraduate field evaluations;
- For students graduating in May, acceptance will be contingent upon receipt of a final transcript and proof of BSW degree.

Applicants not accepted into Advanced Standing placement will be notified in writing of their option to enter the pool for admission into the full-time or part-time programs.

Applicants should be aware that having a prior felony conviction or prior sanctions for unprofessional conduct may impact future potential for obtaining licensure as well as field placements and social work employment. All individuals applying for a social work license in the state of Ohio are required to submit a criminal records check.

Students are expected to adhere to the program format under which they were admitted. Any changes in this initial admission status will be based on the program’s ability to accommodate the change. Changes must be requested in writing at the beginning of the previous academic year. The Admissions Committee may require an in-person interview at its discretion.

Scheduling of courses depends on the availability of rooms equipped with distance education technology as well as other factors. The days and times courses are offered may vary from year to year. Students enrolled

in either full-time, part-time, or advanced standing programs must be prepared to be flexible when the schedule of classes changes.

Transfer Students

An applicant who wishes to transfer from another MSW program must follow the same admission process and meet the same admission requirements as other degree candidates. A formal written request for transfer must be made at the time of application for admission. A maximum of 20 graduate credit hours may be transferred from another program accredited by the Council of Social Work Education. The credits must fall within the six-year time limit for degree completion. A grade of “B” or better is required for transfer credit. The Admissions Committee will determine acceptance of transfer credit. Credit will not be given for work or life experience. Transfer students must submit field work evaluations at the time of application for admission.

Program Requirements

- Complete a minimum of 60 graduate credits of approved courses in social work with an average grade of “B” or better on all classroom courses and satisfactory grades in all field courses. Students must register only for 600-level courses.
- Complete an approved program of courses which include the following required courses:

Full Time Program

First Year Generalist

1st Year		Hours
Fall Semester		
SOWK:601	Foundation Field Practicum	3
SOWK:605	Social Work Practice with Small Systems	3
SOWK:622	Fundamentals of Research I	3
SOWK:631	Human Behavior & Social Environment: Small Social Systems	3
SOWK:646	Social Welfare Policy I	3
Hours		15
Spring Semester		
SOWK:602	Foundation Field Practicum	3
SOWK:606	Social Work Practice with Large Systems	3
SOWK:647	Social Welfare Policy II	3
SOWK:623	Fundamentals of Research II	3
SOWK:632	Human Behavior & Social Environment: Large Systems	3
Hours		15
Total Hours		30

Second Year Specialized (Direct Practice)

2nd Year		Hours
Fall Semester		
SOWK:603	Advanced Field Practicum	3
SOWK:607	Advanced Practice with Small Systems I	3
SOWK:611	Dynamics of Racism & Discrimination	3
SOWK:663	Psychopathology & Social Work	3
One elective		3
Hours		15
Spring Semester		
SOWK:604	Advanced Field Practicum	3

SOWK:608	Advanced Practice with Small Systems II	3
SOWK:675	Program Evaluation	3
Two electives		6
	Hours	15
	Total Hours	30

Second Year Specialized (Macro Practice)

2nd Year

Fall Semester		Hours
SOWK:603	Advanced Field Practicum	3
SOWK:611	Dynamics of Racism & Discrimination	3
SOWK:674	Community, Economic Systems & Social Policy Analysis	3
SOWK:672	Community Organization & Planning	3
One elective		3
	Hours	15
Spring Semester		
SOWK:604	Advanced Field Practicum	3
SOWK:671	Social Work Administration	3
SOWK:673	Strategies of Community Organization	3
SOWK:675	Program Evaluation	3
One elective		3
	Hours	15
	Total Hours	30

Part-Time Program

Generalist

1st Year

Fall Semester		Hours
SOWK:631	Human Behavior & Social Environment: Small Social Systems	3
SOWK:646	Social Welfare Policy I	3
	Hours	6
Spring Semester		
SOWK:632	Human Behavior & Social Environment: Large Systems	3
SOWK:647	Social Welfare Policy II	3
	Hours	6

2nd Year

Fall Semester		Hours
SOWK:622	Fundamentals of Research I	3
SOWK:605	Social Work Practice with Small Systems	3
SOWK:601	Foundation Field Practicum	3
	Hours	9
Spring Semester		
SOWK:623	Fundamentals of Research II	3
SOWK:606	Social Work Practice with Large Systems	3
SOWK:602	Foundation Field Practicum	3
	Hours	9
	Total Hours	30

Specialized (Direct Practice)

3rd Year

Fall Semester		Hours
SOWK:611	Dynamics of Racism & Discrimination	3
SOWK:663	Psychopathology & Social Work	3
	Hours	6

Spring Semester

Two electives		6
	Hours	6

4th Year

Fall Semester

SOWK:607	Advanced Practice with Small Systems I	3
SOWK:603	Advanced Field Practicum	3
One elective		3
	Hours	9

Spring Semester

SOWK:608	Advanced Practice with Small Systems II	3
SOWK:604	Advanced Field Practicum	3
SOWK:675	Program Evaluation	3
	Hours	9
	Total Hours	30

Specialized (Macro Practice)

3rd Year

Fall Semester		Hours
SOWK:611	Dynamics of Racism & Discrimination	3
SOWK:674	Community, Economic Systems & Social Policy Analysis	3
	Hours	6

Spring Semester

SOWK:671	Social Work Administration	3
One elective		3
	Hours	6

4th Year

Fall Semester

SOWK:672	Community Organization & Planning	3
SOWK:603	Advanced Field Practicum	3
One elective		3
	Hours	9

Spring Semester

SOWK:673	Strategies of Community Organization	3
SOWK:604	Advanced Field Practicum	3
SOWK:675	Program Evaluation	3
	Hours	9
	Total Hours	30

Advanced Standing Program

Direct Practice Specialized

Summer Semester		Hours
SOWK:650	Advanced Standing Integrative Seminar	6
	Hours	6
Fall Semester		
SOWK:611	Dynamics of Racism & Discrimination	3

SOWK:663	Psychopathology & Social Work	3
SOWK:607	Advanced Practice with Small Systems I	3
SOWK:603	Advanced Field Practicum	3
One elective		3
Hours		15

Spring Semester

SOWK:675	Program Evaluation	3
SOWK:608	Advanced Practice with Small Systems II	3
SOWK:604	Advanced Field Practicum	3
Two electives		6
Hours		15
Total Hours		36

Macro Practice Specialized

Summer Semester		Hours
SOWK:650	Advanced Standing Integrative Seminar	6
Hours		6

Fall Semester

SOWK:611	Dynamics of Racism & Discrimination	3
SOWK:672	Community Organization & Planning	3
SOWK:674	Community, Economic Systems & Social Policy Analysis	3
SOWK:603	Advanced Field Practicum	3
One elective		3
Hours		15

Spring Semester

SOWK:671	Social Work Administration	3
SOWK:673	Strategies of Community Organization	3
SOWK:675	Program Evaluation	3
SOWK:604	Advanced Field Practicum	3
One elective		3
Hours		15
Total Hours		36

Speech-Language Pathology and Audiology

- Audiology, Au.D. (p. 199)
- Augmentative and Alternative Communication, Certificate (p. 200)
- Speech - Language Pathology, M.A. (p. 201)
- Speech-Language Pathology Distance Learning Program, M.A. (p. 201)

Speech-Language Pathology and Audiology (SLPA)

SLPA:530 Aspects of Normal Language Development (3 Credits)
(Not open to communicative disorders major) Introduction to acquisition and development of comprehension and production of language - phonologically, semantically and syntactically. Relates language acquisition to perceptual development of child and looks at function of language in individual, family and school. (Formerly 7700:530)

SLPA:540 Augmentative Communication (3 Credits)

Prerequisite: Graduate standing in speech-language pathology. Overviews augmentative communication systems-candidates, symbol systems, devices, vocabulary, funding. Considers interdisciplinary issues in assessment/intervention. (Formerly 7700:540)

SLPA:545 Multicultural Considerations for Audiologists & Speech-Language Pathologists (2 Credits)

Prerequisite: SLPA 110 or graduate standing. This course introduces the multicultural considerations faced by audiologists and speech-language pathologists providing services to families and individuals with communication disorders. (Formerly 7700:545)

SLPA:552 Child, Illness and Loss (3 Credits)

This course examines the phenomena of illness, loss and bereavement in modern society with a special emphasis on children and families. (Formerly 7700:552)

SLPA:553 Facilitating Support Groups (3 Credits)

Theories, strategies and skills needed to facilitate support groups for children and for adults are studied using a variety of approaches including participation in a support group. (Formerly 7700:553)

SLPA:554 Child in the Hospital (4 Credits)

Prerequisite: permission of the instructor. Seminar dealing with social needs and problems of hospitalized/ill child and family. Literature related to effects, separation, illness and stress. Examination of strategies for coping. (Formerly 7700:554)

SLPA:555 Practicum: Experience in a Child-Life Program (3 Credits)

Prerequisite: CHFD 561 or permission of the instructor. Field experience in a child life program and classroom activities including critical analysis of a currently functioning program and program administration. (Formerly 7700:555)

SLPA:556 Child in the Hospital Lab (2 Credits)

Corequisite: SLPA 554. Experiential lab in which students practice communication and clinical skills applied to pediatric diagnosis in a health related setting. (Formerly 7700:556)

SLPA:560 Speech-Language & Hearing Disorders in the Public Schools (2 Credits)

(Not open to communicative disorders major) Nature, causes and treatment of speech, hearing and language disorders in public schools. Special reference to role of classroom teacher in identifying and referring student with suspected problems and in working with school clinician. (Formerly 7700:560)

SLPA:561 Organization & Administration: Public School Speech-Language & Hearing Programs (2 Credits)

Prerequisites: Senior or graduate standing or permission. For clinicians who plan to work in public school systems. Covers program requirements and professional/ethical issues imposed by PL 94-142 and IDEA legislation. (Formerly 7700:561)

SLPA:580 Early Intervention for Preschoolers (2 Credits)

Prerequisite: graduate status. This course explores model programs currently being offered to the three to five year old population, with and without disabilities at two different levels. (Formerly 7700:580)

SLPA:583 Hospital Settings, Children & Families Lab (2 Credits)

Corequisite: SLPA 584. Practice, videotape and self-evaluate child life competencies related to working with children and families in a health related setting. (Formerly 7700:583)

SLPA:584 Hospital Settings, Children and Families (3 Credits)

Prerequisite: permission of the instructor. Focuses on hospital as a major social institution; introduces procedures and functions of the hospital; roles played by various hospital personnel plus cursory knowledge of medical terminology, common childhood diseases, illnesses and injuries. (Formerly 7700:584)

SLPA:585 Developmental Disabilities (2 Credits)

Prerequisite: Full admission to the graduate program in speech-language pathology. This course addresses current practice related to clinical intervention designed for individuals with developmental disabilities. Explores the social aspects of communication, including challenging behavior, ineffective social skills, and lack of communication opportunities. (Formerly 7700:585)

SLPA:590 Workshop: Speech-Language Pathology and Audiology (1-3 Credits)

(May be repeated for a total of four credits) Prerequisite: permission. Group investigation of particular phase of speech pathology and/or audiology not offered by other courses. (Formerly 7700:590)

SLPA:594 Child Life Internship (5 Credits)

Prerequisite: SLPA 555 and permission of advisor. Field experience in a child life program at an approved pediatric facility under the supervision of Certified Child Life Specialists. (Formerly 7700:594)

SLPA:602 Assessment, Play and Therapeutic Interventions with Children (3 Credits)

An overview of the theoretical framework of play and assessment of children's developmental and emotional needs. Therapeutic interventions and activities are explored. (Formerly 7700:602)

SLPA:603 Child Life Professional Practice and Communication (3 Credits)

Provides the knowledge of child life professional practice, standards of clinical practice, competencies and ethics. Skills related to therapeutic communication with patients, families and staff will be explored and practiced. (Formerly 7700:603)

SLPA:608 Advanced Skills in Augmentative-Alternative Communication (1 Credit)

Prerequisites: SLPA 540, SLPA 613, and SLPA 650 with a grade of A- or greater, graduate standing in speech-language pathology and enrollment in the AAC Concentration Certificate Program. Advanced coursework addressing augmentative and alternative communication (AAC) clinical skills related to evaluation, intervention, technology and professional development experiences. (Formerly 7700:608)

SLPA:610 Instrumentation in Speech Pathology and Audiology (2 Credits)

Principles and use of clinical and research instrumentation in speech and hearing. (Formerly 7700:610)

SLPA:611 Research Methods in Communicative Disorders I (3 Credits)

Prerequisite: Full admission to the SLP or Child Life Specialist programs or permission of the school director. Introduction to experimental design in field of communicative disorders. (Formerly 7700:611)

SLPA:613 Advanced Topics in Augmentative-Alternative Communication (3 Credits)

Prerequisites: SLPA 540 with a grade of B- or better and graduate standing in speech-language pathology, or permission from instructor. Advanced coursework addressing assessment approaches, intervention planning, evidence-based interventions, language systems, alternative access methods and behavior management for clients who use augmentative-alternative communication. Students will develop advanced knowledge and skills through coursework, hands-on virtual labs, discussions, and assignments. (Formerly 7700:613)

SLPA:614 Language and Literacy Development (3 Credits)

Prerequisite: Full admission to the Master of Arts in Speech-Language Pathology. This course presents current research perspectives on child language disorders and clinical methodologies in language assessment and intervention. (Formerly 7700:614)

SLPA:615 Fluency Disorders :Assessment, Counseling and Treatment (3 Credits)

Prerequisite: Full admission to the SLP program or permission of the school director. This course provides information and discussion on theories, classification, diagnosis and treatment of fluency disorders. (Formerly 7700:615)

SLPA:620 Articulation/Phonology (3 Credits)

Prerequisite: Full admission to graduate program in speech-language pathology. Historical background, current theories and research related to etiology, evaluation and treatment of articulation and phonology disorders as well as childhood apraxia of speech. Survey current methods in and approaches to accent/dialect modification. (Formerly 7700:620)

SLPA:623 Support Systems for Individuals & Families with Communicative Disorders (2 Credits)

Prerequisite: Full admission to the SLP program or permission of the school director. Enhances students' abilities to interview, provide educational information, and create support systems for persons with communicative handicaps and their families. (Formerly 7700:623)

SLPA:624 Neurogenic Speech & Language Disorders (3 Credits)

Prerequisite: Full admission to the SLP program or permission of the school director. Course presents current theories and research related to neuroanatomical etiology, diagnosis, classification and treatment of adults with neurologically based communication disorders. (Formerly 7700:624)

SLPA:626 Voice & Cleft Palate (3 Credits)

Prerequisite: Full admission to the SLP program or permission of the school director. Background and current research related to normal vocal and velopharyngeal function as well as the etiology, diagnosis, and treatment of voice and cleft palate. (Formerly 7700:626)

SLPA:627 Stuttering: Theories & Therapies (2 Credits)

Pre-requisite: Full admission to the SLP program or permission of the school director. This course provides information and discussion on theories, classification, diagnosis, and treatment of fluency disorders. (Formerly 7700:627)

SLPA:628 Topics in Differential Diagnosis of Speech & Language Disorders (2 Credits)

(May be repeated for a total of four credits) Pre-requisite: Full admission to the SLP program or permission of the school director. (Formerly 7700:628)

SLPA:630 Clinical Issues in Child Language (4 Credits)

Prerequisite: Full admission to the SLP program or permission of the school director. Presents current research perspectives on child language disorders and clinical methodologies in language assessment and intervention. (Formerly 7700:630)

SLPA:631 Cognitive Communicative Issues in Special Language (3 Credits)

Prerequisite: Full admission to the SLP program or permission of the school director. A study of behavioral deficits, stages of recovery, assessment techniques, and principles of cognitive rehabilitation related to closed head injury. (Formerly 7700:631)

SLPA:632 Dysphagia (3 Credits)

Prerequisite: Full admission to the SLP program or permission of the school director. Outlines etiology, assessment, and treatment for infants, children, and adults with feeding and swallowing disorders (dysphagia). It provides actual experiences in diagnosis and feeding techniques. (Formerly 7700:632)

SLPA:633 Professional Issues (2 Credits)

Prerequisite: Full admission to the SLP program or permission of the school director. Ethical, moral, and legal processes within current SLP professional issues are discussed. Students are encouraged to develop personal professional viewpoints and identity. (Formerly 7700:633)

SLPA:639 Audiology for the Speech-Language Pathologist (3 Credits)

Prerequisite: Full admission to the SLP program or permission of the school director. Advanced information on hearing loss and concomitant communication problems with special orientation toward the speech-language pathologist. (Formerly 7700:639)

SLPA:640 Special Tests/Medical Audiology (4 Credits)

Prerequisite: SLPA 639 or permission of instructor. Underlying psychoacoustic principles of administration and interpretation of site-of-lesion tests. Relationship between otology and audiology; application of clinical audiology in medical environment. (Formerly 7700:640)

SLPA:642 Pediatric Audiology (2 Credits)

Prerequisite: SLPA 639 or permission of instructor. Etiology of hearing loss in children, techniques for testing preschool and school-age children and other difficult-to-test clients. (Formerly 7700:642)

SLPA:643 Industrial Audiology (2 Credits)

Prerequisite: SLPA 639 or permission of instructor. Theoretical principles of noise measurement; etiology of noise-induced hearing loss and acoustic trauma; industrial hearing conservation programs; Occupational Safety and Health Act (O.S.H.A.) regulations. (Formerly 7700:643)

SLPA:644 Aural Rehabilitation (4 Credits)

Prerequisite: permission of instructor. Review of current methodologies employed in aural rehabilitation of children and adults as well as current and potential areas of research. (Formerly 7700:644)

SLPA:645 Evoked Potentials (2 Credits)

Prerequisite: permission of instructor. A study of auditory, visual and somatosensory evoked potentials and their clinical applications in audiology and neuro-otology. (Formerly 7700:645)

SLPA:649 Electronystagmography (2 Credits)

Prerequisite: permission of instructor. Study of the anatomy and physiology of the vestibular system; nystagmus; electronystagmographic (ENG) recording procedures; ENG protocols; interpretation of ENG results. (Formerly 7700:649)

SLPA:650 Advanced Clinical Practicum: Speech-Language Pathology (1-6 Credits)

Prerequisite: Full admission to the SLP program or permission of the school director. Supervised clinical practicum in evaluation and treatment of speech and language disorders; includes preparation of written reports. (Formerly 7700:650)

SLPA:654 Advanced Clinical Practicum: Audiology (1-6 Credits)

Prerequisite: Permission (may be repeated). Supervised clinical practicum in evaluation and treatment of hearing disorders; includes preparation of written reports. (Formerly 7700:654)

SLPA:673 Public School Issues in Speech-Language-Hearing Programs (3 Credits)

Familiarizes participants with the organization and management of speech-language-hearing services in schools. (Formerly 7700:673)

SLPA:683 Neuroscience for Communicative Disorders (3 Credits)

Prerequisite: Full admission to the SLP program or permission of the school director. Familiarize students with anatomy and physiology of the normal and abnormal nervous system. Discusses identification, management, and course of common disorders of the nervous system. (Formerly 7700:683)

SLPA:690 Internship: Advanced Programming in Child Life (5 Credits)

Prerequisite: SLPA 594. Field experience in a specialized area in a child life program in an approved pediatric facility under the supervision of a certified child life specialist. (Formerly 7700:690)

SLPA:691 School-based Externship Seminar (1 Credit)

Taken concurrently with School-based Externship in Audiology or Speech-Language Pathology. Review and discussion of issues raised during externship experience. (Formerly 7700:691)

SLPA:693 School-based Externship: Speech Language Pathology (6 Credits)

Directed professional experience under supervision of a licensed and certified Speech-Language Pathologist and a University supervisor. (Formerly 7700:693)

SLPA:695 Externship: Speech Language Pathology (6 Credits)

Prerequisite: Full admission to the SLP program or permission of the school director. Clinical practicum in a selected speech-language pathology or audiology facility. (Formerly 7700:695)

SLPA:696 Externship Seminar (1 Credit)

(May be repeated once) Corequisite: SLPA 695. Prerequisite: Full admission to the SLP program or permission of the school director. Taken concurrently with externship in speech-language pathology. Review and discuss issues raised during extern experience. (Formerly 7700:696)

SLPA:697 Special Problems: Speech Pathology &/or Audiology (1-3 Credits)

(May be repeated for total of six credits.) Prerequisite: Full admission to the SLP program or permission of the school director. Guided research or reading in selected topics in speech pathology, audiology, or language disorders. (Formerly 7700:697)

SLPA:699 Masters Thesis (4-6 Credits)

(May be repeated for a total of six credits.) Prerequisite: permission of School Director. (Formerly 7700:699)

SLPA:701 Basic and Applied Physical Acoustics for Audiology (4 Credits)

Prerequisites: Admission to the Au.D. Program or permission of instructor. Study of physical acoustics, basis electricity and electronics, as well as principles, methodology, calibration, and maintenance of audiologic equipment. (includes 1 credit hour lab). (Formerly 7700:701)

SLPA:702 Anatomy and Physiology of the Peripheral Auditory and Vestibular System (4 Credits)

Prerequisites: Admission to the Au.D. program or permission of instructor. A study of the anatomy, biophysics, and physiology of the auditory and vestibular systems. (Formerly 7700:702)

SLPA:703 Speech Acoustics and Speech Perception (2 Credits)

Prerequisites: Admission to the Au.D. program or permission. Study of the acoustics, measurement, and nomenclature of speech sounds and theoretical and acoustic bases of speech perception. (Formerly 7700:703)

SLPA:704 Critical Analysis of Research in Audiology I (2 Credits)

Prerequisites: Admission to the Au.D. program or permission. General introduction to the research process with an emphasis on acquiring a reading knowledge of research and an ability to evaluate research. (Formerly 7700:704)

SLPA:705 Auditory Disorders (2 Credits)

Prerequisite: admission to the Au.D. program or permission. Study of conditions/diseases that can affect the auditory system. (Formerly 7700:705)

SLPA:706 Anatomy & Physiology Underlying Neuro-Otology (4 Credits)

Prerequisite: SLPA 702. An in depth study of the anatomy and physiology of the central auditory and vestibular nervous systems (include 1 hour lab). (Formerly 7700:706)

SLPA:707 Psychoacoustics (3 Credits)

Prerequisites: Admission to the Au.D. program or permission. Study of the principles, procedures, and research of psycho-acoustics: the relationships between the physical dimensions of auditory stimuli and the resultant perceptual experience with normal and impaired hearing. (Formerly 7700:707)

SLPA:708 Critical Analysis of Research in Audiology II (2 Credits)

Prerequisite: SLPA 704. Development of a reading knowledge of research and the ability to evaluate the quality of research studies. (Formerly 7700:708)

SLPA:709 Audiologic Assessment (3 Credits)

Prerequisite: SLPA 705, SLPA 752. Theoretical basis for the tests underlying basic audiologic assessment. (Formerly 7700:709)

SLPA:710 Industrial and Community Noise (3 Credits)

Prerequisite: Admission to the Au.D. program. Theoretical principles of noise measurement; etiology of noise-induced hearing loss and acoustic trauma; industrial hearing conservation programs; Occupational Safety and Health Act; community and recreational noise evaluation and management. (Formerly 7700:710)

SLPA:712 Diagnosis of Auditory Disorders (3 Credits)

Prerequisite: SLPA 709. Underlying theory and principles of administration and interpretation of site-of-lesion tests. (Formerly 7700:712)

SLPA:713 Hearing Aid Technology (4 Credits)

Prerequisite: SLPA 701. Study of amplification systems for the hearing impaired. (Formerly 7700:713)

SLPA:714 Gerontological Issues in Audiology (3 Credits)

Prerequisite: Admission to the Au.D. program. Physiological, psychological, and sociological theories of aging with a focus on the etiology, symptomatology, assessment, and rehabilitation of older adults with hearing impairments. (Formerly 7700:714)

SLPA:715 Central Auditory Processing: Evaluation and Management (2-3 Credits)

Prerequisites: SLPA 705, SLPA 706. Study of audiologic evaluation and habilitation/rehabilitation procedures for people having central auditory disabilities. (Formerly 7700:715)

SLPA:717 Pediatric Audiology (3 Credits)

Prerequisite: SLPA 709. Study of audiologic diagnostic and auditory habilitative protocols for the birth to 3 population. Both assessment and management strategies will be emphasized. (Formerly 7700:717)

SLPA:718 Cochlear Implants (2 Credits)

Prerequisite: Admission to the Au.D. program. Study of cochlear implants in children and adults including equipment, candidacy, mapping, and an overview of (re)habilitation. (Formerly 7700:718)

SLPA:719 Counseling in Audiology (3 Credits)

Prerequisites: Admission to the Au.D. program or permission. Focus on interviewing, counseling and interacting with individuals with hearing impairments, their families, and significant others. (Formerly 7700:719)

SLPA:721 Evaluation and Management of Balance Disorders (3 Credits)

Prerequisites: Admission to the Au.D. program or permission. Study of the balance mechanism; differential diagnostic assessment of balance disorders including electronystagmography, posturography and rotation testing; rehabilitation of the balance disordered patient. (Formerly 7700:721)

SLPA:725 Medical Management of Auditory Disorders (2 Credits)

Prerequisite: SLPA 712. A study of the multidisciplinary approach to medical/surgical management of patients with auditory and vestibular disorders. (Formerly 7700:725)

SLPA:726 Electrophysiological Techniques in Audiology (3 Credits)

Prerequisites: SLPA 706 or permission. Study of evoked responses used in diagnostic audiology, including ABR, MLR, EChocG, ENOG, ALR, P300, VER, and SSER. (Formerly 7700:726)

SLPA:727 Multicultural Issues in Audiology (2 Credits)

Prerequisites: Admission to the Au.D. program or permission. An introduction to Deaf Culture and the audiologist's roles and responsibilities in planning treatment with a member of the deaf community. (Formerly 7700:727)

SLPA:728 Seminar in Audiology (2 Credits)

Prerequisite: Admission to the Au.D. program. Selected current topics in audiology with emphasis on review of current literature. Course may be repeated up to 6 credits. (Formerly 7700:728)

SLPA:730 Practice Management in Audiology (3-4 Credits)

Prerequisites: Admission to the Au.D. program or permission. Study of issues which impact the management of audiological practices, including establishing a private practice, reimbursement, marketing, record keeping and professional liability. (Formerly 7700:730)

SLPA:731 Fourth Year Seminar (1-6 Credits)

Prerequisite: Admission to the Au.D. program. Corequisite: SLPA 749 or SLPA 750. In-depth consideration of topics/issues in the practice of audiology with emphasis upon issues related to clinical rotation issues. Repeatable up to 6 credits. (Formerly 7700:731)

SLPA:732 Audiologic Treatment Across the Lifespan (4 Credits)

Study of current methodologies employed in the audiologic treatment of people with hearing loss across the lifespan. Implementation of remedial strategies is emphasized. (Formerly 7700:732)

SLPA:734 Principles of Precepting (1 Credit)

Examination of the concepts and practices essential to the preceptor role. Emphasis on professional standards, adult learning theories, communication styles, ethical principles, and the multiple roles of a preceptor (educator, role model, mentor, facilitator, and evaluator). (Formerly 7700:734)

SLPA:735 Laboratory for Electrophysiologic Techniques in Audiology (1 Credit)

Prerequisite: Admission to the Au.D. program or permission. Corequisite: SLPA 726. Laboratory exercises for the assessment of auditory disorders including electrocochleography, the auditory brain stem response and auditory steady state responses. (Formerly 7700:735)

SLPA:736 Laboratory for the Evaluation and Management of Balance Disorders (1 Credit)

Prerequisite: Admission to the Au.D. program or permission. Corequisite: SLPA 721. Laboratory exercises for the assessment of balance disorders including videonystagmography, posturography and informal evaluations; approaches for the rehabilitation and treatment of the balance disordered patient. (Formerly 7700:736)

SLPA:737 Laboratory for Advanced Electrophysiological and Vestibular Measures (1 Credit)

Prerequisite: Admission to the Au.D. program or permission. Corequisite: SLPA 761. Laboratory exercises for the assessment, management and treatment of auditory and vestibular disorders including early, middle and late auditory evoked potentials and advanced vestibular measures. (Formerly 7700:737)

SLPA:747 Graduate Audiologist I (3 Credits)

Prerequisite: SLPA 757. Supervised clinical practicum in audiology which encompasses audiologic assessments and audiologic rehabilitation. Repeatable up to nine credits. (Formerly 7700:747)

SLPA:748 Graduate Audiologist II (3 Credits)

Prerequisites: SLPA 747 and permission. Supervised clinical practicum in audiology requiring the independent performance of audiologic assessment procedures, audiologic rehabilitation, and vestibular assessment and rehabilitation. Repeatable up to nine credits. (Formerly 7700:748)

SLPA:749 Graduate Audiologist III (6 Credits)

Prerequisites: SLPA 748 and permission. Corequisite: SLPA 731. Supervised clinical practicum in audiology requiring the independent performance of audiologic assessment procedures, audiologic rehabilitation, and vestibular assessment and rehabilitation. Repeatable up to 24 credits. (Formerly 7700:749)

SLPA:750 Graduate Audiologist IV (8 Credits)

Prerequisite: SLPA 749. Corequisite: SLPA 731. Supervised clinical practicum in audiology requiring the independent performance of audiologic assessment procedures, audiologic rehabilitation, and vestibular assessment and rehabilitation. Repeatable up to 24 credits. (Formerly 7700:750)

SLPA:751 Graduate Audiologist V (3-8 Credits)

Prerequisite: SLPA 750 and permission; Co-requisite: SLPA 731. Supervised clinical practicum in audiology requiring the independent performance of audiologic assessment procedures, audiologic rehabilitation, and vestibular assessment and rehabilitation. Repeatable up to 9 credits. (Formerly 7700:751)

SLPA:752 Clerkship I (1 Credit)

Prerequisites: Admission to the Au. D. program or permission of instructor. Introduction to clinical practicum in Audiology. Directed observation of clinical practice including audiologic diagnosis and audiologic rehabilitation are required. (Repeatable up to 6 credits) (Formerly 7700:752)

SLPA:753 Clerkship II (1 Credit)

Prerequisite: SLPA 752. Introduction to clinical practicum in audiology. Directed observation of clinical practice including audiologic diagnosis and audiologic rehabilitation are required. (Repeatable up to 6 credits) (Formerly 7700:753)

SLPA:754 Internship I (1 Credit)

Corequisite: SLPA 709 or permission. Clinical practicum in audiology during which students perform discrete tasks under supervision. (Repeatable up to 6 credits) (Formerly 7700:754)

SLPA:755 Internship II (1 Credit)

Prerequisite: SLPA 754. Supervised clinical practicum in audiology during which students will perform discrete tasks while under supervision. (Repeatable up to 6 credits) (Formerly 7700:755)

SLPA:756 Internship III (2 Credits)

Prerequisites: SLPA 755 or permission. Supervised practicum in audiology requiring the independent performance of basic audiologic procedures, including hearing aid management. (Repeatable up to 8 credits) (Formerly 7700:756)

SLPA:757 Internship IV (2 Credits)

Prerequisites: SLPA 756 and permission. Supervised clinical practicum in audiology requiring the independent performance of diagnostic audiology, hearing aids, and audiologic rehabilitation procedures. (Repeatable up to 8 credits) (Formerly 7700:757)

SLPA:758 Implantable Technology (4 Credits)

Prerequisite: Admission to the Au.D program or permission. Study of cochlear implants in children and adults including equipment, candidacy, mapping, and an overview of rehabilitation. (Formerly 7700:758)

SLPA:760 Hearing Aid Fitting & Selection Across the Lifespan (4 Credits)

Prerequisite: SLPA 713. Examination of the theory and practice of fitting hearing aids across the lifespan. Emphasis on special clinical procedures, research needs and evolving technology in hearing instruments. (Formerly 7700:760)

SLPA:761 Advanced Electrophysiologic & Vestibular Measures (4 Credits)

Prerequisites: SLPA 721 & SLPA 726. Advanced considerations in balance function assessment and management and in the study of evoked responses used in diagnostic audiology. (Formerly 7700:761)

SLPA:899 Doctoral Enrollment/Residency (1-8 Credits)

Prerequisite: Graduate standing in the Au.D. program and permission of instructor. Continuous enrollment course to maintain status in Au.D. program (Formerly 7700:899)

Audiology, Au.D.

The Au.D. is a four-year post baccalaureate professional doctoral degree program. Doctors of Audiology are independent professionals who specialize in the diagnosis, management and treatment of hearing and balance disorders. The Au.D. program, which is known as the Northeast Ohio Au.D. Consortium (NOAC), is a joint degree program administered by The University of Akron and Kent State University. NOAC is a single unified program of faculty, students, facilities, and resources. Students take classes and participate in clinic at both The University of Akron and Kent State University with half of the classes offered at each university. Students will be admitted to NOAC either through The University of Akron or Kent State University, and they will register for courses on the campus where they are admitted. All classes are cross-listed.

Admission Requirements

- Bachelor's degree from an accredited college or university
- Grade point average of 3.0 or higher
- Graduate Record Examination scores (waived for 2022-2023 admission cycle)
- Three letters of recommendation
- Personal statement of purpose as to why the applicant wishes to become an audiologist
- Interview during the NOAC Visitation Day or a virtual/remote interview if unable to attend

All application materials must be received through CSDCAS (<https://csdcas.liaisoncas.org/>) by December 15.

Contact Information:

School Director: Dr. Jim Steiger

- Email: steiger@uakron.edu
- Phone: (330) 972-8190

NOAC Coordinator: Dr. Erin Miller

- Email: elm@uakron.edu
- Phone: (330) 972-8160

Audiology Graduate Coordinator: Dr. Alex Meibos

- Email: ameibos@uakron.edu
- Phone: (330) 972-5987

Degree Requirements

The Au.D. curriculum is a continuous 44 month post-baccalaureate course of study designed to integrate classroom, laboratory, and clinical experiences. All students will attend full-time and take the same courses in appropriate sequence. The emphasis of the program is on the principles and practices underlying evaluation, treatment, and provision of hearing care and balance services.

For progression and graduation, students must meet the following degree requirements:

- Maintain an overall grade point average of 3.0
- Complete a minimum of 120 semester credits
- Accrue 2000 clock hours of clinical experience
- Meet the requirements for Ohio licensure in Audiology
- Pass academic and clinical competency-based examinations
- Complete all required courses

Required Courses

Code	Title	Hours
SLPA:701	Basic and Applied Physical Acoustics for Audiology	4
SLPA:702	Anatomy and Physiology of the Peripheral Auditory and Vestibular System	4
SLPA:703	Speech Acoustics and Speech Perception	2
SLPA:704	Critical Analysis of Research in Audiology I	2
SLPA:705	Auditory Disorders	2
SLPA:706	Anatomy & Physiology Underlying Neuro-Otology	4
SLPA:707	Psychoacoustics	3
SLPA:708	Critical Analysis of Research in Audiology II	2
SLPA:709	Audiologic Assessment	3
SLPA:710	Industrial and Community Noise	3
SLPA:712	Diagnosis of Auditory Disorders	3
SLPA:713	Hearing Aid Technology	4
SLPA:714	Gerontological Issues in Audiology	3
SLPA:715	Central Auditory Processing: Evaluation and Management	2
SLPA:717	Pediatric Audiology	3
SLPA:719	Counseling in Audiology	3
SLPA:721	Evaluation and Management of Balance Disorders	3
SLPA:725	Medical Management of Auditory Disorders	2

SLPA:726	Electrophysiological Techniques in Audiology	3
SLPA:727	Multicultural Issues in Audiology	2
SLPA:728	Seminar in Audiology	2
SLPA:730	Practice Management in Audiology	3
SLPA:731	Fourth Year Seminar ¹	1
SLPA:731	Fourth Year Seminar ¹	1
SLPA:732	Audiologic Treatment Across the Lifespan	4
SLPA:734	Principles of Precepting	1
SLPA:735	Laboratory for Electrophysiological Techniques in Audiology	1
SLPA:736	Laboratory for the Evaluation and Management of Balance Disorders	1
SLPA:737	Laboratory for Advanced Electrophysiological and Vestibular Measures	1
SLPA:747	Graduate Audiologist I	3
SLPA:748	Graduate Audiologist II	3
SLPA:749	Graduate Audiologist III	6
SLPA:750	Graduate Audiologist IV	8
SLPA:751	Graduate Audiologist V	8
SLPA:752	Clerkship I	1
SLPA:753	Clerkship II	1
SLPA:754	Internship I	1
SLPA:755	Internship II	1
SLPA:756	Internship III	2
SLPA:757	Internship IV	2
SLPA:758	Implantable Technology	4
SLPA:760	Hearing Aid Fitting & Selection Across the Lifespan	4
SLPA:761	Advanced Electrophysiological & Vestibular Measures	4

Total Hours 120

¹ Students are required to register for two semesters of SLPA:731 Fourth Year Seminar

Augmentative and Alternative Communication, Certificate

The Augmentative and Alternative Communication (AAC) Certificate offers advanced knowledge and specialized clinical training in the area of AAC, including assessment and evaluation procedures, intervention planning and strategies, implementation of technology, parent and caregiver training, and professional development experiences.

Admission Requirements

- Graduate school admission in Speech-Language Pathology.

Applications for admission to the certificate program are accepted only once per year during the Fall semester. Review of applications is completed during the subsequent Spring semester. Admission is competitive.

Code	Title	Hours
SLPA:540	Augmentative Communication	3
SLPA:608	Advanced Skills in Augmentative-Alternative Communication	1

SLPA:613	Advanced Topics in Augmentative-Alternative Communication	3
SLPA:693	School-based Externship: Speech Language Pathology	6
Total Hours		13

Speech - Language Pathology, M.A. Admission Requirements

- Hold an undergraduate major in speech-language pathology or completed post-baccalaureate in speech-language pathology.
- Complete requirements for admission and send to Graduate School:
 - University of Akron Graduate School application with intent to major in speech-language pathology.
 - CSDCAS application which includes: official transcript with fall term grades included, three letters of recommendation with one being from an in-field instructor, GRE scores, resume, and statement of purpose.
- Participation in group interview (for invited students only)

Applications for admission are accepted and considered only once per year for the Fall term. Admission is competitive.

Applications for admission for the following academic year should be received by December 15.

Degree Requirements

The School of Speech-Language Pathology and Audiology offers a Master of Arts degree in Speech-Language Pathology. The program in Speech-Language Pathology is designed to lead to professional licensure by the Ohio Speech and Hearing Professionals Board and The Ohio Department of Education. The Master of Arts degree in Speech-Language Pathology program meets all requirements for accreditation by the Council of Academic Accreditation of The American Speech-Language-Hearing Association

Code	Title	Hours
SLPA:561	Organization & Administration: Public School Speech-Language & Hearing Programs	2
SLPA:540	Augmentative Communication	3
SLPA:585	Developmental Disabilities	2
SLPA:611	Research Methods in Communicative Disorders I	3
SLPA:620	Articulation/Phonology	3
SLPA:623	Support Systems for Individuals & Families with Communicative Disorders	2
SLPA:624	Neurogenic Speech & Language Disorders	3
SLPA:626	Voice & Cleft Palate	3
SLPA:627	Stuttering: Theories & Therapies	2
SLPA:628	Topics in Differential Diagnosis of Speech & Language Disorders	2
SLPA:630	Clinical Issues in Child Language	4
SLPA:631	Cognitive Communicative Issues in Special Language	3
SLPA:632	Dysphagia	3
SLPA:633	Professional Issues	2
SLPA:639	Audiology for the Speech-Language Pathologist	3

SLPA:590	Workshop: Speech-Language Pathology and Audiology	1-3
SLPA:650	Advanced Clinical Practicum: Speech-Language Pathology	1-6
SLPA:691	School-based Externship Seminar	1
SLPA:693	School-based Externship: Speech Language Pathology	6
SLPA:695	Externship: Speech Language Pathology	6
SLPA:696	Externship Seminar	1

Speech-Language Pathology Distance Learning Program, M.A.

The Speech-Language Pathology M.A. program, which is known as the Cincinnati-Akron Collaborative Online program, is a unified program of faculty, students, facilities, and resources. Students take classes through the University of Akron and the University of Cincinnati. Each university accepts 22 students into the program. The University of Akron accepts students from all over the country.

Admission Requirements

- Hold an undergraduate major in speech-language pathology or completed post-baccalaureate in speech-language pathology
- Complete requirements for admission and send to the Graduate School:
 - University of Akron Graduate School application with intent to major in speech-language pathology
 - CSDCAS application which includes: official transcript(s), three letters of recommendation with one being from an in-field instructor, GRE scores, resume, and statement of purpose.
- Participation in group interview (for invited applicants only)
 - Interviews are web-based for remote students

Applications for admission are accepted and considered only once per year for the Spring term. Admission is competitive. Applications for admission for the following academic year should be received by June 15.

Degree Requirements

All students must successfully complete a minimum of 74 credit hours.

1st Year		Hours
Spring Semester		
SLPA:614	Language and Literacy Development	3
	UC Advanced Phonetics	3
Hours		6
Summer Semester		
SLPA:683	Neuroscience for Communicative Disorders	3
	UC Clinical Processes in Communication Sciences and Disorders	3
	UC Language Disorders in Later Childhood	3
Hours		9
2nd Year		
Fall Semester		
SLPA:650	Advanced Clinical Practicum: Speech-Language Pathology	3

	UC Speech Sound Disorders	3
	UC Adult Neuro-language Disorders	3
	Hours	9
Spring Semester		
SLPA:650	Advanced Clinical Practicum: Speech-Language Pathology	3
SLPA:631	Cognitive Communicative Issues in Special Language	3
	UC Dysphagia	3
	Hours	9
Summer Semester		
SLPA:650	Advanced Clinical Practicum: Speech-Language Pathology	3
SLPA:540	Augmentative Communication	3
	UC Neurogenic Speech Disorders	3
	Hours	9
3rd Year		
Fall Semester		
SLPA:693 or SLPA:695	School-based Externship: Speech Language Pathology or Externship: Speech Language Pathology	6
SLPA:691 or SLPA:696	School-based Externship Seminar or Externship Seminar	1
SLPA:673	Public School Issues in Speech-Language-Hearing Programs	3
	UC Voice Disorders	3
	Hours	13
Spring Semester		
SLPA:693 or SLPA:695	School-based Externship: Speech Language Pathology or Externship: Speech Language Pathology	6
SLPA:691 or SLPA:696	School-based Externship Seminar or Externship Seminar	1
SLPA:615	Fluency Disorders :Assessment, Counseling and Treatment	3
SLPA:639	Audiology for the Speech-Language Pathologist	3
	Hours	13
Summer Semester		
SLPA:611	Research Methods in Communicative Disorders I	3
	UC Multicultural Aspects of Communication	3
	SLPA:695 Externship: Speech Language Pathology (6 credits) only required if not taken in a previous semester	
	SLPA:696 Externship Seminar (1 credit) only required if not taken in a previous semester	
	Hours	6
	Total Hours	74

UC refers to University of Cincinnati course.

Students are required to complete a total of five clinical practicum experiences; however, six semesters are allotted for their completion.

Students will not have a clinical practicum during one of the semesters between semester three and eight unless there are special circumstances.

Students must be registered for clinical practicum, medical externship, or school-based externship during any academic period in which they treat or evaluate clients under the supervision of a qualified speech-language pathologist.

Interdisciplinary Programs

- Gerontology, Certificate (p. 202)
- Public Humanities, Certificate (p. 203)

See also:

- Applied Political Communication, Certificate (p. 65)
- Women's Studies, Certificate (p. 97)

Gerontology, Certificate

This certificate program is a special course of study in gerontology that compliments graduate degree programs in various departments and colleges throughout the University. There is a combined graduate certificate program with Kent State University. Combined, the two universities offer a diverse range of graduate courses with aging-related content and join faculty that are nationally and internationally recognized scholars in gerontology. The graduate certificate is to be received with either a master's or doctoral degree. Individuals who already hold a graduate degree may also pursue the certificate. The program represents a concentration involving current knowledge and research in gerontology. It adds another dimension to the knowledge and skills a student is able to offer in the many professions that are becoming specialized in research and service to adults and older adults. This course of study coordinates multidisciplinary training of personnel in adult development and aging and helps to meet the critical shortage of trained individuals in the field of gerontology.

The graduate curriculum committee of the Institute for Life-Span Development and Gerontology will oversee this certificate program and certify, through the director of the Institute, that all requirements of the certificate have been completed.

B.S./M.D. students may complete Practicum/Internship and electives from courses available from the Institute or the Office of Geriatric Medicine and Gerontology, Northeast Ohio Medical University (NEOMED).

Admission

To participate in the program at the graduate level, a student must:

- Obtain admittance to the Graduate School.
- Submit an application to the program countersigned by the student's major academic advisor.
- Participate in an interview with the Director or designated faculty member of the Institute for Life-Span Development and Gerontology.
- Consult with the director or a designated faculty member to formulate a program of study.
- Receive written notification for admission from the director of the Institute for Life-Span Development and Gerontology.

Program

Code	Title	Hours
Core		9
Research Methods Course		
ILSD:680	Interdisciplinary Seminar in Life-Span Development & Gerontology	
ILSD:695	Practicum in Life-Span Development & Gerontology	
Electives		9
Select a minimum of three courses: ¹		
ILSD:686	Retirement Specialist	
ILSD:690	Workshop: Life-Span Development & Gerontology	
ILSD:690	Workshop: Life-Span Development & Gerontology	
POLIT:580	Policy Problems in Political Science (Offered every other year)	
PSYC:620	Core II: Cognitive Psychology	
PSYC:727	Psychology of Adulthood & Aging	
CHFD:541	Family Relationships in Middle and Later Years	
SOCIO:678	Social Gerontology	
HCM:683	Health Services Systems Management (with permission)	
SLPA:624	Neurogenic Speech & Language Disorders	
Total Hours		18

¹ A student is required to take two of the three electives outside the major or degree department. One credit workshop may be included as an elective, with permission.

Public Humanities, Certificate

This Interdisciplinary graduate certificate program provides opportunities for students who are interested in pursuing a public engagement element to their education at the graduate level.

Based in the Institute for Human Science and Culture, the Certificate offers transferable, hands-on skills applicable to a wide range of professions, providing students experience in presenting their scholarly research in public settings. These experiences offer background for those interested in work in fields such as Digital Humanities, museums and education, heritage preservation, public history, communications, community arts programming, and arts and nonprofit management.

Two required 3-credit core courses, six credit hours of electives from three thematic clusters, and three methodology credits comprise the certificate.

For information please contact Dr. Jodi Kearns at (330) 972-7952 or jkearns@uakron.edu

Core Courses

Code	Title	Hours
IHSC:501	Foundations of Museums and Archives I	3
IHSC:502	Foundations of Museums and Archives II	3
Total Hours		6

Methodologies

Code	Title	Hours
Take one course from the following Methodologies frameworks below:		3
<i>Educational Practices in Museums and Cultural Spaces</i>		
HIST:584	Museums and Archives	
HIST:585	History, Communities, and Memory	
EDFN:600	Philosophies of Education	
<i>Digital Public Humanities</i>		
ENGL:689	Seminar in English (Digital Humanities)	
EDIT:610	Introduction to Instructional Technology	
COMM:542	Social Media Metrics and Analytics	
<i>Research, Performance, and Public Exhibitions</i>		
AADMN:610	Principles of Arts Administration	
AADMN:620	Arts Administration Practices & Policies	
AADMN:640	Legal Aspects of Arts Administrators	
Total Hours		3

Thematic Clusters

Code	Title	Hours
Take two courses from one of the Thematic Clusters areas listed below:		6
<i>Culture and Memory</i>		
ENGL:689	Seminar in English (Digital Projects in the Archives)	
HIST:570	Ohio History	
HIST:587	Science and Technology in World History	
<i>Environments, Communities, and Access</i>		
HIST:571	American Environmental History	
HIST:583	History and Video Games	
COMM:540	Strategic Social Media	
THEA:555	Creating Performance	
THEA:567	Multi-Cultural Theatre	
THEA:576	Theatre and Community Action	
<i>Performance and Visual Culture</i>		
THEA:533	Theatre Organization and Production Management	
AADMN:660	Colloquium on the Arts	
AADMN:650	Audience Development	
AADMN:630	Fund Raising & Grantsmanship in the Arts	
<i>One of the following courses can be taken as part of any Thematic Cluster:</i>		
ENGL:689	Seminar in English (Grant Writing)	
ENGL:689	Seminar in English (Professional Writing)	
Total Hours		6

Graduate Certificate Programs

- Acute Care Nurse Practitioner, Certificate (p. 179)
- Adult/Gerontological Nurse Practitioner, Certificate (p. 180)
- Applied Political Communication, Certificate (p. 65)
- Applied Politics, Certificate (p. 65)
- Augmentative and Alternative Communication, Certificate (p. 200)

- Business Certificate for Health Care Professionals (p. 112)
- Business Dual Enrollment, Certificate (p. 112)
- Child and Adolescent Health Nurse Practitioner, Certificate (p. 184)
- Child and Adolescent Health Nursing-Acute Care, Certificate (p. 185)
- Cognitive Behavior Therapy, Certificate (p. 192)
- Composition, Certificate (p. 35)
- Counseling Children and Adolescents, Certificate (p. 167)
- Couple and Family Therapy, Certificate (p. 167)
- Elastomer Science and Engineering, Certificate (p. 156)
- Environmental Engineering, Certificate (p. 136)
- Environmental Studies, Certificate (p. 39)
- Family Nurse Practitioner, Certificate for Certified Adult/Gerontological NPs (p. 185)
- Family Psychiatric/Mental Health Nurse Practitioner, Certificate (p. 186)
- Financial Management, Certificate (p. 114)
- Geotechnical Engineering, Certificate (p. 136)
- Gerontology, Certificate (p. 202)
- Global Innovation and Technology Management, Certificate (p. 118)
- Health and Crisis Communication, Certificate (p. 29)
- Instructional Communication for Educators, Certificate (p. 29)
- Literature, Certificate (p. 36)
- Manufacturing, Certificate (p. 150)
- Nuclear Engineering, Certificate (p. 136)
- Public Administration and Urban Studies, Certificate (p. 78)
- Public Humanities, Certificate (p. 203)
- Risk Management and Insurance, Certificate (p. 114)
- Strategic Social Media, Certificate (p. 30)
- Structural Engineering, Certificate (p. 137)
- Teaching English as a Second Language, Certificate (p. 36)
- Transportation Engineering, Certificate (p. 137)
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- Institute for Biomedical Engineering Research (p. 207)
- Institute for Global Business (p. 208)
- Institute for Life-Span Development and Gerontology (p. 208)
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- Ray C. Bliss Institute of Applied Politics (p. 208)
- The Drs. Nicholas and Dorothy Cummings Center for the History of Psychology (p. 208)
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- Urban STEM Center (p. 209)
- William and Rita Fitzgerald Institute for Entrepreneurial Studies (p. 209)

Akron Global Polymer Academy

The Akron Global Polymer Academy provides opportunities for teachers and students of all ages to experience the exciting world of polymers through a variety of offerings, including: in-school visits featuring engaging hands-on demonstrations, polymer family science nights, field trips to our exciting research college, and many polymer-related classroom resources available through this educational website.

AGPA also connects with K-12 students through an assortment of STE(A)M (Science, Technology, Engineering, Art, and Mathematics) initiatives, like: the Akron Regional Science Olympiad (<https://www.uakron.edu/polymer/agpa-k12outreach/science-olympiad/>), the Western Reserve District 5 Science Day (<https://uakron.edu/wrsd/>), our annual Rubber Band Contest for 5th-8th graders (<http://rubberbandcontest.org/>), as well as an ongoing STEM research experience for high school students.

Our K-12 outreach group also provides professional development for teachers. One example is through our Research Experience for Teachers (<https://www.uakron.edu/polymer/agpa-k12outreach/research-experience-for-teachers/>) (RET) program, which is an NSF funded program that brings teachers into the College of Polymer Science and Polymer Engineering's cutting-edge research laboratories, where they work alongside an actual research group. RET teachers work on developing their own research inspired lesson plans, designed to bring their cool research experiences back into their classrooms!

Website: Akron Global Polymer Academy (<https://www.uakron.edu/polymer/agpa-k12outreach/>)

Akron Polymer Technology Services

At Akron Polymer Technology Services (formerly the Akron Polymer Training Center and Applied Polymer Research Center), our mission is to advance all sectors of the polymer industry through the delivery of training, testing, and processing services that enrich learning and optimize industrial performance. Services are enhanced by the capabilities within The University of Akron and by developing domestic and international partnerships with business, industry, community, and other institutions of higher education.

Website: Akron Polymer Technology Services (<https://www.uakron.edu/apts/>)

Research Centers and Institutes

- Akron Global Polymer Academy (p. 204)
- Akron Polymer Technology Services (p. 204)
- Archives and Special Collections (p. 205)
- Center for Advanced Vehicles and Energy Systems (p. 205)
- Center for Emergency Management and Homeland Security Policy Research (p. 205)
- Center for Environmental Studies (p. 205)
- Center for Family Studies (p. 205)
- Center for Information Technologies and Analytics (p. 206)
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- Fisher Institute for Professional Selling (p. 207)
- Gary L. and Karen S. Taylor Institute for Direct Marketing (p. 207)
- H. Kenneth Barker Center for Economic Education (p. 207)

Archives and Special Collections

Archives and Special Collections (formerly Archival Services) of University Libraries (<https://www.uakron.edu/libraries/>) collects, preserves, and provides access to primary and secondary source materials that document the history of The University of Akron and the region in order to support the operational needs of the institution and the teaching and research activities at the university and in the wider intellectual community. The department consists of University Archives, Special Collections, and Records Management. University Archives serves as the official repository of The University of Akron and its predecessor institutions from its founding as Buchtel College in 1870 to the present and includes the official records of the university that have lasting historical value. Special Collections serves as an archival repository for historic materials that document the history of the geographic region of which the university is a part and includes personal papers and records of local governments, businesses, labor unions, and civic, religious, and cultural organizations. Collecting focuses include the history of Akron/Summit County, the rubber and polymer industry, lighter-than-air flight, Ohio canals, the B-26 Marauder and 9th Air Force, and the book and print culture. Records Management provides campus offices guidance and training regarding the retention and disposition of university records in all formats. Archives and Special Collections hosts historical displays and exhibitions and provides reference and research assistance, primary source instruction, and class visits and tours.

Website: The University of Akron Archives and Special Collections (<https://collections.uakron.edu/>)

Center for Advanced Vehicles and Energy Systems

The Center for Advanced Vehicles and Energy Systems (CAVES), established in 2005, focuses on the research, development and dissemination of advanced automotive technology and alternative energy systems and their enabling technologies. The Center's efforts are geared toward product-oriented research, development and commercialization of efficient cost-effective solutions to alternative transportation systems, advanced energy sources and storage and their real-time control platforms. In addition to providing research services to industry, private and government agencies, CAVES also provides knowledge dissemination through symposia, lectures, seminars and project-oriented graduate and undergraduate design experiences.

The Electrical and Computer Engineering and Mechanical Engineering departments have graduate and undergraduate students and faculty currently involved in hybrid vehicle technology, energy systems and related areas. CAVES' activities are housed within a number of facilities, including the Power Electronics Laboratory, the Controls Research Laboratory, the Battery Research Facility, the Hybrid Electric Facility and the Pervasive Automation Laboratory, among others.

Website: Center for Advanced Vehicles and Energy Systems (<https://www.uakron.edu/engineering/ECE/caves/>)

Center for Emergency Management and Homeland Security Policy Research

The Center for the Emergency Management and Homeland Security Policy Research is dedicated to create a supportive environment for research, academics and outreach in emergency management and homeland security. It supports and encourages multidisciplinary endeavors in these fields that make a positive contribution to society. The Center is a collaborative partnership between The University of Akron and The Ohio Emergency Management Agency.

The Center focuses on the practice of emergency management and homeland security and how it can be improved rather than on the disaster. There is a strong policy focus, so that the results of the research can be applied to improve practice, and the research agenda is set cooperatively between the directors of a state agency and the principle investigators.

Website: Center for Emergency Management and Homeland Security Policy Research (<https://www.uakron.edu/cem/>)

Center for Environmental Studies

The University of Akron's Center for Environmental Studies, located in Crouse Hall 215, was founded in 1970 to encourage multidisciplinary approaches to address environmental issues and resolve environmental problems.

The Center is a cooperative effort of several departments including biology, chemistry, chemical engineering, civil engineering, economics, education, geography, geology & environmental science, history, library, political science, and sociology. There are about ninety affiliated faculty.

The Center provides opportunities for scientists, educators, students and special interest groups to work together on issues of environmental concern.

In recent years the Center has directed an undergraduate and graduate certificate program of study; fielded responses to local inquiries regarding environmental problems; and sponsored workshops and seminars on environmental issues

Website: Center for Environmental Studies (<https://www.uakron.edu/envstudies/>)

Center for Family Studies

The Center for Family Studies, established in 1979, was designed to stimulate and encourage the interdisciplinary study of the family. It serves both the University and the community by fostering collaboration between faculty, students, practitioners and community leaders on curriculum development, educational conferences and seminars, research and training, and public policy relevant to important family issues.

The Center's primary goal is to facilitate the growth and development of family strengths and to enhance the quality of family life. Families and their natural societal environments are interactive and interdependent. Each influences and impacts the other; each gives and receives resources and provides value orientations. Thus, it is imperative to assess these institutions separately and in concert in order to understand

the reciprocal effects and to design methods for dealing effectively with the outcomes.

Website: Center for Family Studies (<https://www.uakron.edu/cfs/>)

Center for Information Technologies and Analytics

The Center for Information Technologies and Analytics (CITA) is a multi-disciplinary Center within the College of Business. CITA provides an important resource connecting IT & Analytics Executives with Information Systems (IS)/Business Analytics (BA) Faculty and IS/BA Students that will provide educational, research and networking opportunities. CITA was created in 2000 with the mission to teach students and develop faculty in the principles and practices of the related disciplines of Information Technology (IT). Today, the Center has expanded its focus to include Business Analytics (BA) and Data Science (DS). CITA will accomplish its mission by providing scholarships, mentoring, internships & co-op opportunities to students in the IS/BA discipline; provide resources to conduct research in the IS/BA discipline to faculty, and conduct several outreach activities and day long conferences that promote IT and Business Analytics among the NE Ohio companies.

CITA is made up of an advisory board of Information Technology & Analytics leaders from the North-East Ohio region and the College of Business faculty, staff, and students. The objectives of CITA are to advance information systems (IS) and Business Analytics (BA) programs, research, best practices, and related activities at The University of Akron. The vision of CITA is to be widely recognized as an important resource connecting IT executives with IS/BA faculty & students at The University of Akron that will provide educational, research, and networking opportunities for students, faculty and local businesses.

Website: Center for Information Technologies and Analytics (<https://www.uakron.edu/cite/>)

Center for Literacy

The Center for Literacy is a multidisciplinary team of educators and scholars who serve the community by promoting teaching, learning and professional development around traditional and new literacies. The Center provides literacy coaching support as a contracted service to interested school districts throughout northeast Ohio. There are several benefits to literacy coaching in schools. In a literacy coaching model, experts provide classroom teachers and reading support specialists with resources, professional development and guidance to meet the diverse needs of students.

Website: Center for Literacy (<https://www.uakron.edu/education/community-engagement/literacy/>)

Center for Organizational Research

The Center for Organizational Research (COR) is a consulting center operating within the Department of Psychology. The purpose of COR is to provide organizations with evidence-based solutions to the issues that confront people in work environments, with areas of specialization including human resource management, organizational development, and survey work. COR is able to offer a tailored approach to the client's needs because of its smaller client base and research orientation. Consulting services are delivered by teams of graduate students and I/O faculty members. Collaboration with faculty gives COR a unique strength in

providing top quality consultation and research-based interventions to the business community.

Some of the services offered include: adverse impact analysis, leadership training and development, performance management, customized research studies, employee attitude surveys, training development and evaluation, job analysis, and item and test writing and development.

Website: Center for Organizational Research (<https://www.uakron.edu/cor/>)

Center for Silver Therapeutics Research

The Center for Silver Therapeutics Research is a research consortium composed of UA faculty researchers from many different departments and colleges. The center focuses on the study and development of silver-based therapeutics that can positively impact human health by treating a variety of ailments.

Website: Center for Silver Therapeutics Research (<https://www.uakron.edu/cstr/>)

Center for Statistical Consulting

The mission of the Center for Statistical Consulting in the Department of Statistics is to provide the University community and the community at large with professional assistance in the design and analysis of statistical problems for theses, dissertations and research. The office is located in the Buchtel College of Arts & Sciences Building, Room 424. For more information or to arrange an appointment, please contact Dr. Richard Einsporn (rle@uakron.edu). When requesting statistical consulting, refer to the Center's website, fill out the Request for Statistical Consulting form, and email it to the department on the available link. The department will contact you for an appointment.

Website: Center for Statistical Consulting (<https://www.uakron.edu/statistics/about-us/center-for-statistical-consulting.dot>)

Continuing and Professional Education

Continuing and Professional Education is a liaison between The University of Akron and surrounding corporations within the Northeast Ohio region. As a connecting partner, Continuing and Professional Education inventories all available intellectual and physical resources of the University, and offers a performance consulting service to companies in search of training, continuing education, or custom consulting.

Continuing and Professional Education connects The University of Akron's resources to the business sector by offering a variety of services, including offering many noncredit and certification programs, both in person and online; hosting an extensive array of online courses for career development and certification, personal enrichment, and professional development; and providing assistance in planning and delivering on-site training for employees for corporations of any size, industry, or budget. Many courses are approved by professional, national and state organizations and license re-certification.

Website: Continuing and Professional Education (<https://www.uakron.edu/cpe/>)

Fisher Institute for Professional Selling

Established through a generous gift from Ronald and Diane Fisher in 1992, the Ronald R. and Diane C. Fisher Institute for Professional Selling was officially launched in January 1994 with a new facility and a new Director, Dr. Jon Hawes. The University of Akron was the second university in the United States to start a sales program, after offering sales classes since the mid 1980's. In April of 2002, U.A. was one of nine founding member universities to create the University Sales Center Alliance (U.S.C.A). The sole purpose of this organization is to enhance professionalism in sales and share best practices to further the development and training of future sales professionals. Currently, the University of Akron is one of only 32 Full Member (56 total member), schools which are accredited by the U.S.C.A. Considered by many as one of the nation's best sales education programs, our University of Akron sales and marketing students are the benefactors of the Fisher Institute for Professional Selling, resulting in the support of over 30 Corporate Partnerships, and virtually 100% job placement for nearly a decade.

Per the vision of Ronald and Diane Fisher, the mission of the Fisher Institute for Professional Selling is: to enhance the image of the sales profession and to promote professional selling and sales management as a rewarding lifelong career; to provide world-class, high-quality excellence in sales education through our sales major, minor in professional selling, and our three sales certificate programs (General, Healthcare and Engineering). Our robust sales education delivered by our outstanding and experienced sales faculty, along with our one-of-a-kind, state-of-the-art sales facility has resulted in outstanding sales readiness of our sales students. Well prepared sales students quickly grow into top sales talent for the corporate partners. Our brand new Fisher Institute has nine large sales lab rooms with dual zooming cameras and cloud-based video and audio recording which can be accessed from anywhere in the world where Wi-Fi is available. With over 1,000 sales program graduates, the University of Akron alumni has made a profound positive impact on the local and regional business community.

In business today, the sales function generates the revenue that enables the rest of the corporation to operate. Jobs are usually abundant in the field of sales and out current job placement for our graduating sales majors and minors is 100% (compared to 37% in some other majors). Coming Soon... UA will be re-launching executive sales training for our Fisher Corporate Partners and regional companies. Please visit our Fisher website for more information.

Website: Fisher Institute for Professional Selling (<https://www.uakron.edu/cba/fisher/>)

Gary L. and Karen S. Taylor Institute for Direct Marketing

The Gary L. and Karen S. Taylor Institute for Direct Marketing was established at The University of Akron's College of Business (CoB) in 2005 with a major gift from Gary and Karen Taylor, both of whom are UA alumni and leaders in the field of direct marketing.

The Taylor Institute was founded to support undergraduate and MBA students in the specialized ideas, issues, and techniques of Direct/Interactive Marketing, including:

- Social Media Marketing
- Marketing Analytics & Database Marketing
- Qualitative Marketing Research
- Integrated Marketing Campaign Development
- Teleservices
- Digital Marketing (SEO and SEM)

The Taylor Institute is charged with a mission to advance best practices and disseminate new Direct/Interactive Marketing knowledge through the development of marketing business leaders through Education, Research, and Service.

Taylor Institute programs and initiatives are designed to be integrated with the Marketing curriculum and provide experiential learning opportunities to supplement the theoretical learning students receive in the classroom making the Taylor Institute truly the location *"where theory meets practice."*

Website: Gary L. and Karen S. Taylor Institute for Direct Marketing (<https://www.uakron.edu/cba/centers-and-institutes/taylor/>)

H. Kenneth Barker Center for Economic Education

The H. Kenneth Barker Center for Economic Education is a nonprofit partnership of leaders from the education and business communities dedicated to economic literacy. Founded in 1974, the center is the premier source for economic teacher training, educational materials and curriculum reform. With over 45 years of operation, the center has instructed more than 5,000 teachers and administrators who affect the economic perspective of around 375,000 elementary and secondary students.

Website: H. Kenneth Barker Center for Economic Education (<https://www.uakron.edu/barkercenter/>)

Institute for Biomedical Engineering Research

This institute was established in 1979 to promote interdisciplinary studies in the rapidly growing areas of knowledge, which overlap the fields of biology and medicine, on the one hand, and engineering and the physical sciences, on the other. It conducts seminars, courses and degree programs in biomedical engineering in association with the College of Engineering and Polymer Science and individual departments.

In addition to its research and educational functions, the institute provides a research service to local hospitals and industry, as well as to private and government agencies. The premise for this program is that the combined resources of the University, Northeast Ohio Medical University and affiliated organizations will often permit more cost-effective solutions than would be possible by an individual or group doing the research independently.

The work of the institute is carried out by faculty of the Department of Biomedical Engineering in association with members selected from the faculties of The University of Akron and Northeast Ohio Medical University, as well as from the ranks of area physicians, engineers and scientists. The institute and the department occupy the third floor of the Olson Research Center on the north edge of the campus.

Website: Institute for Biomedical Engineering Research (<https://www.uakron.edu/engineering/BME/>)

Institute for Global Business

The Institute for Global Business (IGB) was established in 1996 with the mission to educate high-quality business students with the skills and understanding necessary to assume leadership roles in an increasingly global business world.

The dynamic changes in the world's physical, political, economic and cultural environments have created new challenges along with new opportunities to effectively compete in the marketplace as it exists today and will evolve tomorrow.

In addition to our academic programs, the IGB connects students to hands-on professional development programs and practical experiences that build global fluency and prepare students to enter the global marketplace career-ready and connected. With a focus on providing our students a holistic academic experience with significant global learning opportunities, the IGB has been an integral component of the College of Business since its inception. Dedicated faculty having varied international experience and expertise are committed to student success and pursue an active research agenda to provide enriched learning opportunities for students.

Website: Institute for Global Business (<https://www.uakron.edu/cba/centers-and-institutes/igb/>)

Institute for Life-Span Development and Gerontology

The Institute for Life-Span Development and Gerontology, founded in 1976, coordinates multidisciplinary credit certificate programs in gerontology at the undergraduate and graduate levels.

The Institute of Life-Span Development and Gerontology has grown into a campus-wide program involving approximately 50 faculty in 21 different departments, representing six colleges. Students in the certificate programs carry out field placements at numerous community service settings. There are more than 40 courses at the undergraduate and graduate levels. Research, education, training and service support has been received from the U.S. Administration on Aging, National Institute on Aging, U.S. Department of Education, Office of Special Education and Rehabilitation Services, National Institute on Disability and Rehabilitation Research, AARP Andrus Foundation, Ohio Department of Aging and Area Agency on Aging 10B. The Institute also served as a major site for the Rehabilitation Research and Training Center Consortium on Aging and Development Disabilities involving seven universities in six states.

The Institute supports the Tri-County Senior Olympics.

Website: Institute for Life-Span Development and Gerontology (<https://www.uakron.edu/ilsdg/>)

National Center for Education and Research on Corrosion and Materials Performance

Housed at The University of Akron, the National Center for Education and Research on Corrosion and Materials Performance provides a multi-

disciplinary approach to help government and industry develop solutions for corrosion and materials performance challenges, whether they are unique or day-to-day problems.

The Center has a comprehensive set of programs and services in education and workforce training, research and technology development, and outreach and public policy activities.

Website: National Center for Education and Research on Corrosion and Materials Performance (<https://www.uakron.edu/ncercamp/>)

Nutrition Center

The University of Akron Nutrition Center is a comprehensive regional center for the study and delivery of effective nutrition interventions. It provides the needed link between UA nutrition expertise and the extensive preventative health care needs of the campus and surrounding community. The Center offers services to students, faculty, staff employees of The University of Akron and communities in Northeast Ohio. The Nutrition Center provides nutrition assessment and counseling, medical nutrition therapy, computerized menu and food intake analysis, food systems management services, and individual and group nutrition education services.

Website: Nutrition Center (https://www.uakron.edu/nutritiondietetics/nutrition_center.dot)

Ray C. Bliss Institute of Applied Politics

The Ray C. Bliss Institute of Applied Politics is a bipartisan research, teaching, and experiential learning institute dedicated to increasing understanding of the political process with special emphasis on political parties, grassroots activity, civility and ethics, and hands-on learning through internships and events.

Website: Ray C. Bliss Institute of Applied Politics (<https://www.uakron.edu/bliss/>)

The Drs. Nicholas and Dorothy Cummings Center for the History of Psychology

The Drs. Nicholas and Dorothy Cummings Center for the History of Psychology (CCHP) is an internationally recognized research and humanities center that cares for, provides access to, and interprets the historical record of psychology and related human sciences. Founded at The University of Akron in 1965, it has grown to become the largest collection of its kind in the world. A Smithsonian Affiliate, the CCHP includes the National Museum of Psychology, the Archives of the History of American Psychology, and the Institute for Human Science and Culture.

The CCHP reflects the interdisciplinary nature of the examination of what it means to be human and includes specialists in both psychology and library science. Scholars, students of all ages, and the public are welcome to participate in coursework, programs, research, and exhibitions that utilize the CCHP's one-of-a-kind collections.

The Center's research collections are open to all students and faculty and provide a unique campus opportunity for scholarly research.

Website: Cummings Center for the History of Psychology (<https://www.uakron.edu/chp/>)

The EX[L] Center for Experiential Learning at UA

The mission of the EX[L] Center is to help students emerge as civically-engaged, adaptable leaders, ready to join in the enterprise of building strong and sustainable communities by promoting hands-on, community-based, problem-centered learning.

To address this mission, EX[L] seeks to

- support, expand, and create community-based opportunities that allow UA faculty and students to engage in Akron
- sustain and develop connections between UA stakeholders and local business and non-profit changemakers
- help students develop a connection to Akron as they explore their own interdisciplinary and innovative pathways to a degree
- assist faculty with creating innovative, interdisciplinary, community-engaged learning strategies

Website: EX[L] Center for Experiential Learning (<https://www.uakron.edu/exl/>)

Training Center for Fire and Hazardous Materials

The Training Center for Fire and Hazardous Materials brings the University, government and industry together into one comprehensive regional center to integrate educational programs, fire and hazardous materials training and other applications of fire and safety technology. The Center is chartered from the Division of EMS and offers all State Certified Classes for firefighter certification. The Center employs 190 certified Emergency Services Instructors to fill any training requirement for municipal and business and industry. The center coordinates seminars and workshops presented by the Federal Emergency Management Agency (FEMA), the National Fire Academy, the Division of State Fire Marshal and other related organizations. Training in all phases of hazardous materials containment and fire prevention and control is provided under contract to various municipalities, industries and agencies. The programs are supported by the faculty of the Fire Protection Technology degree program and the Emergency Management degree program in association with other state and nationally recognized professionals. The Training Center services a multi-county area, having partnerships with Portage Lakes Career Center, Macedonia Fire Department, and Lakemore Fire Department. We also run 3 University of Akron Fire Academies and 3 high school Fire Academies that include Portage Lakes Career Center, Four Cities Compact, and Cuyahoga Valley Career Center.

Website: Training Center for Fire and Hazardous Materials (<https://www.uakron.edu/fire/>)

University of Akron Magnetic Resonance Center (UA/MRC)

The MRC provides UA students and faculty, and the industrial and external academic scientific community, with access to routine and state-of-the-art magnetic resonance facilities and technical expertise.

These capabilities include instruments for solution and solid state NMR, electron paramagnetic resonance, and the expertise of technical staff with experience in using these instruments for problem solving in chemistry, biological sciences, polymer science and engineering. Students and faculty are trained in the use of the instruments and NMR techniques in general through an ongoing educational process. The Center has instruments in The Knight Chemical Laboratory and Goodyear Polymer Center.

Website: University of Akron Magnetic Resonance Center (UA/MRC) (<https://www.uakron.edu/chemistry/magnet/>)

Urban STEM Center

The mission of the Urban STEM Center (U-STEM) is to advance STEM education and research in urban schools and communities. Through partnering with the local community, we aim to develop, implement, promote, and evaluate STEM education initiatives.

The U-STEM Center, located in Zook Hall 430, serves as an umbrella organization for many activities with the LeBron James Family Foundation School of Education and in collaboration with STEM-related activities on campus and in the community.

Website: Urban STEM Center (<https://www.uakron.edu/education/urban-stem/>)

William and Rita Fitzgerald Institute for Entrepreneurial Studies

In 1995, a generous gift from William and Rita Fitzgerald created the Fitzgerald Institute for Entrepreneurial Studies in the College of Business Administration. The mission of the Fitzgerald Institute is to promote entrepreneurial spirit and practices essential to the flourishing of free enterprise; instruct students and the community on entrepreneurship and provide relevant research, knowledge and tools for effective entrepreneurial participation in a free enterprise system; and facilitate new and emerging business development for the greater University of Akron community. The Institute emphasizes “experiential learning” through cooperation between industry, government, and academia in the pursuit of economic development for Northeast Ohio, the United States and the international community.

Website: William and Rita Fitzgerald Institute for Entrepreneurial Studies (<https://www.uakron.edu/cba/centers-and-institutes/fitzgerald/>)

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A&S: Cooperative Education (BCAS)

BCAS:501 Cooperative Education (0 Credits)

Prerequisite: Must complete 12 graduate credit hours with at least a 3.0 overall grade point average. For cooperative education students only. Work experience in business, industry, or governmental agency. Comprehensive performance evaluation and written report required. Graded credit/noncredit. (May be repeated) (Formerly 3000:501)

Accounting (ACCT)

ACCT:520 Advanced Financial Reporting and Analysis (3 Credits)

Prerequisites: ACCT 622 or ACCT 322 or equivalent. Examination of accounting theory and financial reporting practices for business combinations, partnerships, foreign operations, nonprofit entities and consolidated statements. Covers U.S. GAAP, IFRS, SEC reporting, and corporate financial reporting policy. Emphasizes professional accounting research. Includes a research component. (Formerly 6200:520)

ACCT:524 Business Law (3 Credits)

Understand business law and concepts dealing with the legal environment of business and their applications, including: business ethics, the American legal system, tort law, contracts, secured transactions, bankruptcy, real property, business entities, environmental law, antitrust. (Formerly 6200:524)

ACCT:531 Business Entity Taxation (3 Credits)

Prerequisite: A minimum of 3 credits of tax. Federal income tax law related to partnerships, corporations, trusts and estates; also includes an overview of federal estate and gift tax law. Includes a research component. Master of Taxation students will not be able to take this course to satisfy tax electives in the Master of Taxation program. (Formerly 6200:531)

ACCT:540 Assurance Services and Professional Responsibilities (3 Credits)

Prerequisite: ACCT 621 or ACCT 321 or equivalent. Examine assurance services including external auditing and professional responsibilities. Focuses on standards, professional ethics, and independence requirements, and procedures used in conducting assurance services. Includes a research component. (Formerly 6200:540)

ACCT:541 Information Systems Audit & Control (3 Credits)

Prerequisite: ACCT 540 or permission of instructor. Learn the fundamental concepts and practices of information systems audit control. Use control objectives and standards by information systems control, audit and security organizations. (Formerly 6200:541)

ACCT:550 Advanced Applied Analytics & Decision Analysis (3 Credits)

Prerequisites: Admission to a major in the College of Business. Study advanced topics in data analytics and decision analysis in the context of accounting and business. Topics may include advanced Excel techniques, PowerBI, and other applied analytics software. (Formerly 6200:550)

ACCT:554 Information Systems Security (3 Credits)

Prerequisite: ACCT 603 or equivalent. Focus on information systems risk and security in distributed business environments; develop policies, practices, and systems for security of computers and data in business. Includes a research component. (Formerly 6200:554)

ACCT:570 Governmental Accounting (3 Credits)

Prerequisite: ACCT 621 or ACCT 321 or equivalent. Theory and procedures involved in application of fund accounting, budgetary control, appropriations and various accounting systems to governmental units, educational, medical and other non-profit institutions. Covers financial reporting for government and not for profit entities and GASB standards. Includes a research component. (Formerly 6200:570)

ACCT:575 Experiential Learning in Tax (3 Credits)

Prerequisite: ACCT 330 or equivalent with grade of C- or better or permission of the instructor. Students focus on the application of tax law to specific transactions. Students learn to communicate with low-income and nonresident alien clients and work to achieve the best tax outcome when preparing tax returns. Students learn to use tax software and learn to review their own work prior to submitting to the professor for review. (Formerly 6200:575)

ACCT:580 Accounting Problems (3 Credits)

Prerequisite: ACCT 322. Independent research on advanced accounting problem in student's specific area of interest. (Formerly 6200:580)

ACCT:591 Workshop in Accounting (1-3 Credits)

(May be repeated) Prerequisite: permission of instructor. Group study of accounting under faculty guidance. May not be used to meet undergraduate or graduate accounting major requirements, but may be used for elective credit only with permission of instructor or department. (Formerly 6200:591)

ACCT:601 Financial Accounting (3 Credits)

Introductory course for student with no accounting background. Examines accounting principles as applied to financial problems of firm. (Formerly 6200:601)

ACCT:603 Accounting Decision Support Systems (3 Credits)

Introduction to basic financial statement information; coverage of databases, electronic spreadsheets, and other information technology tools that support accounting and assurance services. (Formerly 6200:603)

ACCT:607 Financial Data Communications & Enterprise Integration (3 Credits)

Prerequisites: ACCT 601 and MGMT 601. In-depth study of contemporary methodologies, technologies, and standards used to integrate business processes and systems, including XML and XBRL. (Formerly 6200:607)

ACCT:610 Process Analysis & Cost Management (3 Credits)

Prerequisites: ACCT 601, ACCT 621, ACCT 321 or equivalent, or permission of instructor. Investigates management accounting and control systems and the use of accounting information in cost management, risk assessment, planning, decision making, and performance evaluation. (Formerly 6200:610)

ACCT:615 Professional Colloquium I (3 Credits)

Prerequisite: ACCT 628. Prepare students for professional and licensure exams on topics related to financial accounting reporting. (Formerly 6200:615)

ACCT:621 Corporate Accounting & Financial Reporting I (3 Credits)

Prerequisite: 601 or graduate accounting status. An examination of generally accepted accounting principles in theory and application, as well as financial statement preparation. Not open to students who have taken Intermediate Accounting I. (Formerly 6200:621)

ACCT:622 Corporate Accounting & Financial Reporting II (3 Credits)

Prerequisite: ACCT 621 or ACCT 321 or equivalent. A continuation of ACCT 621 which examines generally accepted accounting principles in theory and practice, as well as financial statement preparation. Not open to students who have taken Intermediate Accounting II. (Formerly 6200:622)

ACCT:623 Managerial Accounting for Decision Making (3 Credits)

Prerequisite: FIN 620. This course will discuss the functional-based managerial accounting system as well as activity- and strategic-based systems used in the U.S, Germany and Japan, providing flexibility and depth of understanding of concepts and methods of management accounting. (Formerly 6750:621)

ACCT:627 Federal Taxation (3 Credits)

Survey of federal taxation of entities, tax research, and individual taxation. Tax cases, projects, and problems will be assigned. (Formerly 6200:627)

ACCT:628 Tax Research (3 Credits)

Designed to develop basic research competence involving federal income, estate, and gift tax laws. (Formerly 6200:628)

ACCT:629 Tax Crimes and Forensics (3 Credits)

Prerequisite: ACCT 531 or permission of the director of the school. In-depth study of tax and tax related crimes charged under provisions of the IRS code and titles 18 and 31 of the U.S. code. (Formerly 6200:629)

ACCT:631 Corporate Taxation I (3 Credits)

Prerequisite: ACCT 531 or permission of the director of the school. Detailed examination of tax problems of corporations and their shareholders. Formation, distribution, redemption, and liquidation. (Formerly 6200:631)

ACCT:632 Taxation of Transactions in Property (3 Credits)

Prerequisite: admission to Master of Tax program or special permission. Explores federal tax implications of gains and losses derived from sales, exchanges and other dispositions of property. (Formerly 6200:632)

ACCT:633 Estate and Gift Taxation (3 Credits)

Prerequisite: admission to Master of Tax program or special permission. Analyzes provisions of federal estate and gift tax laws and tax consequences of testamentary and lifetime transfers. (Formerly 6200:633)

ACCT:637 Business Analysis and Valuation (3 Credits)

Prerequisite: ACCT 601 or equivalent or permission. Recent global accounting standards has increased the use of fair value to measure assets and liabilities for financial reporting purposes. In this class, we will discuss the recent issues affecting the accounting profession, as well as the principles and methods used in valuation and fair value measurement. (Formerly 6200:637)

ACCT:640 Advanced Auditing (3 Credits)

Prerequisite: ACCT 540 or equivalent or permission. Conceptual foundations and current research on professional and internal auditing. Includes government regulation and litigation, statistics, computer systems as well as current and prospective developments in auditing. (Formerly 6200:640)

ACCT:641 Taxation of Partnerships (3 Credits)

Prerequisite: ACCT 531 or permission of the director of the school. Examines intensively provisions of subchapters K and S of Internal Revenue Code and uses of partnerships for tax planning. (Formerly 6200:641)

ACCT:642 Corporate Taxation II (3 Credits)

Prerequisite: ACCT 631 or special permission. Focuses on corporate reorganization; covers A, B, C, D, and E reorganizations, corporate split-offs and spin-offs; carryovers of tax attributes; and limitations on carryovers. (Formerly 6200:642)

ACCT:643 Tax Accounting (3 Credits)

Prerequisite: ACCT 531 or permission of the director of the school. Attention focused on timing of income and expenses for individual businesses and its relation to tax planning. (Formerly 6200:643)

ACCT:644 Income Taxation of Decedents, Estates & Trusts (3 Credits)

Prerequisite: ACCT 633. An in-depth examination of the decedent's last income tax return along with the analysis of income taxation of trusts and estates and their creators, fiduciaries and beneficiaries. (Formerly 6200:644)

ACCT:645 Advanced Individual Taxation (3 Credits)

Prerequisite: ACCT 531 or permission of the director of the school. In-depth study of some of the more involved areas of individual income taxation. (Formerly 6200:645)

ACCT:646 Consolidated Tax Returns (3 Credits)

Prerequisite: ACCT 631. Intensive study of tax provisions concerning use of consolidated tax returns. (Formerly 6200:646)

ACCT:647 Qualified Pensions & Profit Sharing (3 Credits)

Prerequisite: Permission of the department. Nature, purpose and operation of various forms of deferred compensation examined with much emphasis on pension and profit-sharing plans. (Formerly 6200:647)

ACCT:648 Tax Policy & Ethics (3 Credits)

Prerequisite: ACCT 531 or permission of the director of the school. In-depth study of administration and procedures of Internal Revenue Service and responsibilities of tax practitioner. (Formerly 6200:648)

ACCT:649 State & Local Taxation (3 Credits)

Prerequisite: ACCT 531 or permission of the director of the school. Examines common types of taxes imposed by state and local governments and includes taxation of multistate businesses. (Formerly 6200:649)

ACCT:650 Estate Planning (3 Credits)

Prerequisite: ACCT 633. Considers entire process of planning the estate with due regard for disposition of property, tax minimization, liquidity requirements and administrative costs. (Formerly 6200:650)

ACCT:651 International Taxation (3 Credits)

Prerequisite: ACCT 531 or permission of the director of the school. Examines United States taxation of foreign income of domestic corporations, citizens and residents, as well as United States income of nonresident aliens and foreign corporations. (Formerly 6200:651)

ACCT:652 Tax-Exempt Organizations (3 Credits)

Prerequisite: admission to Master of Tax program or special permission. Analysis of tax aspect of tax-exempt organizations, including nature of and limitations of its exemption. (Formerly 6200:652)

ACCT:654 Independent Study in Taxation (1-3 Credits)

Prerequisite: permission of instructor. Intensive study of particular topic or limited number of topics not otherwise offered in curriculum. (May be repeated for a total of six credits.) (Formerly 6200:654)

ACCT:655 Advanced Information Systems (3 Credits)

Prerequisites: ACCT 603 or equivalent and ACCT 610. Advanced study of accounting information system theory, elements, principles, design and implementation. Practical data processing and networks to control flow of information. (Formerly 6200:655)

ACCT:658 Enterprise Risk (3 Credits)

Prerequisite: ACCT 540. An examination of the risks, controls, and assurance services in contemporary organizations. (Formerly 6200:658)

ACCT:659 Data Analysis and Assurance Services (3 Credits)

Introductory programming and statistical learning techniques with an emphasis on assurance services. Topics include basic data management, visualization, pattern recognition, and decision making. Projects emphasize both oral and written communication of results and recommendations. (Formerly 6200:659)

ACCT:660 Professional Colloquium II (3 Credits)

Prerequisite: ACCT 628. Prepare students for professional and licensure exams on topics related to regulation, auditing, and attestation. (Formerly 6200:660)

ACCT:661 Advanced Tax Research & Policy (3 Credits)

Prerequisite: ACCT 628 and completion of four other tax courses in Phase II. Extensive research involving federal income, estate, trust and gift taxes as well as tax policy. (Formerly 6200:661)

ACCT:662 S Corp Taxation (3 Credits)

Prerequisite: ACCT 631 or special permission. This course involves an in depth study of Subchapter S of the Internal Revenue Code. (Formerly 6200:662)

ACCT:664 Research & Quantitative Methods in Accounting (3 Credits)

Prerequisites: ACCT 610 and MGMT 601 or equivalent. Survey of research techniques, statistical methods, and data bases with applications to accounting and business functional areas. (Formerly 6200:664)

ACCT:665 Fraud and Financial Forensics (3 Credits)

Prerequisite: ACCT 540 or permission of the department chair. Provides students with a comprehensive background in fraud risk assessment and financial forensics. (Formerly 6200:665)

ACCT:670 Corporate Performance Evaluation & Control Systems (3 Credits)

Prerequisite: ACCT 610. Investigation of the role of financial information systems in developing strategy, planning, measuring results, and motivating managers to define and pursue organizational goals and objectives. (Formerly 6200:670)

ACCT:680 International Accounting (3 Credits)

Prerequisite: ACCT 610. Examination of accounting theory and practice from international perspective with emphasis on multinational investment, business and auditing activities and reporting problems. (Formerly 6200:680)

ACCT:690 Seminar in Taxation (3 Credits)

(May be repeated for a total of six credits.) Prerequisites: completion of M.Tax foundation courses. Program of studies in the tax area of student's choice, in which a finished report is required. (Formerly 6200:690)

ACCT:693 Selected Topics in Taxation (1-3 Credits)

(May be repeated for a total of six credits.) Prerequisites: ACCT 631 or special permission. Provides study in contemporary issues in taxation that are not covered in current courses. (Formerly 6200:693)

ACCT:695 Graduate Internship in Accounting (3 Credits)

Prerequisites: [ACCT 621 or ACCT 321 or equivalent] and ACCT 610. This course provides an opportunity for graduate accounting students to apply classroom instruction to practice problems in a professional working environment. (Formerly 6200:695)

ACCT:697 Independent Study in Accounting (1-3 Credits)

(May be repeated for a total of six credits) Focus on special topics of study and research in accounting on an independent basis. (Formerly 6200:697)

Anthropology (ANTH)

ANTH:510 Archaeogeophysical Survey (3 Credits)

Prerequisite: permission. Advanced instruction in principles of subsurface geophysical survey techniques in archaeology. Emphasizes magnetic gradiometry and electrical resistivity techniques. Includes both laboratory and fieldwork. (Formerly 3240:510)

ANTH:516 Anthropology of Sex and Gender (3 Credits)

Prerequisite: Permission. This course explores cross-cultural variation regarding sex, gender and sexuality. It examines the ways that cultures create, maintain and reproduce gender concepts and gender relations. (Formerly 3230:516)

ANTH:520 The Anthropology of Food (3 Credits)

Prerequisite: Permission. Utilizing anthropological approaches and theories, this course explores the social relations and cultural beliefs associated with food cross-culturally. (Formerly 3230:520)

ANTH:550 Archaeological Field School (1-6 Credits)

Prerequisite: permission. A field-based course teaching basic archaeological techniques, mapping, excavation of prehistoric and historic sites, survey and documentation. (May be repeated for up to 6 credits). (Formerly 3240:550)

ANTH:557 Medical Anthropology (3 Credits)

Prerequisite: Permission of instructor. Analyzes various aspects of Western and non-Western medical systems from an anthropological perspective. Compares traditional medical systems around the world. (Formerly 3230:557)

ANTH:560 Qualitative Methods: Basis of Anthropological Research (4 Credits)

Prerequisite: ANTH 101. Provides hands-on experience in qualitative methods, including key informant interviewing, focus groups, and other methods. Includes the use of computer-based programs for rapid appraisal strategies. (Formerly 3230:560)

ANTH:697 Individual Investigation (1-3 Credits)

Prerequisites: Permission of instructor and chair of department. Intensive reading and/or research in student's chosen field of interest. Regular conferences with instructor. Preparation of a research paper. (Formerly 3230:697)

MUSAP:533 Trombone (2-4 Credits)

The following courses (MUSAP 521 - MUSAP 542) are intended for a student majoring in one of the programs in the Department of Music. Course levels correspond approximately to class standing (100 for freshman, 200 for sophomore, etc.) A student may progress up one level by successfully completing an applied music jury, usually offered in the spring semester. NOTE: No more than eight credits at the 100, 200 or 300 level may apply in music degree programs; no such limit exists for the 400 level. (Formerly 7520:533)

MUSAP:534 Baritone (2-4 Credits)

The following courses (MUSAP 521 - MUSAP 542) are intended for a student majoring in one of the programs in the Department of Music. Course levels correspond approximately to class standing (100 for freshman, 200 for sophomore, etc.) A student may progress up one level by successfully completing an applied music jury, usually offered in the spring semester. NOTE: No more than eight credits at the 100, 200 or 300 level may apply in music degree programs; no such limit exists for the 400 level. (Formerly 7520:534)

MUSAP:535 Tuba (2-4 Credits)

The following courses (MUSAP 521 - MUSAP 542) are intended for a student majoring in one of the programs in the Department of Music. Course levels correspond approximately to class standing (100 for freshman, 200 for sophomore, etc.) A student may progress up one level by successfully completing an applied music jury, usually offered in the spring semester. NOTE: No more than eight credits at the 100, 200 or 300 level may apply in music degree programs; no such limit exists for the 400 level. (Formerly 7520:535)

MUSAP:536 Flute or Piccolo (2-4 Credits)

The following courses (MUSAP 521 - MUSAP 542) are intended for a student majoring in one of the programs in the Department of Music. Course levels correspond approximately to class standing (100 for freshman, 200 for sophomore, etc.) A student may progress up one level by successfully completing an applied music jury, usually offered in the spring semester. NOTE: No more than eight credits at the 100, 200 or 300 level may apply in music degree programs; no such limit exists for the 400 level. (Formerly 7520:536)

MUSAP:537 Oboe or English Horn (2-4 Credits)

The following courses (MUSAP 521 - MUSAP 542) are intended for a student majoring in one of the programs in the Department of Music. Course levels correspond approximately to class standing (100 for freshman, 200 for sophomore, etc.) A student may progress up one level by successfully completing an applied music jury, usually offered in the spring semester. NOTE: No more than eight credits at the 100, 200 or 300 level may apply in music degree programs; no such limit exists for the 400 level. (Formerly 7520:537)

MUSAP:538 Clarinet or Bass Clarinet (2-4 Credits)

The following courses (MUSAP 521 - MUSAP 542) are intended for a student majoring in one of the programs in the Department of Music. Course levels correspond approximately to class standing (100 for freshman, 200 for sophomore, etc.) A student may progress up one level by successfully completing an applied music jury, usually offered in the spring semester. NOTE: No more than eight credits at the 100, 200 or 300 level may apply in music degree programs; no such limit exists for the 400 level. (Formerly 7520:538)

MUSAP:539 Bassoon or Contrabassoon (2-4 Credits)

The following courses (MUSAP 521 - MUSAP 542) are intended for a student majoring in one of the programs in the Department of Music. Course levels correspond approximately to class standing (100 for freshman, 200 for sophomore, etc.) A student may progress up one level by successfully completing an applied music jury, usually offered in the spring semester. NOTE: No more than eight credits at the 100, 200 or 300 level may apply in music degree programs; no such limit exists for the 400 level. (Formerly 7520:539)

MUSAP:540 Saxophone (2-4 Credits)

The following courses (MUSAP 521 - MUSAP 542) are intended for a student majoring in one of the programs in the Department of Music. Course levels correspond approximately to class standing (100 for freshman, 200 for sophomore, etc.) A student may progress up one level by successfully completing an applied music jury, usually offered in the spring semester. NOTE: No more than eight credits at the 100, 200 or 300 level may apply in music degree programs; no such limit exists for the 400 level. (Formerly 7520:540)

MUSAP:541 Harpsichord (2-4 Credits)

The following courses (MUSAP 521 - MUSAP 542) are intended for a student majoring in one of the programs in the Department of Music. Course levels correspond approximately to class standing (100 for freshman, 200 for sophomore, etc.) A student may progress up one level by successfully completing an applied music jury, usually offered in the spring semester. NOTE: No more than eight credits at the 100, 200 or 300 level may apply in music degree programs; no such limit exists for the 400 level. (Formerly 7520:541)

MUSAP:542 Composition (2-4 Credits)

Private Lessons in Music Composition. (May be repeated) Prerequisites: MUSIC 252 and permission of instructor; 7500:452 recommended. Private instruction in composition. Primarily for student whose major is theory-composition. (Formerly 7520:542)

MUSAP:621 Percussion (2-4 Credits)

MUSAP 621 - MUSAP 661 Graduate Study in Applied Music. (May be repeated) Prerequisites: undergraduate degree in music, graduate standing and/or permission of instructor determined through audition. (Formerly 7520:621)

MUSAP:622 Classical Guitar (2-4 Credits)

MUSAP 621 - MUSAP 661 Graduate Study in Applied Music. (May be repeated) Prerequisites: undergraduate degree in music, graduate standing and/or permission of instructor determined through audition. (Formerly 7520:622)

MUSAP:623 Harp (2-4 Credits)

MUSAP 621 - MUSAP 661 Graduate Study in Applied Music. (May be repeated) Prerequisites: undergraduate degree in music, graduate standing and/or permission of instructor determined through audition. (Formerly 7520:623)

MUSAP:624 Voice (2-4 Credits)

MUSAP 621 - MUSAP 661 Graduate Study in Applied Music. (May be repeated) Prerequisites: undergraduate degree in music, graduate standing and/or permission of instructor determined through audition. (Formerly 7520:624)

MUSAP:625 Piano (2-4 Credits)

MUSAP 621 - MUSAP 661 Graduate Study in Applied Music. (May be repeated) Prerequisites: undergraduate degree in music, graduate standing and/or permission of instructor determined through audition. (Formerly 7520:625)

MUSAP:626 Organ (2-4 Credits)

MUSAP 621 - MUSAP 661 Graduate Study in Applied Music. (May be repeated) Prerequisites: undergraduate degree in music, graduate standing and/or permission of instructor determined through audition. (Formerly 7520:626)

MUSAP:627 Violin (2-4 Credits)

MUSAP 621 - MUSAP 661 Graduate Study in Applied Music. (May be repeated) Prerequisites: undergraduate degree in music, graduate standing and/or permission of instructor determined through audition. (Formerly 7520:627)

MUSAP:628 Viola (2-4 Credits)

MUSAP 621 - MUSAP 661 Graduate Study in Applied Music. (May be repeated) Prerequisites: undergraduate degree in music, graduate standing and/or permission of instructor determined through audition. (Formerly 7520:628)

MUSAP:629 Cello (2-4 Credits)

MUSAP 621 - MUSAP 661 Graduate Study in Applied Music. (May be repeated) Prerequisites: undergraduate degree in music, graduate standing and/or permission of instructor determined through audition. (Formerly 7520:629)

MUSAP:630 String Bass (2-4 Credits)

MUSAP 621 - MUSAP 661 Graduate Study in Applied Music. (May be repeated) Prerequisites: undergraduate degree in music, graduate standing and/or permission of instructor determined through audition. (Formerly 7520:630)

MUSAP:631 Trumpet or Cornet (2-4 Credits)

MUSAP 621 - MUSAP 661 Graduate Study in Applied Music. (May be repeated) Prerequisites: undergraduate degree in music, graduate standing and/or permission of instructor determined through audition. (Formerly 7520:631)

MUSAP:632 French Horn (2-4 Credits)

MUSAP 621 - MUSAP 661 Graduate Study in Applied Music. (May be repeated) Prerequisites: undergraduate degree in music, graduate standing and/or permission of instructor determined through audition. (Formerly 7520:632)

MUSAP:633 Trombone (2-4 Credits)

MUSAP 621 - MUSAP 661 Graduate Study in Applied Music. (May be repeated) Prerequisites: undergraduate degree in music, graduate standing and/or permission of instructor determined through audition. (Formerly 7520:633)

MUSAP:634 Baritone (2-4 Credits)

MUSAP 621 - MUSAP 661 Graduate Study in Applied Music. (May be repeated) Prerequisites: undergraduate degree in music, graduate standing and/or permission of instructor determined through audition. (Formerly 7520:634)

MUSAP:635 Tuba (2-4 Credits)

MUSAP 621 - MUSAP 661 Graduate Study in Applied Music. (May be repeated) Prerequisites: undergraduate degree in music, graduate standing and/or permission of instructor determined through audition. (Formerly 7520:635)

MUSAP:636 Flute or Piccolo (2-4 Credits)

MUSAP 621 - MUSAP 661 Graduate Study in Applied Music. (May be repeated) Prerequisites: undergraduate degree in music, graduate standing and/or permission of instructor determined through audition. (Formerly 7520:636)

MUSAP:637 Oboe or English Horn (2-4 Credits)

MUSAP 621 - MUSAP 661 Graduate Study in Applied Music. (May be repeated) Prerequisites: undergraduate degree in music, graduate standing and/or permission of instructor determined through audition. (Formerly 7520:637)

MUSAP:638 Clarinet or Bass Clarinet (2-4 Credits)

MUSAP 621 - MUSAP 661 Graduate Study in Applied Music. (May be repeated) Prerequisites: undergraduate degree in music, graduate standing and/or permission of instructor determined through audition. (Formerly 7520:638)

MUSAP:639 Bassoon or Contrabassoon (2-4 Credits)

MUSAP 621 - MUSAP 661 Graduate Study in Applied Music. (May be repeated) Prerequisites: undergraduate degree in music, graduate standing and/or permission of instructor determined through audition. (Formerly 7520:639)

MUSAP:640 Saxophone (2-4 Credits)

MUSAP 621 - MUSAP 661 Graduate Study in Applied Music. (May be repeated) Prerequisites: undergraduate degree in music, graduate standing and/or permission of instructor determined through audition. (Formerly 7520:640)

MUSAP:641 Harpsichord (2-4 Credits)

MUSAP 621 - MUSAP 661 Graduate Study in Applied Music. (May be repeated) Prerequisites: undergraduate degree in music, graduate standing and/or permission of instructor determined through audition. (Formerly 7520:641)

MUSAP:642 Applied Composition (2-4 Credits)

MUSAP 621 - MUSAP 661 Graduate Study in Applied Music. (May be repeated) Prerequisites: undergraduate degree in music, graduate standing and/or permission of instructor determined through audition. (Formerly 7520:642)

MUSAP:661 Jazz Percussion (2-4 Credits)

MUSAP 621 - MUSAP 661 Graduate Study in Applied Music. (May be repeated) Prerequisites: undergraduate degree in music, graduate standing and/or permission of instructor determined through audition. (Formerly 7520:661)

MUSAP:662 Jazz Guitar (2-4 Credits)

(May be repeated) Prerequisite: undergraduate degree with a major in music. Private instruction in composition offered primarily for a student majoring in composition. Another student may be approved by composition faculty. (Formerly 7520:662)

MUSAP:663 Jazz Electric Bass (2-4 Credits)

See department for course description. (Formerly 7520:663)

MUSAP:664 Jazz Piano (2-4 Credits)

See department for course description. (Formerly 7520:664)

MUSAP:665 Jazz Trumpet (2-4 Credits)

See department for course description. (Formerly 7520:665)

MUSAP:666 Jazz Trombone (2-4 Credits)

See department for course description. (Formerly 7520:666)

MUSAP:667 Jazz Saxophone (2-4 Credits)

See department for course description. (Formerly 7520:667)

MUSAP:668 Jazz Composition (2-4 Credits)

See department for course description. (Formerly 7520:668)

MUSAP:669 Jazz Vocal Styles (2-4 Credits)

See department for course description. (Formerly 7520:669)

Arabic (ARAB)

ARAB:522 Special Topics in Arabic (1-4 Credits)

Prerequisite: Graduate status and permission of the instructor and department chair. Development of specialized language skills or reading of significant works of literature or culture not studied in other courses. (Conducted in Arabic.) (May be repeated once with different topic for a maximum total of 8 credits.) (Formerly 3501:522)

ARAB:597 Individual Reading in Arabic (1-4 Credits)

Prerequisite: Graduate status, permission of the instructor and department chair. Individual study under the guidance of a professor. May be repeated with departmental permission for a total of 8 credits. (Formerly 3501:597)

Archaeology (ANTH)

ANTH:510 Archaeogeophysical Survey (3 Credits)

Prerequisite: permission. Advanced instruction in principles of subsurface geophysical survey techniques in archaeology. Emphasizes magnetic gradiometry and electrical resistivity techniques. Includes both laboratory and fieldwork. (Formerly 3240:510)

ANTH:516 Anthropology of Sex and Gender (3 Credits)

Prerequisite: Permission. This course explores cross-cultural variation regarding sex, gender and sexuality. It examines the ways that cultures create, maintain and reproduce gender concepts and gender relations. (Formerly 3230:516)

ANTH:520 The Anthropology of Food (3 Credits)

Prerequisite: Permission. Utilizing anthropological approaches and theories, this course explores the social relations and cultural beliefs associated with food cross-culturally. (Formerly 3230:520)

ANTH:550 Archaeological Field School (1-6 Credits)

Prerequisite: permission. A field-based course teaching basic archaeological techniques, mapping, excavation of prehistoric and historic sites, survey and documentation. (May be repeated for up to 6 credits). (Formerly 3240:550)

ANTH:557 Medical Anthropology (3 Credits)

Prerequisite: Permission of instructor. Analyzes various aspects of Western and non-Western medical systems from an anthropological perspective. Compares traditional medical systems around the world. (Formerly 3230:557)

ANTH:560 Qualitative Methods: Basis of Anthropological Research (4 Credits)

Prerequisite: ANTH 101. Provides hands-on experience in qualitative methods, including key informant interviewing, focus groups, and other methods. Includes the use of computer-based programs for rapid appraisal strategies. (Formerly 3230:560)

ANTH:697 Individual Investigation (1-3 Credits)

Prerequisites: Permission of instructor and chair of department. Intensive reading and/or research in student's chosen field of interest. Regular conferences with instructor. Preparation of a research paper. (Formerly 3230:697)

Art (ART)

ART:501 Special Topics: History of Art (1-3 Credits)

Prerequisite: ART 102 or permission. A lecture course focusing on a particular movement, period, artist, or medium. (May be repeated when a different subject or level of investigation is selected.) (Formerly 7100:501)

ART:502 Museology (3 Credits)

Lecture course dealing with museum science, including museum history, staff structures, art handling, storage and presentation, and exhibition preparation. (Formerly 7100:502)

ART:503 Art and Critical Theory (3 Credits)

Prerequisite: Permission of the instructor. This course, designed for both studio and art history majors, surveys the major theoretical currents in contemporary criticism and art history. (Formerly 7100:503)

ART:505 History of Art Symposium (1-3 Credits)

(May be repeated for credit when a different subject is indicated)
Prerequisite: permission of instructor. Lecture, individual research and evaluation, group discussion related to a specific time period or to an artistic problem. (Formerly 7100:505)

ART:507 Methods of Art History (3 Credits)

Prerequisite: Permission of the instructor. This course explores the history of the discipline and the permutations it has undergone since its establishment in the early years of the nineteenth century. (Formerly 7100:507)

ART:510 Methods of Teaching Elementary Art (3 Credits)

Prerequisite: admission to Teacher Education Program Art P-12. A lecture course presenting the necessary skills and knowledge to successfully implement, plan, instruct, and assess a diverse, art-based curriculum for the elementary school. No credits as elective courses for art majors. (Formerly 7100:510)

ART:511 Methods of Teaching Secondary Art (3 Credits)

Prerequisite: admission to Teacher Education Program Art P-12. A lecture course providing the knowledge, skills, and experience necessary for the development of curriculum, instruction and assessment appropriate for application at the high school level. No credit as an elective for art majors. (Formerly 7100:511)

ART:512 Student Teaching Colloquium (3 Credits)

Corequisite: EDCI 694. A lecture course providing support and guidance to develop the skills and knowledge necessary for a successful completion of the Education Teacher Performance Assessment, a 16 week classroom clinical experience, and licensure in the field of Art Education. Students will gain practical experience in building a resume, applying for teaching positions, obtaining licensure, developing a portfolio and practicing pedagogical techniques in their classrooms. (Formerly 7100:512)

ART:513 Survey of Asian Art (3 Credits)

This course introduces the student to the historical, cultural, political, and religious aspects of civilization that influenced the aesthetics of Asian art. (Formerly 7100:513)

ART:518 Multiples and Multiplicity (3 Credits)

Prerequisite: Permission of instructor. Advanced printmaking class recommended for studio majors working with multiples, variability, and production requiring students to define and complete their own projects. (Formerly 7100:518)

ART:519 Special Topics in Print (3 Credits)

Prerequisite: Permission of instructor. Investigation in specialized printmaking media like Photogravure, Digital Printing, and Book Arts among others. May be offered in conjunction with university sponsored residency or travel. (Formerly 7100:519)

ART:523 Art Bomb Brigade: Methods for Creating Public Art (3 Credits)

An experiential learning studio course in which students explore how artists work with community stakeholders to develop ideas for site specific mural projects. (Formerly 7100:523)

ART:524 Middle School Materials & Techniques (3 Credits)

A studio course exploring current topics and media/materials and techniques in middle school art education. (Formerly 7100:524)

ART:525 Ceramics: Methods, Materials, & Concepts (3 Credits)

(Lab) Ceramics for teachers. Introduces the potter's wheel, hand-building, firing kilns, history of ceramics and ceramic forms, safety in the studio and strategies for teaching ceramics. (Formerly 7100:525)

ART:526 Early Childhood Art Education (3 Credits)

A lecture course for art educators exploring visual arts as a vehicle for whole child development and learning across the curriculum in PK-5 school settings. (Formerly 7100:526)

ART:527 Art in the Inclusive Classroom (3 Credits)

Prerequisite: EDFN 620. Art education course exploring the use of art with diverse populations through lecture, hands on art making and site visitations. (Formerly 7100:527)

ART:528 Elementary Field Exp: Art Licensure (1 Credit)

Corequisite: ART 510. Instructional field experience in the PK-6 art classroom to apply theory and research into practice. (Formerly 7100:528)

ART:529 Secondary Field Exp: Art Licensure (1 Credit)

Corequisite: ART 511. Instructional experience in the 7-12 art classroom to apply theory and research into practice. (Formerly 7100:529)

ART:530 Professional Practices for Creative Careers (3 Credits)

Studio course with experiential learning component introduces students to professional practices for securing creative careers after graduation. (Formerly 7100:530)

ART:554 Advanced Ceramics (3 Credits)

Prerequisite: Permission. Studio course with emphasis on advanced ceramic techniques. (Formerly 7100:554)

ART:556 History of Craft (3 Credits)

This course is designed to illuminate selected aspects of the history of the making of things as they apply to current practice in the crafts. Graduate standing required. (Formerly 7100:556)

ART:560 Graduate Studio: 2-D Media (3 Credits)

Graduate studio in two dimensional media. Special topics and focus vary. (Formerly 7100:560)

ART:561 Graduate Studio: 3-D Media (3 Credits)

Graduate studio in three dimensional design media. Special topics and focus vary. (Formerly 7100:561)

ART:562 Graduate Studio: Photographic/Digital Media (3 Credits)

Graduate studio in photographic/digital media. Special topics and focus vary. (Formerly 7100:562)

ART:589 Special Topics in Studio Art (3 Credits)

(May be repeated for credit when a different subject or level of investigation is indicated.) Prerequisite: varies by course. Group investigation of topics not offered elsewhere in the curriculum. (Formerly 7100:589)

ART:590 Workshop in Art (1-4 Credits)

(May be repeated for credit when a different subject or level of investigation is indicated - ART 490 to maximum of eight credits; ART 590 to maximum of 12 credits) Prerequisite: advanced standing in art or permission of instructor. Group investigation of a particular phase of art not offered by other courses in curriculum. (Formerly 7100:590)

ART:593 Adv Seminar in Art Education (3 Credits)

Prerequisite: Acceptance into the MS in Secondary Education with Visual Arts Licensure Program. This lecture course is an advanced seminar in art education introducing students to historical, contemporary, philosophical issues in art education. Contemporary problems, theories and practices in art education also addressed. (Formerly 7100:593)

ART:594 Special Topics: Art Education (1-3 Credits)

(May be repeated for credit when a different subject or level of investigation is indicated.) Group investigation of topics of interest to the art education student and not covered elsewhere in the curriculum. (Formerly 7100:594)

ART:597 Independent Study: Art (1-3 Credits)

(May be repeatable for 9 credits). Prerequisites for art majors: Completion of at least one advanced course in the major with a grade of A or A- and permission of instructor. Prerequisites for non-art majors: Permission of instructor. Investigation in depth of aesthetic and technical problems within a studio-selected area of specialization. Student must present in writing a proposed study plan and time schedule for instructor approval. (Formerly 7100:597)

ART:598 Special Problems in History of Art (1-3 Credits)

(May be repeated for credit when a different subject or level of investigation is indicated) Prerequisites: 14 credits in art history and permission of instructor. Individual research in art history centered around limited topic, such as specific time period, history of specific techniques, a single artist or movement in art history. No more than 10 credits will be counted toward major. (Formerly 7100:598)

Arts Administration (AADMN)

AADMN:600 Research & Writing Techniques (3 Credits)

Exploration of the basic research tools and methods appropriate to the discipline, including utilization of the computer. Guidelines for writing thesis. (Formerly 7850:600)

AADMN:603 Special Topics in Arts Administration (1-4 Credits)

(May be repeated as different subject areas are covered, but no more than 12 credits may be applied toward M. A. degree) Traditional and experimental courses in arts administration, supplementing those listed in the General Bulletin. (Formerly 7850:603)

AADMN:610 Principles of Arts Administration (3 Credits)

Principles and practices in non-profit arts management, including organizational structure, function of boards, personnel and volunteer management, and public policy for the arts. (Formerly 7850:666)

AADMN:620 Arts Administration Practices & Policies (3 Credits)

Financial management of the arts, facilities management, presenting performances, touring, and unique management problems in non-profit theatre companies, dance companies, orchestras, and museums. (Formerly 7850:691)

AADMN:630 Fund Raising & Grantsmanship in the Arts (3 Credits)

Techniques and execution of a development campaign for individuals, corporations, foundations, federal and state grants, and endowment, including research and proposal writing. (Formerly 7850:682)

AADMN:640 Legal Aspects of Arts Administrators (3 Credits)

Legal responsibilities and liabilities of an arts organization, contracts, copyright law, insurance, taxation, artists' rights, personnel law, and labor law. (Formerly 7850:692)

AADMN:650 Audience Development (3 Credits)

Developing audiences for the Arts through Arts marketing techniques, including season and single ticket campaigns, promotional strategies, media/public relations, market research, and telemarketing. (Formerly 7850:665)

AADMN:660 Colloquium on the Arts (3 Credits)

A brief exploration of the major visual and performing art forms and organizations examined in relationship to the business management of arts. Team-taught. (Formerly 7850:605)

AADMN:670 Internship (3-6 Credits)

Prerequisite: permission. Faculty supervised work experience in which student participates in an arts management, performance or technical situation with a selected cultural organization. (Formerly 7850:698)

AADMN:680 Master's Thesis/Project (1-6 Credits)

Prerequisite: permission of graduate coordinator of arts administration program. Research related to the completion of the master's thesis or project depending on the student's degree option. (Formerly 7850:699)

Biology (BIOL)

BIOL:504 Digital Skills for Biologists (3 Credits)

This course teaches students with no prior experience the fundamentals of programming, electronics, 3D printing, actuation and robotics for application to biological experiments. (Formerly 3100:504)

BIOL:506 Principles of Systematics (3 Credits)

The science of identifying, naming, and classifying the diversity of life. Topics include: nomenclature, types, techniques of data collection, and methods of phylogenetic reconstruction. (Formerly 3100:506)

BIOL:512 Advanced Ecology (3 Credits)

Advanced study of the ecology of individuals, populations, communities, and conservation/applied ecology. Active participation/discussion of primary literature in ecology is required. (Formerly 3100:512)

BIOL:518 Field Ecology (4 Credits)

Introduction to sampling methods, design of experiments and observations, and computer analysis; some local natural history. Laboratory. (Formerly 3100:518)

BIOL:521 Tropical Field Biology (4 Credits)

Ecology of coral reefs, tide pools, mangroves, intertidal zones, terrestrial flora and fauna, island biogeography. Taught at a field station in the tropics. (Formerly 3100:521)

BIOL:522 Conservation Biology (3 Credits)

Explores the factors affecting survival of biodiversity, and how to develop practical approaches to resolve complicated conservation issues. (Formerly 3100:522)

BIOL:523 Population Biology (3 Credits)

Discussion of animal and plant ecology and evolutionary biology from a species and population level perspective. Includes topics in population ecology and population genetics. (Formerly 3100:523)

BIOL:526 Wetland Ecology (4 Credits)

Wetland ecology; principles and conservation. Field studies will be conducted at Bath Nature Preserve. Laboratory. *Field trips involved; minor transportation costs. (Formerly 3100:526)

BIOL:527 Limnology (4 Credits)

This course explores the diversity of aquatic life and key biotic characteristics of freshwater ecosystems with emphasis on the Great Lakes. Includes field trips. (Formerly 3100:527)

BIOL:528 Biology of Behavior (3 Credits)

May be taken without 429/529. Biological basis of behavior, ethological theory; function, causation, evolution, and adaptiveness of behavior. (Formerly 3100:528)

BIOL:529 Biology of Behavior Laboratory (1 Credit)

Prerequisites or corequisite: BIOL 528. Individualized, directed study to provide the student with first-hand experience in observing, describing and interpreting animal behavior. (Formerly 3100:529)

BIOL:530 Community/Ecosystem Ecology (3 Credits)

History of the ecosystem concept; components, processes and dynamics of communities and ecosystems; analysis and design of ecosystem experiments. Laboratory. (Formerly 3100:530)

BIOL:533 Pathogenic Bacteriology (4 Credits)

Study of major groups of bacteria which produce infections in humans. Biochemical properties of microorganisms which engender virulence and nature of host resistance. Laboratory. (Formerly 3100:533)

BIOL:537 Immunology (4 Credits)

Nature of antigens, antibody response, and antigen-antibody reactions. Site and mechanism of antibody formations, hypersensitivity, immunologic tolerance and immune diseases considered. Laboratory. (Formerly 3100:537)

BIOL:539 Advanced Immunology (3 Credits)

Immunology is studied from a historical and current perspective. Topics include T cells, B cells, antigen presentation, HIV, and transplantation. (Formerly 3100:539)

BIOL:540 Mycology (4 Credits)

Structure, life history, classification of representative fungi with emphasis on the importance of fungi to humans. Laboratory. (Formerly 3100:540)

BIOL:543 Phycology (4 Credits)

Examination of the major groups of algae with emphasis on life histories and their relationship to algal form and structure. Laboratory. (Formerly 3100:543)

BIOL:544 Field Marine Phycology (3 Credits)

Collection and identification of tropical marine algae on San Salvador Island, The Bahamas. Discussion of characteristics and ecology of major groups of Caribbean algae. Laboratory. (Formerly 3100:544)

BIOL:551 General Entomology (4 Credits)

Structure, physiology, life cycles, economic importance characteristics of orders and major families of insects. Laboratories parallel lectures. (Formerly 3100:551)

BIOL:553 Invertebrate Zoology (4 Credits)

Invertebrate groups, their classification, functional morphology, adaptive radiation and life history. A phylogenetic approach is used. Laboratories parallel lectures. (Formerly 3100:553)

BIOL:554 Parasitology (4 Credits)

Principles of parasitism; host parasite interactions; important human and veterinary parasitic diseases; and control measures. Laboratories parallel lectures. (Formerly 3100:554)

BIOL:555 Ichthyology (4 Credits)

Study of fishes; incorporates aspects of evolution, anatomy, physiology, natural history, and commercial exploitation of fishes. Laboratory incorporates field-based exercises and fish taxonomy. (Formerly 3100:555)

BIOL:556 Ornithology (4 Credits)

Introduction to biology of birds: classification, anatomy, physiology, behavior, ecology, evolution, natural history and field identification. Laboratory. *Field trips involved; minor transportation costs. (Formerly 3100:556)

BIOL:557 Herpetology (4 Credits)

Survey of the diversity, ecology and evolution of amphibians and reptiles. Special emphasis is given to Ohio species. Laboratory. (Formerly 3100:557)

BIOL:558 Vertebrate Zoology (4 Credits)

Prerequisite: Permission. Biology of vertebrates, except birds; evolution, ecology, behavior, systematics and anatomy. Laboratory with field trips. (Formerly 3100:558)

BIOL:565 Advanced Cardiovascular Physiology (3 Credits)

Prerequisite: BIOL 573. Study of biological mechanisms involved in heart attack, strokes, fluid balance, hypertension and heart disease. Controversial issues in each area will be examined and current research presented. (Formerly 3100:565)

BIOL:566 Vertebrate Embryology (3 Credits)

Lectures focus on development of model vertebrate organisms and humans, and cellular and molecular mechanisms underlying animal development. (Formerly 3100:566)

BIOL:567 Comparative Vertebrate Morphology (4 Credits)

An introduction to the comparative morphology of major vertebrates. The laboratory consists of dissections of representative vertebrates. (Formerly 3100:567)

BIOL:568 The Physiology of Reproduction (3 Credits)

Study of the physiological mechanisms of reproduction throughout the animal kingdom with special emphasis upon mammalian endocrinological control. Controversial issues in the field will be examined and current research presented. (Formerly 3100:568)

BIOL:569 Respiratory Physiology (3 Credits)

Prerequisite: BIOL 573. Study of mechanisms determining gas exchange including mechanics, ventilation, blood flow, diffusion, and control systems. Emphasis is given to normal human lung function. (Clinical aspects are not considered in detail.) (Formerly 3100:569)

BIOL:570 Lab Animal Regulations (1 Credit)

Required of anyone working with animals, and covers government regulations, care of animals and a lab to teach basic animal handling and measurement techniques. (Formerly 3100:570)

BIOL:571 Physiological Genetics (4 Credits)

Prerequisite: BIOL 573. The integrative study of how genetics and physiology influence complex systems from molecular to behavioral in plants and animals. Laboratory. (Formerly 3100:571)

BIOL:572 Biological Mechanisms of Stress (3 Credits)

Prerequisite: BIOL 573. Study of mechanisms from molecular to behavioral of how stress influences body systems and signals. The latest research and experimental issues are discussed. (Formerly 3100:572)

BIOL:573 Comparative Animal Physiology (3 Credits)

Study of respiration, circulation, digestion, metabolism, osmoregulation, and excretion in a variety of invertebrate and vertebrate animals. Adaptation to the environment is emphasized. (Formerly 3100:573)

BIOL:574 Comparative Animal Physiology Laboratory (1 Credit)

Corequisite: BIOL 573. Laboratory experiments in animal physiology (respiration, circulation, metabolism, osmoregulation). Presentation of results in scientific format and as oral reports. (Formerly 3100:574)

BIOL:575 Comparative Biomechanics (3 Credits)

Investigation of how physical constraints on biological materials, structural mechanics and locomotion relate to the survival and evolution of living organisms. (Formerly 3100:575)

BIOL:580 Molecular Biology (3 Credits)

Fundamentals of molecular biology, including recombinant DNA technology, applications in biotechnology, medicine, and genetic engineering. Mechanisms of gene regulation. (Formerly 3100:580)

BIOL:581 Advanced Genetics (3 Credits)

Nature of the gene; genetic codes; hereditary determinants; mutagenesis and genes in population. Lecture and seminar. (Formerly 3100:581)

BIOL:582 Neurobiology (3 Credits)

History of Neuroscience; organization, function and development of the central nervous system; electrophysiological properties of nerve cells; learning and memory; molecular basis for mental diseases. (Formerly 3100:582)

BIOL:585 Cell Physiology (4 Credits)

Explores molecular and biochemical aspects of energy metabolism, inter and intracellular signaling, growth and death of cells. Emphasizes up-to-date scientific literature and techniques. Laboratory. (Formerly 3100:585)

BIOL:594 Workshop in Biology (1-3 Credits)

(May be repeated) Prerequisite: Permission of instructor. Group studies of special topics in biology. May not be used to meet undergraduate or graduate major requirements in biology. May be used for elective credit only. (Formerly 3100:594)

BIOL:597 Biological Problems (1-2 Credits)

Prerequisite: Permission. Honors-level work, usually consisting of laboratory investigations. A maximum of 4 credits may apply toward the major degree requirements. (Formerly 3100:597)

BIOL:598 Biological Problems (1-2 Credits)

Prerequisite: Permission. Honors-level work, usually consisting of laboratory investigations. A maximum of 4 credits may apply toward the major degree requirements. (Formerly 3100:598)

BIOL:601 Evolutionary Ecology (3 Credits)

Advanced studies of topics in ecology and evolution, including population genetics, coevolution, metapopulations, and conservation genetics. Lecture/discussion format. (Formerly 3100:601)

BIOL:604 Topics in Integrative Biology (2 Credits)

Reading, critical analysis, presentation, discussion and debate of cutting edge biological research with an emphasis on understanding the integrative approach to biological investigation. (Formerly 3100:604)

BIOL:616 Graduate Evolutionary Biology (4 Credits)

A survey of theory and methods in evolutionary biology including: evolutionary genetics, natural selection, drift, mating systems, trait integration, plasticity, phylogenetics, and paleontology. (Formerly 3100:616)

BIOL:617 Graduate Ecology (3 Credits)

Advanced training for students pursuing a professional/academic career in ecology or associated disciplines. Exploration of interactions at the organismal, population, community, and ecosystem levels. (Formerly 3100:617)

BIOL:618 Experimental Approaches in Field Ecology (4 Credits)

Prerequisite: Graduate status. Field oriented course intended to help students learn to formulate questions and hypotheses, design field studies, analyze and interpret data, and present conclusions. Laboratory. (Formerly 3100:618)

BIOL:624 Advanced Aquatic Ecology (4 Credits)

Prerequisite: Permission. This course examines interactions between aquatic organisms and their environment across freshwater and marine systems. It includes primary literature, field trips, and student-designed experiments. (Formerly 3100:624)

BIOL:625 Basic DNA Techniques (3 Credits)

Basic DNA techniques including extraction of DNA, cleavage of DNA and cloning. Laboratory. (Formerly 3100:625)

BIOL:626 Techniques in Molecular Biology (3 Credits)

Discussion of current techniques in molecular biology such as microscopy, cell culture, gene expression and protein analysis. Laboratory. (Formerly 3100:626)

BIOL:628 Advanced Topics in Behavior (3 Credits)

Prerequisite: BIOL 528 or equivalent. Advanced studies of topics in behavior, emphasizing current scientific literature. (Formerly 3100:628)

BIOL:651 Entomology (4 Credits)

Prerequisite: graduate standing in Biology. Exploration of the diversity and biology of insects and their relatives. Laboratories emphasize field exercises and a collection. (Formerly 3100:651)

BIOL:660 Environmental Physiology (3 Credits)

Prerequisites: 3100:561 and 3100:562. Study of physiological reactions of healthy mammals to natural changes or extremes of physical environment. (Formerly 3100:660)

BIOL:663 Advanced Exercise Physiology (3 Credits)

Through lecture, reading and critical analysis of current literature, physiologic mechanisms of exercise in animals will be explored. (Formerly 3100:663)

BIOL:665 Histology, Cell Biology, and Introductory Pathology (4 Credits)

This course integrates cell biology and histology to show how organs are structured and function, and how they are altered during sample pathologies. Laboratory. (Formerly 3100:665)

BIOL:671 Developmental Biology (4 Credits)

The study of cellular and molecular mechanisms underlying animal development. Laboratory. (Formerly 3100:671)

BIOL:673 Integrative Stress Physiology (3 Credits)

Prerequisite: B.S. in Biology or equivalent. This course is designed to examine the behavioral, physiological, genomic and molecular mechanisms of how various types of stressors affect the organism. (Formerly 3100:673)

BIOL:674 Integrated Cardiovascular Physiology (3 Credits)

Prerequisite: B. S. in Biology or equivalent. Integration of epidemiological, behavioral, physiological, molecular and genetic mechanisms of cardiovascular function in health and disease. Emphasis on critical thinking and class discussions. (Formerly 3100:674)

BIOL:675 Integrative Physiological Genomics (4 Credits)

Prerequisite: B.S. degree in science discipline. This course uses methodologies from genetics and physiology as an integrated approach to studying whole body systems. (Formerly 3100:675)

BIOL:676 Integrative Physiology (3 Credits)

Exploration of the integrative nature of physiology through lecture, reading, and critical analysis of current literature. (Formerly 3100:676)

BIOL:677 Systems Physiology (3 Credits)

Study of the complex nature of specific physiological systems both as separate entities and interacting units. (Formerly 3100:677)

BIOL:681 Cytology (3 Credits)

The study of how a cell's structure, biochemistry, metabolism, and molecular biology integrate to produce cell function. Laboratory. (Formerly 3100:681)

BIOL:683 Selected Topics: Neurobiology (3 Credits)

The study of organization, function, and development of the vertebrate nervous system. (Formerly 3100:683)

BIOL:685 Advanced Cell Physiology (4 Credits)

The study of how a cell's structure, biochemistry, metabolism and molecular biology integrate to produce cell function. Laboratory. (Formerly 3100:685)

BIOL:688 Principles of Transmission Electron Microscopy (3 Credits)

Modern cytological methods using transmission electron microscope. Portfolio required to demonstrate proficiency in fixation techniques, use of ultramicrotome, light and electron microscopes and darkroom techniques. (Formerly 3100:688)

BIOL:689 Principles of Scanning Electron Microscopy (3 Credits)

Prerequisite: BIOL 681 or equivalent. An introduction of modern cytological methods using the scanning electron microscope. A portfolio is required to demonstrate proficiency in fixation techniques, the use of supplemental equipment such as the critical point drying apparatus and the sputter-coating apparatus and the efficient use of the scanning electron microscope. (Formerly 3100:689)

BIOL:695 Special Topics in Biology (1-3 Credits)

(May be repeated) Prerequisite: Permission. Special courses offered once or only occasionally in areas where no formal course exists. (Formerly 3100:695)

BIOL:697 Biology Colloquium (1 Credit)

(May be repeated) Prerequisite: Permission. Attendance at all departmental seminars and presentation of seminar based on original research. Required of all thesis option students who shall present their thesis research. (Formerly 3100:697)

BIOL:698 Biology Colloquium (1 Credit)

(May be repeated) Prerequisite: Permission. Attendance at all departmental seminars and presentation of seminar based on original research. Required of all thesis option students who shall present their thesis research. (Formerly 3100:698)

BIOL:699 Master's Thesis (1-6 Credits)

(May be repeated) A minimum of six credits is required for thesis option student. (Formerly 3100:699)

BIOL:701 Research Techniques in Integrated Bioscience (4 Credits)

Students will learn standard, common techniques that are applicable across broad areas of research in integrated bioscience. (Formerly 3100:701)

BIOL:702 Communicating in Integrated Bioscience (2 Credits)

Communication of bioscience topics to professionals of a broad audience. Students present topics in their area of expertise to other (non-discipline) students in the course. (Formerly 3100:702)

BIOL:703 Problem Solving in Integrated Bioscience (3 Credits)

Prerequisite: BIOL 702. Students will learn how to study complex systems and get hands-on experience working in interdisciplinary teams. (Formerly 3100:703)

BIOL:797 Integrated Bioscience Colloquium (1 Credit)

Prerequisite: Permission. Seminars of original research from a broad range of bioscience-related disciplines. (Formerly 3100:797)

BIOL:798 Integrated Bioscience Colloquium (1 Credit)

Prerequisite: Permission. Seminars of original research from a broad range of bioscience-related disciplines. (Formerly 3100:798)

BIOL:899 Doctoral Dissertation (1-12 Credits)

Original research by the doctoral student. (Formerly 3100:899)

Biomedical Engineering (BMEN)

BMEN:522 Physiological Control Systems (3 Credits)

Prerequisite: BIOL 202 and MATH 335. The basic techniques employed in control theory, systems analysis, and model identification as they apply to physiological systems. (Formerly 4800:522)

BMEN:530 Design of Medical Imaging Systems (3 Credits)

Prerequisites: BIOL 200, PHYS 292, ELEN 340, BMEN 305, or by permission of instructor. Physical principles and engineering design of medical imaging systems, with emphasis on digital radiography, computed tomography, nuclear medicine, ultrasound and magnetic resonance. (Formerly 4800:530)

BMEN:560 Experimental Techniques in Biomechanics (3 Credits)

Prerequisites: CHEM 153, MATH 335, PHYS 292, MECE 203 or by permission. Principles of testing and measuring devices commonly used for biofluid and biosolid mechanics studies. Laboratories for demonstration and hands-on experience. (Formerly 4800:560)

BMEN:570 Human Factors Engineering (3 Credits)

Reliability and human error, human capabilities and limitations, crew protection, display systems, controls and controlling actions, interface design principles, risk management, Safety and accident prevention. (Formerly 4800:570)

BMEN:600 BME Graduate Colloquium (1 Credit)

(May be repeated for a maximum of 16 credits.) The Biomedical Engineering Colloquium is a seminar series designed to introduce students to current topics in biomedical engineering research, design and business. (Formerly 4800:600)

BMEN:605 Fundamentals of Biomedical Engineering (4 Credits)

Prerequisites: Graduate Standing in College of Engineering or permission of instructor. This course covers the fundamental areas of biomedical engineering including biomechanics, biomaterials, signal/image processing, biotransport phenomena, controls, and emerging areas. (Formerly 4800:605)

BMEN:606 Physiology for Biomedical Science and Engineering (3 Credits)

An integrative study of the various human body functions with emphasis on cellular, neuromuscular, cardiovascular, and renal physiology and their applications in biomedical engineering. (Formerly 4800:606)

BMEN:611 Biometry (3 Credits)

Statistics and experimental design topics for the biomedical and biomedical engineering disciplines including: distributions, hypothesis testing and estimation, ANOVA, probit analysis and nonparametrics statistics. (Formerly 4800:611)

BMEN:620 Neural Networks (3 Credits)

Examination of highly parallel, distributed architectures for computing that are, to varying degrees, derived from structures observed in biological nervous systems. After an overview of how real neurons operate, the course will examine both classical and modern neural computing architectures. Comparisons will be made with traditional serial machines and applications for which neural networks seem most promising will be examined. (Formerly 4800:620)

BMEN:627 Advances in Drug and Gene Delivery Systems (3 Credits)

This course will examine technological innovations for the delivery of drugs and genes. Methods of introducing drugs and genes into the body, modeling drug transport, and metabolic responses of cells and organs will be analyzed. (Formerly 4800:627)

BMEN:630 Biomedical Computing (3 Credits)

Prerequisite: 4100:206 or equivalent. Computer applications in health care, clinical laboratories, AMHT, medical records, direct order entry, A-D, D-A conversion, patient monitoring, peripherals and interfaces, diagnostic algorithms, automated EEG, ECG systems. (Formerly 4800:630)

BMEN:631 Biomedical Instrumentation I (4 Credits)

Prerequisites: BMEN 605 or permission of the instructor. This course covers biomedical equipment, bio-signals and processing techniques, biomedical sensors/transducers, signal conditioning, data acquisition, noise control, device safety, and modern medical imaging systems. (Formerly 4800:631)

BMEN:633 Biomedical Optics (3 Credits)

Application of lightwave principles and optical fibers on the engineering design and development of instrumentation, techniques, and applications for medical diagnostic imaging, and treatment of disease. (Formerly 4800:633)

BMEN:634 Medical Imaging Devices (3 Credits)

Imaging modalities including radiation, magnetic resonance, and sound. The formation of images. Specific devices including computer tomography, magnetic resonance, ultrasound, gamma cameras and PET. (Formerly 4800:634)

BMEN:640 Spine Mechanics (3 Credits)

Prerequisites: 3100:561 or equivalent; 4300:406 or equivalent; or permission. Physical properties and functional biomechanics of the spine. Kinematics and kinetics of the human spine. Biomechanics of scoliosis, trauma, instability, pain, and orthoses. Mechanics and design of surgical implants. (Formerly 4800:640)

BMEN:642 Hard Connective Tissue Biomechanics (3 Credits)

Prerequisites: 3100:561 or equivalent; CIVE 407 or equivalent; or permission. Physical properties and functional biomechanics of bone. The biology and mechanics of fracture and fracture healing. Mechanics of external and internal fixators. Total joint implants and reconstruction techniques. (Formerly 4800:642)

BMEN:645 Mechanics in Physiology & Medicine (3 Credits)

Prerequisites: MECE 310 and CIVE 202 or equivalent. Blood rheology, mechanics of microcirculation, finite deformation theory, soft tissue mechanics, mechanics of blood and lymph circulation, kinetics and kinematics of orthopedic joints. Clinical applications. (Formerly 4800:645)

BMEN:647 Kinematics of the Human Body (3 Credits)

Prerequisites: MECE 321 or equivalent, graduate standing in the College of Engineering or by permission. Analytical methods used to model and quantify human body motion. Three-dimensional kinematics, joint coordinate systems, functional anatomy, segment center of mass and joint centers. (Formerly 4800:647)

BMEN:650 Cardiovascular Dynamics (3 Credits)

Analysis of blood pumping action, pressure/flow waveforms and transmission through circulation and blood rheology factors. Use of various modeling and measurement techniques. Clinical implications related to disease. (Formerly 4800:650)

BMEN:653 Transport Phenomena in Biology & Medicine (3 Credits)

Prerequisites: CHEE 321 and 4200:322 or MECE 310 and MECE 315 or equivalent. Basic definitions, cardiovascular mass and momentum transport, compartment modeling, mass transfer in physiological systems and artificial kidney and lung devices, Design optimization. Analysis of human thermal system. (Formerly 4800:653)

BMEN:654 Microfluidics in Biotechnology (3 Credits)

Prerequisite: BMEN 605 or permission of instructor. This course integrates principles of fluid mechanics, surface and polymer sciences, and microfabrication to analyze flow of biofluids at the microscale. (Formerly 4800:654)

BMEN:655 Rehabilitation Engineering (3 Credits)

Prerequisites: graduate standing in engineering, mathematics, or science; or permission of the instructor. Devices for rehabilitation, interfacing the motor and/or sensory impaired, quantitative assessment techniques, prosthetics and orthotics, bedsores mechanics, emerging technologies. (Formerly 4800:655)

BMEN:660 Biomaterials & Laboratory (4 Credits)

Corequisite: Biomaterials Laboratory. Material uses in biological applications. Effect of physiological environment and sterilization on materials. Controlled and uncontrolled degradation. Effect of materials on soft tissue, hard tissue and blood. Laboratory experiments using materials designed for biomedical use and demonstrations of biological/materials interactions. (Formerly 4800:660)

BMEN:661 Advanced Biomaterials (3 Credits)

Prerequisite: BMEN 660 or permission of instructor. The objective of this course is to provide the fundamental understanding of the host responses when exposed to various implantable devices and biomaterials. Methods for testing biocompatibility will be analyzed. (Formerly 4800:661)

BMEN:662 Tissue Engineering & Regenerative Medicine (3 Credits)

Prerequisites: BMEN 661 or permission. This course will cover topics including basic developmental biology, quantitative description of biological processes, and integration of cells with materials to regenerate tissue. (Formerly 4800:662)

BMEN:663 Artificial Organs (3 Credits)

Prerequisite: graduate standing in the College of Engineering and Polymer Science or permission of instructor. Study of the rationale for the engineering and clinical aspects required for the design and variety of artificial organs, with emphasis on the artificial heart and artificial kidney. (Formerly 4800:663)

BMEN:665 Biomaterials and Tissue Engineering Methods (3 Credits)

Prerequisite: BMEN 660; Corequisite: BMEN 661; or permission of the instructor. This course is design to equip students with knowledge and skills to evaluate biomaterials and to design scaffolds for tissue engineering. Analytical techniques include principles of microscopy, cell culture techniques, and biocompatibility testing. (Formerly 4800:665)

BMEN:670 Mathematical Modeling in Biology & Medicine (3 Credits)

Prerequisites: graduate standing in engineering, mathematics, or physics; or permission of instructor. Modeling of pharmacokinetic, cardiovascular, neuromuscular, and immune systems, and artificial organ interactions. Deterministic and stochastic approaches. (Formerly 4800:670)

BMEN:685 Medical Devices & Artificial Organs (3 Credits)

Prerequisites: graduate standing in engineering, mathematics, or science; or permission of instructor. Design of medical devices and artificial organs, requirements, safety considerations, tissue constraints, optimization techniques, government regulations, and legal liability. (Formerly 4800:685)

BMEN:696 Engineering Report (2 Credits)

Prerequisites: Admission to Biomedical Engineering and permission of the advisor. A relevant problem in Biomedical Engineering for students electing the non-thesis option. The final engineering report must be approved by the advisor and the advisory committee. (Formerly 4800:696)

BMEN:697 Special Topics: Biomedical Engineering (1-4 Credits)

(May be repeated.) Specialized areas of study as defined by the instructor. (Formerly 4800:697)

BMEN:698 Masters Research (1-6 Credits)

Prerequisite: Permission of advisor. (May be repeated.) Research on a suitable topic in biomedical engineering culminating in a master's thesis. (Formerly 4800:698)

BMEN:699 Masters Thesis in Biomedical Engineering (1-6 Credits)

Prerequisite: permission of advisor. (May be repeated) Supervised research in a specific area of biomedical engineering. (Formerly 4800:699)

BMEN:898 Preliminary Research (1-15 Credits)

(May be repeated) Prerequisite: Approval of the dissertation director. Preliminary investigations prior to the submission of a dissertation proposal to the Interdisciplinary Doctoral Committee. (Formerly 4800:898)

BMEN:899 Doctoral Dissertation (1-15 Credits)

Prerequisite: acceptance of research proposal by the Interdisciplinary Doctoral Committee and approval of the dissertation director. (May be repeated) Original research by the doctoral student. (Formerly 4800:899)

BUS: Cooperative Education (BUSN)

BUSN:600 Graduate Business Cooperative Education (0 Credits)

Cooperative Education (experiential learning) is designed to provide eligible students with the opportunity to apply their classroom theory (academic education) with work experience (practical experience). Comprehensive performance evaluation and written report required. This course may be repeated. (Formerly 6000:600)

BUSN:695 Internship in Business (1-3 Credits)

Prerequisite: permission of instructor. On-the-job experience with cooperating private and public sector organizations. Individual assignments made by supervising faculty member. Periodic reports and research papers required. Credit/noncredit. (Formerly 6700:695)

BUSN:696 Special Topics: Professional Development (1-3 Credits)

Special topics and current issues in the MBA program Professional Courses. May be repeated with a change in subject, not to exceed 3 credits. (Formerly 6700:696)

BUSN:698 Colloquium in Business (1-3 Credits)

Prerequisite: permission of graduate director. Study of business administration through a seminar of several lectures in business research and practice. A broad range of topics in business research and issues will be discussed by guests, faculty and graduate students. May be repeated, but will not satisfy degree requirements (Credit/non-credit.) (Formerly 6700:698)

Business Law (BLAW)

BLAW:642 Law for Competitive Advantage (2 Credits)

Explores the interaction of public and private law within the business environment and examines business decision making in that context. (Formerly 6750:642)

BLAW:655 Government & Business (3 Credits)

Public policy with regard to business institutions and issues are considered from an economic, legal, ethical, political framework. (Formerly 6400:655)

Chemical Engineering (CHEE)

CHEE:521 Fundamentals of Multiphase Transport Phenomena (3 Credits)

Prerequisite: CHEE 321 or equivalent and permission. Major topics to be covered include intraphase and interphase transport phenomena, transport phenomena in multiphase fluids, transport in porous media, transport in gas/liquid pipe flows, computational fluid dynamics of multiphase systems, and case studies. (Formerly 4200:521)

CHEE:535 Process Analysis & Control (3 Credits)

Prerequisites: CHEE 330 and CHEE 353. This course is intended for a student holding a BS in a discipline other than engineering. Response of simple and chemical processes and design of appropriate control systems. (Formerly 4200:535)

CHEE:541 Process Design I (3 Credits)

Prerequisites: CHEE 330, CHEE 351, and CHEE 353. Application of chemical engineering fundamentals to the design of a multi-unit process. Emphasis on use of process simulators. Advanced equipment design, oral, written communication skills, teamwork. (Formerly 4200:541)

CHEE:561 Solids Processing (3 Credits)

Prerequisites: CHEE 321 and CHEE 353 or permission. Comprehensive problems in sedimentation, fluidization, drying and other operations involving mechanics of particulate solids in liquid and gas continua. (Formerly 4200:561)

CHEE:563 Pollution Control (3 Credits)

Prerequisite: CHEE 353 or permission. Air and water pollution sources and problems. Engineering aspects and methodology. (Formerly 4200:563)

CHEE:566 Digitized Data & Simulation (3 Credits)

Prerequisite: Permission. Data acquisition and analysis by digital devices, digital control applications and design. (Formerly 4200:566)

CHEE:570 Electrochemical Engineering (3 Credits)

Chemical engineering principles as applied to the study of electrode processes and to the design of electrochemical reactors. Topics include electrochemical thermodynamics, cell polarizations, Faraday's Laws, electrode kinetics, transport processes in electrochemical systems, current distributions, reactor design, experimental methods, commercial processes, and batteries and fuel cells. (Formerly 4200:570)

CHEE:572 Separation Processes in Biochemical Engineering (3 Credits)

Prerequisite: CHEE 353. Introduction to the separation and purification techniques pertinent to bioprocesses, with emphasis on the engineering considerations for large-scale operations. (Formerly 4200:572)

CHEE:600 Transport Phenomena (3 Credits)

Systematic presentation of conservation of momentum, energy and mass at microscopic and macroscopic levels in conjunction with illustrative examples and analogies. (Formerly 4200:600)

CHEE:605 Chemical Reaction Engineering (3 Credits)

Prerequisite: CHEE 330 or permission. Kinetics of homogeneous and heterogeneous systems. Reactor design for ideal and non-ideal flow systems. (Formerly 4200:605)

CHEE:610 Classical Thermodynamics (3 Credits)

Prerequisite: CHEE 225. Discussion of laws of thermodynamics and their application. Predication and correlation of thermodynamic data. Phase and reaction equilibria. (Formerly 4200:610)

CHEE:621 Surface Science in Chemical Engineering (3 Credits)

Prerequisite: Permission of instructor. This course emphasizes the basics of surface science (surface energy, wetting, adhesion); surface characterization techniques (contact angle, ellipsometry, XPS); and surface engineering methods (SAMs, soft-lithography). (Formerly 4200:621)

CHEE:622 Biochemical Engineering (3 Credits)

Application of chemical engineering principles to biological processes which produce desirable compounds or destroy unwanted or hazardous substances. (Formerly 4200:622)

CHEE:625 Physical Properties of Structural Biopolymers (3 Credits)

Prerequisite: Permission of instructor. Examination of the physical properties of biological tissues from a material science perspective leading to a rational design of biomaterials. (Formerly 4200:625)

CHEE:630 Chemical Process Dynamics (3 Credits)

Prerequisite: CHEE 600. Development and solutions of mathematical models for chemical processes including models based on transport phenomena principles, population balance methods and systems analysis. (Formerly 4200:630)

CHEE:631 Chemical Engineering Analysis (3 Credits)

Mathematical analysis of problems in transport processes, chemical kinetics and control systems. Solution techniques for these problems and their practical significances are stressed. Heuristic proofs will be given for necessary theory developments. (Formerly 4200:631)

CHEE:632 Nonlinear Dynamics & Chaos (3 Credits)

Prerequisite: MATH 335. Description and analysis of the complex behavior exhibited by nonlinear equations. Emphasis is on the numerical methods to quantify chaos. (Formerly 4200:632)

CHEE:633 Colloids-Principles & Practice (3 Credits)

Prerequisite: Permission of instructor. Colloid science and applications in chemical and biomaterials engineering: disperse systems, interparticle forces, surface tension, interfacial thermodynamics, colloid applications, biomaterials applications and characterization techniques. (Formerly 4200:633)

CHEE:634 Applied Surfactant Science (3 Credits)

Prerequisite: CHEE 610. The basics of surfactant science, the chemical engineering application of surfactants including use in polymerization media, separations, emulsion, microemulsion, and a rheology modifier. (Formerly 4200:634)

CHEE:635 Advanced Polymer Engineering (3 Credits)

Prerequisite: CHEE 600 or permission. Reactors for polymerization, polymer characterization, polymer processing, polymer rheology. (Formerly 4200:635)

CHEE:640 Advanced Plant Design (3 Credits)

Prerequisite: Permission. Topical treatment of process and equipment design, scale-up, optimization, process syntheses, process economics. Case problems. (Formerly 4200:640)

CHEE:674 Renewable Resources for Environmentally Benign Chemical Production (3 Credits)

Prerequisite: Permission of instructor. Focus is on chemical and biochemical processing technologies for the preparation of fuels, polymeric materials, and specialty chemicals from renewable resources. (Formerly 4200:674)

CHEE:680 Heterogeneous Catalysis (3 Credits)

Prerequisite: CHEE 330. Kinetics and mechanisms of heterogeneous and homogeneous catalytic reactions; characterization and design of heterogeneous catalysts. (Formerly 4200:680)

CHEE:696 Topics in Chemical Engineering (1-3 Credits)

(May be repeated for a total of six credits.) Prerequisite: Permission. Topics selected from new and developing areas of chemical engineering, such as electrochemical engineering, coal and synthetic fuels processing, bioengineering, simultaneous heat and mass transfer phenomena and new separation techniques. (Formerly 4200:696)

CHEE:697 Chemical Engineering Report (3 Credits)

Prerequisite: Permission of advisor. A relevant problem in chemical engineering is studied. Required course for students electing non-thesis option. Final report must be approved by advisor and advisory committee. (Formerly 4200:697)

CHEE:699 Master's Thesis (1-6 Credits)

(May be repeated to a maximum of six credits.) For properly qualified candidate for master's degree. Supervised original research in specific area of chemical engineering selected on basis of availability of staff and facilities. (Formerly 4200:699)

CHEE:701 Advanced Transport Phenomena (3 Credits)

Prerequisite: CHEE 600. Advanced theory of transport phenomena such as applied tensor analysis, constitutive equations, multicomponent reactive transport and multiphase transport. Illustrative practical examples presented. (Formerly 4200:701)

CHEE:702 Multiphase Transport Phenomena (3 Credits)

Prerequisite: CHEE 600. General transport theorem, kinematics, Cauchy's lemmas and the jump boundary conditions are developed followed by the theory of volume averaging. The single phase equations are then volume averaged to obtain the multiphase equations of change. The technique for using these equations and their practical significance is also covered. (Formerly 4200:702)

CHEE:706 Advanced Reaction Engineering (3 Credits)

Prerequisite: CHEE 605. Kinetics of heterogeneous systems, steady and unsteady state mathematical modeling of chemical reactors, fluidization and additional topics drawn from current literature. (Formerly 4200:706)

CHEE:711 Advanced Chemical Engineering Thermodynamics (3 Credits)

Prerequisite: CHEE 610. Advanced topics in thermodynamics, including phase and reaction equilibria at high pressures, phase equilibrium for multiphase systems, reaction equilibria in multiphase systems, thermodynamics of surfaces, thermodynamics of systems under stress, non-equilibrium thermodynamics and current topics from literature. (Formerly 4200:711)

CHEE:715 Momentum Transport (3 Credits)

Prerequisite: CHEE 600. Discussion of potential flow, boundary layer formation and turbulent flow phenomena for Newtonian fluids. (Formerly 4200:715)

CHEE:716 Non-Newtonian Fluid Mechanics (3 Credits)

Prerequisite: CHEE 600. Tensor and curvilinear coordinates. Newtonian viscometrics. Development of non-Newtonian constitutive equations. Special and general flows of various constitutive models. (Formerly 4200:716)

CHEE:720 Energy Transport (3 Credits)

Prerequisite: CHEE 600. Conduction, natural and forced convection, and radiation heat transfer starting with equations of continuity, motion and energy. (Formerly 4200:720)

CHEE:721 Topics in Energy Transport (3 Credits)

Prerequisite: CHEE 720. Advanced analytical and graphical methods for solving complex heat transfer problems found in chemical engineering. (Formerly 4200:721)

CHEE:725 Mass Transfer (3 Credits)

Prerequisite: CHEE 600. Theory of mass transfer with applications to absorption, adsorption, distillation and heterogeneous catalysis. (Formerly 4200:725)

CHEE:731 Process Control (3 Credits)

Prerequisite: CHEE 630. Introduction to modern control theory of chemical processes including cascade control, multivariate control and data sampled control. (Formerly 4200:731)

CHEE:736 Polymer Engineering Topics (3 Credits)

Prerequisite: Permission. Selected topics of current interest in polymer engineering, such as modeling of reactors or processes, multiphase materials, multiphase flow, artificial fiber engineering, etc. (Formerly 4200:736)

CHEE:738 Chemical Processing of Advanced Materials (3 Credits)

Prerequisite: CHEE 605. Advanced materials such as ceramics, optical materials, sensors, catalysts; application of reaction engineering to sol-gel processing, ceramic processing, modified chemical vapor deposition. (Formerly 4200:738)

CHEE:742 Advanced Catalyst Design (3 Credits)

Prerequisite: CHEE 605. Development of catalysis theory and its application to the design of practical catalysts. (Formerly 4200:742)

CHEE:750 Advanced Pollution Control (3 Credits)

Prerequisite: CHEE 463 or permission. Analysis of current environmental research in analytical instrumentation, air and water, pollution control, hazardous waste treatment, and nuclear waste disposal. (Formerly 4200:750)

CHEE:780 Advanced Biocatalysis & Biotransformations (3 Credits)

Prerequisite: CHEM 401 or CHEM 501 or permission of instructor. Focuses include: (a) high performance enzymes via chemical modification, recombinant technology, evolution, extremophiles; (b) applications of enzymes in biosynthesis, bioprocessing, biosensing, and bioremediation. (Formerly 4200:780)

CHEE:791 Chemical Engineering Seminar (1 Credit)

(May be repeated for a maximum of six credits.) Prerequisite: Permission of instructor. Advanced level coverage of specialized chemical engineering topics. Intended for students seeking a Ph.D. in engineering. (Formerly 4200:791)

CHEE:794 Advanced Seminar Research Techniques for Engineering (3 Credits)

(May be repeated for a total of six credits.) Prerequisite: permission of department chair. Advanced projects, readings and other studies in various areas of chemical engineering. Intended for student seeking Ph.D. in engineering. (Formerly 4200:794)

CHEE:898 Preliminary Research (1-15 Credits)

(May be repeated for a total of 15 credits.) Prerequisite: approval of dissertation director. Preliminary investigations prior to the submission of a dissertation proposal to the Interdisciplinary Doctoral Committee. (Formerly 4200:898)

CHEE:899 Doctoral Dissertation (1-15 Credits)

(May be taken more than once.) Prerequisite: acceptance of research proposal by the Interdisciplinary Doctoral Committee and approval of the dissertation director. Original research by the doctoral student. (Formerly 4200:899)

Chemistry (CHEM)

CHEM:501 Biochemistry Lecture I (3 Credits)

Biochemistry of amino acids, carbohydrates, lipids, and nucleic acids: structure/function relations. Enzymes as catalysts: kinetics and regulation. Cofactors. (Formerly 3150:501)

CHEM:502 Biochemistry Lecture II (3 Credits)

Prerequisite: CHEM 501. Overview of metabolism; thermodynamics; carbohydrate, fatty acid, amino acid, and nucleoside anabolism and catabolism; hormonal control of metabolism. Photosynthesis. (Formerly 3150:502)

CHEM:506 Biochemistry of Gene Expression (3 Credits)

Prerequisites: CHEM 501, or permission of the department. DNA, RNA, and protein synthesis, translation and transcription. Gene function and expression, cell cycle and cancer, genetic engineering, gene silencing, gain of function studies. (Formerly 3150:506)

CHEM:510 Special Readings in Analytical Chemistry (1-3 Credits)

Selected topics in advanced analytical chemistry for which no course exists. (May be repeated) (Formerly 3150:510)

CHEM:511 Special Readings in Inorganic Chemistry (1-3 Credits)

Selected topics in advanced inorganic chemistry for which no course exists. (May be repeated) (Formerly 3150:511)

CHEM:512 Special Readings in Organic Chemistry (1-3 Credits)

Selected topics in advanced organic chemistry for which no course exists. (May be repeated) (Formerly 3150:512)

CHEM:513 Special Readings in Physical Chemistry (1-3 Credits)

Selected topics in advanced physical chemistry for which no course exists. (May be repeated) (Formerly 3150:513)

CHEM:515 Special Readings in Biochemistry (1-3 Credits)

Selected topics in advanced biochemistry for which no course exists. (May be repeated) (Formerly 3150:515)

CHEM:572 Advanced Inorganic Chemistry (3 Credits)

Concepts of atomic structure integrated in systematic classification of elements. Periodic table. Chemistry of the representative elements. Transition elements including coordination compounds, organometallics and metal carbonyls. (Formerly 3150:572)

CHEM:590 Workshop in Chemistry (1-3 Credits)

(May be repeated) Group studies of special topics in chemistry. May not be used to meet undergraduate or graduate major requirements in chemistry. (Formerly 3150:590)

CHEM:592 Special Topics: Chemical Education (1-3 Credits)

(May be repeated up to 6 credits) Consideration of topics in chemical education. (Formerly 3150:592)

CHEM:599 Master's Degree Research (1-6 Credits)

For properly qualified candidates for master's degree. Supervised original research in analytical, inorganic, organic, physical or biochemistry. (Formerly 3150:599)

CHEM:603 Biochemistry Lecture III (3 Credits)

Prerequisites: CHEM 501 and CHEM 502. DNA, RNA and protein metabolism. Translation and transcription. Gene function and expression. (Formerly 3150:603)

CHEM:610 Basic Quantum Chemistry (3 Credits)

Quantum mechanics with applications to molecular systems. Includes angular momentum, molecular hamiltonians, variation and perturbation methods and molecular orbital theories. (Formerly 3150:610)

CHEM:611 Spectroscopy (3 Credits)

Prerequisite: CHEM 610. Interaction of light with matter, linear and nonlinear spectroscopies. Rotational, vibrational and electronic spectroscopy. Radiationless transitions and photochemistry. (Formerly 3150:611)

CHEM:619 Transition-Metal Organometallics (3 Credits)

The organometallic chemistry of the transition metal elements. Topics covered include synthesis, characterization methods, structure, bonding, reactivity, and application. (Formerly 3150:619)

CHEM:620 Main Group Organometallics (3 Credits)

The organometallic chemistry of main group elements. Topics covered include synthesis, characterization methods, structure, bonding, reactivity, and applications. (Formerly 3150:620)

CHEM:625 Chemistry Seminar (1 Credit)

Lectures on current research topics in chemistry by invited speakers. (Formerly 3150:625)

CHEM:629 Physical Inorganic Chemistry (3 Credits)

Detailed treatment of chemistry of transition elements. Group theoretical applications, ligand field theory, kinetics and mechanism magnetism, electronic spectra, molecular orbital theory. (Formerly 3150:629)

CHEM:630 Theoretical Inorganic Chemistry II (2 Credits)

Prerequisite: CHEM 629. Detailed treatment of chemistry of transition elements. Group theoretical applications, ligand field theory, kinetics and mechanism, electronic spectra, molecular orbital theory. (Formerly 3150:630)

CHEM:631 Metals in Medicine (3 Credits)

Prerequisite: CHEM 572. This course will cover the synthesis and development of metal based medicines including the tumor drug cisplatin, technetium 99m based imaging agents, and silver antimicrobials. (Formerly 3150:631)

CHEM:635 Thermodynamics & Statistical Thermodynamics (3 Credits)

Rigorous treatment of laws of thermodynamics and their applications to selected chemical systems. Fundamentals of statistical thermodynamics and applications to systems in chemical equilibrium. (Formerly 3150:635)

CHEM:636 Chemical Kinetics (3 Credits)

Phenomenological kinetics, experimental methods of investigation and analysis of reaction systems. Theoretical treatments of reaction rates. (Formerly 3150:636)

CHEM:640 Chemical Separations (3 Credits)

General theory, instrumentation and application of methods of separation. Emphasis on modern chromatographic techniques and recent advances. (Formerly 3150:640)

CHEM:641 Spectral Methods (3 Credits)

Theory and application of instrumental measurements. Interpretation of data. (Formerly 3150:641)

CHEM:645 X-Ray Crystallography (3 Credits)

The theoretical and practical aspects of single crystal x-ray crystallography are discussed. Topics covered include diffraction, space groups, structure solution and refinement. (Formerly 3150:645)

CHEM:670 Spectroscopic Identification of Organic Compounds (3 Credits)

Determination of the structures of organic compounds by spectroscopic analysis: ORD/CD, UV-VIS spectroscopy, IR spectroscopy, mass spectrometry, FT-NMR spectroscopy, 2D-NMR. (Formerly 3150:670)

CHEM:679 Inorganic Polymers (3 Credits)

Prerequisite: CHEM 572 or permission of instructor. Synthesis, structure, bonding, characterization, and applications of polysiloxanes, polyphosphazenes, polysilanes, polycarbosilanes, poly(ferroceneophanes), sol-gel materials, coordination polymers and related materials. (Formerly 3150:679)

CHEM:683 Mechanistic & Synthetic Organic Chemistry I (3 Credits)

Introduction to the structural and mechanistic aspects of organic reactions: HMO calculations, acids and bases, equilibrium, kinetics, linear free energy relationships, reactive intermediates, reaction mechanisms. (Formerly 3150:683)

CHEM:684 Mechanistic & Synthetic Organic Chemistry II (3 Credits)

Prerequisite: CHEM 683. Synthetic organic chemistry from a mechanistic perspective: nucleophilic and electrophilic substitution and addition reactions, carbonyl chemistry, functional group manipulations, oxidations, reductions, cycloaddition reactions. (Formerly 3150:684)

CHEM:699 Master's Thesis (1-6 Credits)

For properly qualified candidates for master's degree. Supervised original research in analytical, inorganic, organic, physical or biochemistry. (Formerly 3150:699)

CHEM:710 Special Topics in Analytical Chemistry (1-3 Credits)

(May be repeated) Topics in advanced analytical chemistry. Electroanalysis, activation analysis, atomic absorption spectrometry, mass spectrometry, liquid-liquid, liquid-solid and gas chromatography, ion exchange, thermoanalytical methods, separations, standards, sampling, recent developments. (Formerly 3150:710)

CHEM:711 Special Topics in Inorganic Chemistry (1-3 Credits)

(May be repeated) Consideration of topics in modern inorganic chemistry such as coordination compounds, chemistry of the solid state, representative elements, nonaqueous solvents, organometallic compounds, homogeneous catalysis. (Formerly 3150:711)

CHEM:712 Special Topics in Organic Chemistry (1-3 Credits)

(May be repeated) Topics in advanced organic chemistry such as natural products, heterocyclic compounds, photochemistry. (Formerly 3150:712)

CHEM:713 Special Topics in Physical Chemistry (1-3 Credits)

(May be repeated) Subjects from modern physical chemistry. (Formerly 3150:713)

CHEM:715 Special Topics: Biochemistry (1-3 Credits)

(May be repeated) Recent developments in areas of biochemistry. (Formerly 3150:715)

CHEM:720 Advanced Biochemical Techniques (3 Credits)

Prerequisite: CHEM 502. An advanced lecture course on physical techniques in biochemistry. Includes optical and hydrodynamic methods; radioanalytical techniques, scattering and magnetic resonance spectroscopy. (Formerly 3150:720)

CHEM:722 Enzymatic Reactions (3 Credits)

Prerequisites: CHEM 501 and CHEM 502. Mechanisms of enzyme catalyzed reactions, general aspects and specific examples for phosphorylation, acyl, glycosyl transfers, eliminations, oxidation/reduction, isomerization and rearrangements. Chemistry of cofactors. (Formerly 3150:722)

CHEM:724 Bioinorganic Chemistry (3 Credits)

Prerequisites: CHEM 501 and CHEM 502. Survey of the structure and properties of metal ion complexes with amino acids, nucleotides, metabolites and macromolecules; metal ion metabolism; metals in medicine. (Formerly 3150:724)

CHEM:726 Advanced Metabolism (3 Credits)

Prerequisites: CHEM 501 and CHEM 502. Study of advanced pathways in carbohydrate, lipid and protein metabolism with emphasis placed on metabolic dysfunction. (Formerly 3150:726)

CHEM:740 Physical Organic Chemistry (3 Credits)

Prerequisites: CHEM 683 and CHEM 684. An advanced treatment of the theory and mechanisms of organic chemistry: FMO theory, molecular mechanics, molecular strain, kinetics, thermodynamics, acidity functions, linear free energy relationships. (Formerly 3150:740)

CHEM:750 Advanced Synthetic Organic Chemistry (3 Credits)

Prerequisites: CHEM 683 and CHEM 684. An advanced treatment of organic functional group manipulations in the context of the total synthesis of natural products. (Formerly 3150:750)

CHEM:899 Doctoral Dissertation (1-16 Credits)

Open to qualified student accepted as a candidate for Doctor of Philosophy in Chemistry. Supervised original research undertaken in organic, inorganic, physical, analytical or biochemistry. (Formerly 3150:899)

Child and Family Development (CHFD)

CHFD:501 American Families in Poverty (3 Credits)

Prerequisite: Permission of instructor. Overview of the issues, trends, and social policies affecting American families living in poverty. Online section available. (Formerly 3760:501)

CHFD:503 Home-Based Intervention Theory (3 Credits)

Prerequisite: Admission to Certificate Program. Overview of home-based intervention to include philosophy and description of this programming as well as assessment of family, their home and community environment. (Formerly 1820:503)

CHFD:504 Middle Childhood and Adolescence (3 Credits)

Prerequisite: Permission of instructor. The influences of middle childhood and adolescent behavior on the family and the influences of the family environment on middle childhood and adolescent development. (Formerly 3760:504)

CHFD:505 Home-Based Intervention Internship (3-5 Credits)

Prerequisite: CHFD 504. Gives students the opportunity to apply knowledge of home-based intervention in actual delivery process working with families in their homes under the direct supervision of trained, experienced home-based intervention therapists. (Formerly 1820:505)

CHFD:506 Family Financial Management (3 Credits)

Analysis of the family as a financial unit including financial problems and their resolution, decision-making patterns and financial practices behavior. Cases, exercises, problems and computer analysis. (Formerly 3760:506)

CHFD:540 Family Crisis (3 Credits)

Study of family stress and crisis including internal and external variables and their influence on degree of disorganization, coping and recovery. Includes theory, research and application dimensions. (Formerly 3760:540)

CHFD:541 Family Relationships in Middle and Later Years (3 Credits)

Study of family patterns and problems during middle and later years of life with emphasis on psychological and biological changes and economic and social adequacy. Research and trends in gerontology. (Formerly 3760:541)

CHFD:542 Human Sexuality (3 Credits)

Prerequisite: permission of instructor. Introduction to problems and values. Emphasis is on the role of values in intimate relationships, the diverse dimensions of sexual responsibility. (Formerly 3760:542)

CHFD:546 Culture, Ethnicity & Family (3 Credits)

Prerequisite: Permission of instructor. Study of the role of culture and ethnicity in adaptation of the family system to environment. Program applications considered. Online section available. (Formerly 3760:546)

CHFD:548 Before & After School Child Care (2 Credits)

Study of the development, implementation and evaluation of school-age child-care programs for before and after school and vacation periods. (Formerly 3760:548)

CHFD:560 Organization & Supervision of Child Care Centers (3 Credits)

Theory, principles and procedures involved in establishing and operating centers for infants, toddlers, preschool and school-age children. (Formerly 3760:560)

CHFD:561 Case Management for Children & Families I (3 Credits)

Provides an overview of Case Management basics in a multi-systems collaborative context. Includes roles, values, principles, state and service systems, and service coordination. (Formerly 3760:561)

CHFD:562 Case Management for Children & Families II (3 Credits)

Prerequisite: CHFD 561 or permission of instructor. Provides in-depth exploration of Case Management principles and practice. Emphasis on process and functions, assessment, cross-system service planning and coordination, advocacy, and cultural diversity. (Formerly 3760:562)

CHFD:564 Home-Based Intervention Techniques & Practice (3 Credits)

Prerequisite: CHFD 503. Provides intervention techniques and skill areas required for home-based intervention and learning opportunities for matching techniques with specific family problems. (Formerly 1820:504)

CHFD:585 Seminar in Child and Family Development (1-3 Credits)

Exploration and evaluation of current developments in selected areas. (Formerly 3760:585)

CHFD:590 Workshop in Family & Consumer Sciences (1-3 Credits)

Investigation of current issues or topic in selected areas of family and consumer sciences. May be an off-campus study tour or an on-campus full-time group meeting. (Formerly 3760:590)

CHFD:594 Practicum in Parent & Family Education (3 Credits)

Prerequisites: CHFD 596 and CHFD 605. Provides on-site opportunities to apply parent and family education skills. Includes a review of strategies, ethical considerations, and supervision by the on-site director. (Formerly 3760:594)

CHFD:596 Parent Education (3 Credits)

Prerequisite: permission of the instructor. Practical application that reviews and analyzes parent education methods with major emphasis on the evaluation of parent education programs. Online section available. (Formerly 3760:596)

CHFD:601 Divorce Mediation (3 Credits)

Prerequisite: Admission to the Graduate Certificate Program on Divorce Mediation. Overview of divorce mediation process includes guidelines for negotiating separation and divorce agreements, division of personal and real property, support, custody, and future plans. (Formerly 1800:601)

CHFD:602 Family in Lifespan Perspective (3 Credits)

Study of individual and family development across life span. Emphasis on adjustment patterns and interpersonal competence. Implications for education theory research and social policy. (Formerly 3760:602)

CHFD:604 Orientation to Graduate Studies in Child and Family Development (1 Credit)

Introduction to the concepts and processes necessary for graduate study in the interdisciplinary field of child and family development. (Formerly 3760:604)

CHFD:605 Developmental Parent-Child Interactions (3 Credits)

Prerequisite: permission of the instructor. Study of reciprocal interactions between parent and child from birth to adulthood. Consideration of cross-culture studies, historical and societal influences and various family characteristics and structures. Online course. (Formerly 3760:605)

CHFD:607 Family Dynamics (3 Credits)

Development of techniques in home economics programs utilizing role theory, exchange theory and systems theory as understood through the study of the family across the life cycle. (Formerly 3760:607)

CHFD:610 Child Development Theories (3 Credits)

Prerequisite: permission of the instructor. A comparative study of developmental theories of the child within the family context. Application of the theories to child rearing in the family will be emphasized. (Formerly 3760:610)

CHFD:665 Development in Infancy & Early Childhood (3 Credits)

Analysis of research and theoretical frameworks regarding infant and child development from conception through age five. Implications for guidance and education. (Formerly 3760:665)

CHFD:680 Grant & Proposal Writing (3 Credits)

An important organizational function is acquiring resources to sustain and grow critical programs and funding through grants is one such avenue. Developing effective grant writing skills are essential to acquire competitive funding from government agencies and private foundations alike. This course will provide students with the background necessary to develop a competitive funding proposal. (Formerly 3760:680)

CHFD:685 Research Methods in Child and Family Development (3 Credits)

Research methods emphasizing the scientific method, data collection techniques, ethical considerations, and statistics as they apply to research with children and families. (Formerly 3760:685)

CHFD:687 Divorce Mediation Practicum (2 Credits)

Prerequisite: CHFD 601. Practical application of divorce mediation procedures. Review of strategies and ethical considerations. (Formerly 1800:602)

CHFD:688 Advanced Internship in Child and Family Development (5 Credits)

Prerequisite: Permission of advisor or instructor. A minimum of 200 hours of supervised experience in an approved community setting to acquire skills related to area of specialization. (Formerly 3760:688)

CHFD:694 Master's Project (5 Credits)

Prerequisite: Permission of advisor. The development, implementation, and evaluation of a community-based, supervised project that makes a significant contribution to the field. (Formerly 3760:694)

CHFD:697 Individual Investigation in Family Development (1-3 Credits)

Prerequisite: permission of graduate advisor only. Individual pursuit and analysis in specific area of student's interest and design under direction of faculty advisor. (Formerly 3760:697)

CHFD:698 Individual Investigation in Child Development (1-3 Credits)

Prerequisite: permission of graduate advisor only. Individual pursuit and analysis in specific area of student's interest and design under direction of faculty advisor. (Formerly 3760:698)

CHFD:699 Masters Thesis in Child & Family Development (5 Credits)

Prerequisite: Placement of advisor. Supervised research in a specialized area of Child & Family Development that contributes to the field and may lead to publication. (Formerly 3760:699)

Chinese (CHIN)

CHIN:522 Special Topics in Language Skills, or Culture or Literature (1-4 Credits)

Prerequisite: Graduate status and permission of the instructor and department chair. Development of specialized language skills or reading of significant works of literature or culture not studied in other courses. (May be repeated once under different topic for a total of 8 credits.) (Formerly 3502:522)

CHIN:597 Individual Reading in Chinese (1-4 Credits)

Prerequisite: Graduate status and permission of the instructor and department chair. Individual study under guidance of professor who directs and coordinates student's reading and research. May be repeated for a total of 8 credits. (Formerly 3502:597)

Civil Engineering (CIVE)

CIVE:500 Introduction to Nuclear Power Generation and Simulation (3 Credits)

Prerequisites: Admission to the Graduate Nuclear Engineering Certificate Program and permission of advisor. Nuclear power history, fundamental reactions, thermodynamic heat cycles, 1-fluid homogeneous simulator thermodynamics, steam, numerical simulation of commercial nuclear power plants, controls. (Formerly 4300:500)

CIVE:501 Nuclear Reactor Engineering and Balance of Plant Systems (3 Credits)

Prerequisite: Admission to Nuclear Engineering Certificate program and permission of advisor. Nuclear reactor time-dependent theory, heat removal, thermodynamics, systems and safety. Balance of Plant heat cycles, component function and design and thermodynamics. Simulation emphasized. (Formerly 4300:501)

CIVE:502 Nuclear Process and Radioactive Waste Management, Safeguards (3 Credits)

Prerequisite: Admission to Nuclear Engineering Certificate program and permission of advisor. Nuclear industry chemistry, processing and waste disposal. Nuclear material safeguards, security and response systems. Radiation process and shielding, reactor licensing and safety, and the environment. (Formerly 4300:502)

CIVE:503 Nuclear Thermodynamics, Simulation, and Advanced Reactor (3 Credits)

Prerequisite: Admission to Nuclear Engineering Certificate program and permission of advisor. Reactor power distribution, thermal and exposure limits, critical heat flux and pressure design, neutronic/thermal hydraulic relationships. Full-plant simulation with advanced BOP components. (Formerly 4300:503)

CIVE:514 Design of Earth Structures (3 Credits)

Prerequisite: CIVE 314 or permission. Design of earth structures; dams, highway fills, cofferdams, etc. Embankment construction techniques, quality control, embankment analysis, instrumentation, foundation soil stabilization, seepage analysis and control. Design problem. Graduate students will perform more advanced analysis and design. (Formerly 4300:514)

CIVE:518 Soil & Rock Exploration (3 Credits)

Prerequisite: CIVE 314 or permission. Site exploration criteria and planning. Conventional boring, sampling and in situ testing methods. Theory and application of geophysics and geophysical methods including seismic, electrical resistivity, gravity, magnetic and radioactive measurements. Air photo interpretation. (Formerly 4300:518)

CIVE:523 Chemistry for Environmental Engineers (3 Credits)

Prerequisite: One year of college chemistry. General, physical, organic, biochemistry, equilibrium, and colloid chemistry concepts applied to environmental engineering. Concepts are used in water and wastewater laboratory. (Formerly 4300:523)

CIVE:526 Environmental Engineering Design (3 Credits)

Prerequisite: CIVE 323. An introduction to the physical, chemical and biological processes utilized in the treatment of water and wastewater, with design parameters emphasized. (Formerly 4300:526)

CIVE:527 Water Quality Modeling & Management (3 Credits)

Prerequisite: CIVE 323. Analysis and simulation of the physical, chemical and biochemical processes affecting stream quality. Development of management strategies based upon the application of water quality modeling techniques to environmental systems. (Formerly 4300:527)

CIVE:528 Hazardous & Solid Wastes (3 Credits)

Prerequisite: Senior standing or permission of instructor. Hazardous and solid waste quantities, properties and sources are presented. Handling, processing, storage and disposal methods are discussed with non-technical constraints outlined. (Formerly 4300:528)

CIVE:543 Applied Hydraulics (3 Credits)

Prerequisite: CIVE 341. Review of design principles; urban hydraulics, steam channel mechanics, sedimentation, coastal engineering. (Formerly 4300:543)

CIVE:551 Computer Methods of Structural Analysis (3 Credits)

Structural analysis using microcomputers; finite element software, interactive graphics; beam stiffness concepts and matrix formulation; simple and complex structural systems modeling; vibration analysis. (Formerly 4300:551)

CIVE:553 Optimum Structural Design (3 Credits)

Prerequisite: CIVE 306. Basic concepts in structural optimization. Mathematical programming methods including unconstrained minimization, multidimensional minimization and constrained minimization. (Formerly 4300:553)

CIVE:554 Advanced Mechanics of Materials (3 Credits)

Prerequisite: CIVE 202 or equivalent. Three-dimensional state of stress and strain analysis. Unsymmetric bending of straight and curved members with shear deformation. Beams on elastic foundations. Saint Venant's torsional problems. Inelastic analysis of bending and torsional members. Introduction to energy method. Instability behavior of prismatic members. (Formerly 4300:554)

CIVE:563 Transportation Planning (3 Credits)

Prerequisite: CIVE 361. Theory and techniques for development, analysis and evaluation of transportation system plans, Emphasis on understanding and using tools and professional methods available to solve transportation planning problems, especially in urban areas. (Formerly 4300:563)

CIVE:564 Highway Design (3 Credits)

Prerequisite: CIVE 361. Study of modern design of geometrical and pavement features of highways. Design problem and computer use. Graduate students will produce a more complete design. (Formerly 4300:564)

CIVE:565 Pavement Engineering (3 Credits)

Prerequisite: CIVE 361. Theories of elasticity, of viscoelasticity and of layered systems as applied to pavements. Pavement materials characterization; pavement design, pavement restoration for rigid and flexible pavements. (Formerly 4300:565)

CIVE:566 Traffic Engineering (3 Credits)

Prerequisite: CIVE 361. Vehicle and urban travel characteristics, traffic flow theory, traffic studies, accidents and safety, traffic signs and marking, traffic signal planning, traffic control and transportation administration. (Formerly 4300:566)

CIVE:567 Advanced Highway Design (3 Credits)

Prerequisite: CIVE 564, Autocad, or permission. Computer-aided geometric design of highways including survey data input, digital terrain modeling, cross-section templates, horizontal and vertical roadway design, earthwork computations, and advanced topics. (Formerly 4300:567)

CIVE:568 Highway Materials (3 Credits)

Prerequisites: CIVE 361, CIVE 380 or permission. Properties of aggregates, manufacture and properties of portland cement concrete, properties of asphaltic materials, design and testing of hot mix asphalt pavement mixes and of surface treatments. Laboratory preparation of specimens and determination of properties. Graduate student requirement: Graduate students will be required to perform an additional eight-hour asphalt laboratory (Absorption recovery of asphalt from solution) and to prepare a paper on a highway materials topic. (Formerly 4300:568)

CIVE:574 Underground Construction (2 Credits)

Prerequisite: CIVE 314. Description of practices and techniques of underground construction. Selection of proper method for individual job. Design of underground openings, support systems and linings. (Formerly 4300:574)

CIVE:604 Dynamics of Structures (3 Credits)

Prerequisite: CIVE 306. Approximate, rigorous dynamic analysis of one, two, multiple and infinite degrees of freedom structural systems. Elastoplastic, plastic analysis. Equivalent systems, dynamic hinge concept. Modal analysis. Transfer matrices. Fourier, Laplace transforms. (Formerly 4300:604)

CIVE:605 Structural Stability (3 Credits)

Prerequisite: CIVE 554 or equivalent. Buckling of bars, beam-columns and frames. Lateral buckling of beams. Double and tangent modulus theories. Energy methods. Compressed rings and curved bars. Torsional buckling. Buckling of plates and shells. Inelastic buckling. (Formerly 4300:605)

CIVE:606 Energy Methods & Elasticity (3 Credits)

Prerequisite: CIVE 202. Work and complementary work. Strain energy and complementary strain energy. Virtual work and Castigliano's theorems. Variational methods. Applications. Formulation of boundary value problems in elasticity. Selected topics in energy methods and elasticity. (Formerly 4300:606)

CIVE:607 Prestressed Concrete (3 Credits)

Prerequisite: CIVE 404. Basic concepts. Design of double-tee roof girder; shear; development length; column; piles; design of highway bridge girder; pretensioned, post-tensioned; continuous girders; corbels; volume-change forces; connections. (Formerly 4300:607)

CIVE:608 Multistory Building Design (3 Credits)

Prerequisite: CIVE 401. Floor systems; staggered truss system; braced frame design; unbraced frame design; drift indices; monocoque (tube and partial tube) systems; earthquake design; fire protection. Analysis by STRUDL. (Formerly 4300:608)

CIVE:609 Finite Element Analysis I (3 Credits)

Prerequisite: CIVE 554 or equivalent. Introductory development of finite element method as applied to various topics from continuum mechanics. Such areas as plane, axisymmetric and 3-D stress analysis; conduction, fluid mechanics; transient problems and geometric and material non-linearity. (Formerly 4300:609)

CIVE:610 Composite Materials in Civil Infrastructure (3 Credits)

Prerequisite: CIVE 554 or equivalent. Constituent materials; manufacturing processes; panel properties by micro/macromechanics; simplified analysis of composite beams, columns, and applications to highway bridges; composites in concrete and wood structures. (Formerly 4300:610)

CIVE:611 Fundamentals of Soil Behavior (2 Credits)

Prerequisite: CIVE 314. In-depth examination of structure and fundamental physico-chemical and mechanical properties of engineering soils viewed as particulate matter. (Formerly 4300:611)

CIVE:612 Advanced Soil Mechanics (3 Credits)

Prerequisite: CIVE 314. Study of mechanics of behavior of soil as continuum. Principles of stress, strain, deformation, shear strength and pore water pressure as applied to mechanical behavior of soil masses. (Formerly 4300:612)

CIVE:613 Advanced Geotechnical Testing (3 Credits)

Prerequisites: CIVE 518 and CIVE 612. Theory and practice of static and dynamic in situ and laboratory soil testing. Testing procedures, applicability, limitations. General evaluation of geotechnical parameters for routine and special site conditions. One lecture, two laboratories per week. (Formerly 4300:613)

CIVE:614 Foundation Engineering I (3 Credits)

Prerequisite: CIVE 313 or permission. Foundation bearing capacity and settlement analysis. Design of shallow and deep foundation systems. Pile driving and load test procedures and analysis. Theory and design of earth-retaining structures including retaining walls, tiebacks and bulkheads. (Formerly 4300:614)

CIVE:615 Foundation Engineering II (3 Credits)

Prerequisite: CIVE 614 or permission. Soil-structure interaction theory and applications to underground structures including conduits, tunnels and shafts. Advanced foundation construction methods and problems including dewatering, soil stabilization, underpinning and cofferdams. Slope stability analysis. (Formerly 4300:615)

CIVE:616 Soil Improvement (3 Credits)

Prerequisites: CIVE 313 and CIVE 314. Admixture stabilization, precompression with vertical drains, blasting, vibrocompaction, injection and grouting, thermal methods, electro-osmosis, soil reinforcement, case studies. (Formerly 4300:616)

CIVE:617 Numerical Methods in Geotechnical Engineering (3 Credits)

Prerequisites: CIVE 313 and CIVE 314. Steady-state and transient flow through soils, consolidation, soil-structure interaction, piling, stress-deformation analysis of earth structures. (Formerly 4300:617)

CIVE:618 Rock Mechanics (3 Credits)

Prerequisite: CIVE 554 or permission. Mechanical nature of rocks; linear elasticity and application to rock problems; inelastic behavior of rocks, time dependence and effects of pore pressure, experimental characterization of rock properties; failure theory and crack propagation. (Formerly 4300:618)

CIVE:620 Sanitary Engineering Problems (2 Credits)

Prerequisite: CIVE 323. Application of both laboratory methods and theory to solution of sanitary engineering problems involving water pollution, stream regeneration, special industrial wastes, detergents and others. (Formerly 4300:620)

CIVE:621 Environmental Engineering Principles (4 Credits)

Corequisite: CIVE 523. Provide the basic principles of chemical reaction engineering, microbiology, environmental regulations, and contaminant migration required for the understanding and solving environmental problems. (Formerly 4300:621)

CIVE:622 Aquatic Chemistry (3 Credits)

Prerequisites: CHEM 151 and CHEM 153 or permission. Quantitative treatment of variables that govern the chemistry of aquatic systems. Emphasis on carbonate in open-closed systems, metal complexation and solubility, and oxidation-reduction reactions. (Formerly 4300:622)

CIVE:623 Physical/Chemical Treatment Processes (3 Credits)

Pre/Corequisite: CIVE 621. Theory, current research associated with physical/chemical processes, the impact on design-coagulation/flocculation, sedimentation, filtration, absorption processes emphasized. (Formerly 4300:623)

CIVE:624 Biological Treatment Processes (3 Credits)

Pre/Corequisite: CIVE 621. Theory, current research associated with biological processes, related physical/chemical processes, the impact on design-activated sludge, fixed film processes, gas transfer, sludge stabilization, sludge dewatering processes emphasized. (Formerly 4300:624)

CIVE:625 Water Treatment Plant Design (3 Credits)

Prerequisite: CIVE 623. Design of water treatment plants for potable, industrial and commercial uses. Development of water sources, treatment methods and financing used to design best practical methods in terms of cost-benefits. (Formerly 4300:625)

CIVE:626 Wastewater Treatment Plant Design (3 Credits)

Prerequisite: CIVE 624. Application of theory and fundamentals to design of wastewater treatment plants. System design methods used for biological and chemical stabilization of wastewater to meet water quality criteria. Economic analyses made to determine best practical designs to be utilized. (Formerly 4300:626)

CIVE:627 Environmental Operations Laboratory (2 Credits)

Prerequisite: CIVE 426 or permission of instructor. Conduction of laboratory experiments related to the design and operation of water and wastewater treatment processes. Experimental design, data collection, analysis and report preparation. (Formerly 4300:627)

CIVE:628 Advanced Chemical Oxidation Process (3 Credits)

Prerequisites: CHEM 151 and CHEM 153 or permission. Qualitative and quantitative treatment of variables that govern process chemistry and kinetics in water. Emphasis on ozone, hydrogen peroxide, and ultra-violet light (UV). (Formerly 4300:628)

CIVE:631 Soil Remediation (3 Credits)

Prerequisite: CIVE 621 or permission. Provide a thorough understanding of site characterization, traditional soil remediation technologies, as well as present new and emerging remediation technologies. (Formerly 4300:631)

CIVE:635 Air Pollution Control (3 Credits)

Prerequisite: CIVE 621 or permission. Introduction to air pollution control philosophies, approaches, regulations, and modeling. Also contains an in-depth evaluation/design approach for the control of particular matter, SO_x, and NO_x. (Formerly 4300:635)

CIVE:640 Advanced Fluid Mechanics (3 Credits)

Prerequisite: MECE 310 or permission. Basic equations, Navier-Stokes equations. Analysis of potential flow, turbulence, hydraulic transients. Solution of typical fluid mechanics problems. Analysis of water hammer in pipe networks by method of characteristics. (Formerly 4300:640)

CIVE:644 Open Channel Hydraulics (3 Credits)

Application of basic principles of fluid mechanics to flow in open channels. Criteria for analysis of uniform, gradually varied and rapidly varied flows. Study of movement and transportation of sediments. Design problems utilizing numerical techniques. (Formerly 4300:644)

CIVE:645 Applied Hydrology (3 Credits)

Discussion of water cycle such as precipitation, evaporation, stream flows, floods, infiltration. Methods of analysis and their application to studies of water demand, storage, transportation including mathematical modeling of urban runoff and statistical hydrology. (Formerly 4300:645)

CIVE:646 Coastal Engineering (3 Credits)

Characteristics of linear and nonlinear wave theories. Interaction of structures, waves; design analysis of shore, offshore structures. Movement, transportation of sediments in lake shore areas. (Formerly 4300:646)

CIVE:663 Advanced Transportation Engineering I (3 Credits)

Prerequisites: CIVE 361 and CIVE 466 or permission. Highway and parking facility design, transportation planning, highway capacity estimates, signal systems and optimization, incident detection and management, freeway ramp metering, and highway traffic safety. (Formerly 4300:663)

CIVE:664 Advanced Transportation Engineering II (3 Credits)

Prerequisites: CIVE 361 and CIVE 466 or permission. Highway and parking facility design, transportation planning, highway capacity estimates, signal systems and optimization, incident detection and management, freeway ramp metering, and highway traffic safety. (Formerly 4300:664)

CIVE:665 Traffic Detection and Data Analysis (3 Credits)

Prerequisite: CIVE 361 or consent of instructor. Theory and application of pressure tubes, loop detectors, and imaging sensing, microwave, infrared, ultrasonic, laser detectors. Parameter estimation, reliability, and data mining and fusion. (Formerly 4300:665)

CIVE:681 Advanced Engineering Materials (3 Credits)

Selected topics on principles governing mechanical behavior of materials with respect to elastic, plastic and creep responses, stress rupture, low and high cycle and thermal fatigue. Failure theories and fracture phenomena in brittle and ductile materials. Crack propagation and life prediction of engineering materials. (Formerly 4300:681)

CIVE:682 Elasticity (3 Credits)

Prerequisite: CIVE 202. Plane stress, plane strain. Two-dimensional problems in rectangular, polar coordinates. Strain-energy methods. Stress, strain in three dimensions. Torsion. Bending. Thermal stresses. (Formerly 4300:682)

CIVE:683 Plasticity (3 Credits)

Prerequisite: CIVE 682 and MECE 622 or equivalent. Mathematical formulation of constitutive equations with focus on their use in structural analysis. Internal variables. Isotropic, kinematic hardening. Nonisothermal plasticity. Finite deformations. Anisotropy. (Formerly 4300:683)

CIVE:684 Advanced Reinforced Concrete Design (3 Credits)

Prerequisite: CIVE 403. Slab systems. Equivalent frame properties. Limit analysis. Yield line theory. Lateral load systems. Shear walls. Footings. Biaxial column action. (Formerly 4300:684)

CIVE:685 Advanced Steel Design (3 Credits)

Prerequisite: CIVE 401. Properties of steel, fasteners, bearing, friction joints, Gusset plates, bolts in tension, end plates, weld joints, cyclic loads, fatigue analysis, types of detail, torsion, stability design. (Formerly 4300:685)

CIVE:686 Experimental Methods in Structural Mechanics (3 Credits)

Prerequisite: CIVE 682. Electrohydraulic closed-loop test systems. Methods for specimen heating. Strain measurement techniques for room and elevated temperatures. Design of computer controlled experiments investigating deformation and failure under complex stress states. (Formerly 4300:686)

CIVE:687 Limit Analysis in Structural Engineering (3 Credits)

Prerequisites: [CIVE 454 or CIVE 554] and CIVE 682. Fundamental theorems of limit analysis. The lower-bound and upper-bound solutions. Applications to frames, plates and plane stress and plane strain problems. Design considerations. Mathematical programming and computer implementation. (Formerly 4300:687)

CIVE:694 Advanced Seminar in Civil Engineering (1-3 Credits)

Prerequisite: Permission. Advanced projects, reading, studies, or experimental in various areas of civil engineering. (Formerly 4300:694)

CIVE:697 Engineering Report (2 Credits)

Prerequisite: Permission of advisor. A relevant problem in civil engineering for students electing the non-thesis option. The final engineering report must be approved by the advisor and the advisory committee. (Formerly 4300:697)

CIVE:698 Master's Research (1-6 Credits)

Prerequisite: Permission of advisor. (May be repeated.) Research on a suitable topic in civil engineering culminating in a master's thesis. (Formerly 4300:698)

CIVE:699 Master's Thesis (1-6 Credits)

Prerequisite: Permission. Research and thesis on some suitable topic in civil engineering as approved by department. Defense of thesis is by final examination. (Formerly 4300:699)

CIVE:701 Earthquake Engineering (3 Credits)

Prerequisite: CIVE 604. Earthquake fundamentals. Earthquake response of single-story and multi-story buildings, as well as structural components. Modal analysis for earthquake response. Inelastic response of multistory structures. Earthquake codes. Stochastic approach. (Formerly 4300:701)

CIVE:702 Plates & Shells (3 Credits)

Prerequisites: CIVE 682 and 3450:531. Navier and Levy solutions for rectangular plates. Approximate methods, including finite difference. Forces in middle plate. Large deflections. Differential geometry of a surface. Shells of revolution. (Formerly 4300:702)

CIVE:703 Viscoelasticity & Viscoplasticity (3 Credits)

Prerequisite: CIVE 683. Formulation of constitutive relations for time dependent materials. Classical linear viscoelasticity. Internal variable representation of nonlinear, hereditary behavior. Creep and rate dependent plasticity. Continuum thermodynamics. Anisotropy. (Formerly 4300:703)

CIVE:704 Finite Element Analysis II (3 Credits)

Prerequisite: CIVE 609 and CIVE 702 or permission. Curved, plate, shell brick elements. Quasi-analytical elements. Quadrature formulas. Substructuring for static and dynamic analyses. Solution algorithms for linear and nonlinear static and dynamic analysis. Computer program formulation. Review of large-scale production programs. (Formerly 4300:704)

CIVE:710 Advanced Composite Mechanics (3 Credits)

Prerequisite: CIVE 610. Analysis of short-fiber composites and statistical behavior, bending, buckling and vibration of laminated plates and shells. Advanced topics involving stress concentration, residue stress, fatigue, fracture toughness, nonlinear and viscoelastic stress-strain formulations, solutions of nonlinear problems. (Formerly 4300:710)

CIVE:712 Dynamic Plasticity (3 Credits)

Prerequisite: CIVE 683 or CIVE 703. Impulsive and transient loading of structural elements (beams, plates, shells, etc.) in which inelastic deformation occurs. Topics include: longitudinal and transverse plastic wave propagation in thin rods, propagation of plastic hinges, rate-dependent viscoplastic waves, transverse impact on beams and plates, high-rate forming, blast loading, plate perforation, shock waves in solids. (Formerly 4300:712)

CIVE:717 Soil Dynamics (3 Credits)

Prerequisite: CIVE 614 or permission. Vibration and wave propagation theory relating to soils, soil structures and foundations. Dynamic behavior of soils. Design of foundations for dynamic loading impact, pulsating and blast loads. (Formerly 4300:717)

CIVE:731 Bioremediation (3 Credits)

Prerequisite: CIVE 621 or permission. Provide the fundamentals required for understanding and successfully implementing the biodegradation of hazardous compounds coupled with the design and operational techniques of bioremediation systems. (Formerly 4300:731)

CIVE:745 Seepage (2 Credits)

Discussion of parameters determining permeability of various soils. Analytical, numerical and experimental methods to determine two- or three-dimensional movement of groundwater. Unsteady flows. (Formerly 4300:745)

CIVE:898 Preliminary Research (1-15 Credits)

(May be repeated for a total of 15 credits.) Prerequisite: Approval of dissertation director. Preliminary investigations prior to the submission of a dissertation proposal to the interdisciplinary Doctoral Committee. (Formerly 4300:898)

CIVE:899 Doctoral Dissertation (1-15 Credits)

(May be taken more than once.) Prerequisite: Acceptance of research proposal by the Interdisciplinary Doctoral Committee and approval of the dissertation director. Original research by the doctoral student. (Formerly 4300:899)

Classics (CLAS)

CLAS:550 Select Topics: Ancient Cultures (3 Credits)

(May be repeated with change of subject) Varied offerings in literature, art and archaeology and religion. No foreign language necessary. (Formerly 3200:550)

Communication (COMM)

COMM:500 History of Journalism in America (3 Credits)

A review and analysis of the historical evolution of journalism in America, focusing primarily on newspapers, magazines, radio, television. (Formerly 7600:500)

COMM:501 Orientation to Communication Online Study (1 Credit)

An orientation for graduate students in the Strategic Communication MA program to understand graduate work, the field, and advising specifically for the 100% online program. (Formerly 7600:501)

COMM:502 Informatics & Data Analysis in Communication (1 Credit)

An examination of the influence that information has on communication across different contexts. Includes strategic information seeking, gathering, processing and understanding data. (Formerly 7600:502)

COMM:506 Contemporary Public Relations (3 Credits)

Study and practical application of communication concepts, theories and skills relevant to public relations programs in businesses and nonprofit organizations. (Formerly 7600:506)

COMM:508 Women, Minorities & News (3 Credits)

Study of images of women and minorities in U.S. news, along with the power women and minorities have as decision-makers in the news industry. (Formerly 7600:508)

COMM:510 Crisis Communication (3 Credits)

This course focuses on crisis communication, crisis communication theory, and research of events that require the use of crisis communication messages. (Formerly 7600:510)

COMM:516 Social Media Content Creation (3 Credits)

This course covers writing for social media and incorporates best practices for online content creation. (Formerly 7600:516)

COMM:517 Social Media Platforms (3 Credits)

This course emphasizes content production in professional settings based on key social media platform characteristics, audiences, and social contexts. (Formerly 7600:517)

COMM:520 Magazine Writing (3 Credits)

An advanced writing class designed to develop the specialized reporting, researching, and writing skills needed in consumer and specialized business magazines today. (Formerly 7600:520)

COMM:525 Commercial Electronic Publishing (3 Credits)

This advanced class allows an in depth investigation of the business and production principles of electronic publishing of magazines. (Formerly 7600:525)

COMM:531 Risk Communication (3 Credits)

This course explains and defines the applied nature of risk communication. Students will analyze risk situations, develop and execute messaging strategies, and assess message effectiveness. (Formerly 7600:531)

COMM:538 Health Communication (3 Credits)

This course presents an overview of health communication theory and research issues in interpersonal, small group, organizational, public relations, and mass media contexts. (Formerly 7600:538)

COMM:539 Health Informatics (3 Credits)

Prerequisites: COMM 501 and COMM 538. This course focuses on the influence that health-related information has on communication. Topics include health information seeking, gathering, and processing, and impacts of health informatics. (Formerly 7600:539)

COMM:540 Strategic Social Media (3 Credits)

This course provides an overview of the current social media landscape, and explores theories, research, business models and strategies of social media marketing and communication. (Formerly 7600:540)

COMM:541 Media Entrepreneurship (3 Credits)

This course provides an overview of how business is conducted in media industries and helps students identify business and entrepreneurship opportunities in a convergent environment. (Formerly 7600:541)

COMM:542 Social Media Metrics and Analytics (3 Credits)

Prerequisite: COMM 540. This course gives students the knowledge and tools to measure social media effectively. Students will learn how to measure, monitor, and evaluate social media communication. (Formerly 7600:542)

COMM:546 Women, Minorities & Media (3 Credits)

Examination of the media's portrayal of white women and people of color and the roles of media decision-makers as powerful counterparts to these images. (Formerly 7600:546)

COMM:550 Sport Communication (3 Credits)

This course provides an intensive overview of the field of sport communication, and explores opportunities and challenges of sport communication. (Formerly 7600:550)

COMM:554 Theory of Group Processes (3 Credits)

Group communication theory and conference leadership as applied to individual projects and seminar reports. (Formerly 7600:554)

COMM:557 Public Speaking in America (3 Credits)

Survey and critical analysis of major speakers, speeches and speech movements in American history. Examines how style and content of American speaking influenced events and reflected their times. (Formerly 7600:557)

COMM:559 Leadership and Communication (3 Credits)

Theories of leadership and communication across public, organizational, small group, interpersonal, and political contexts. Assessments tools provided. Guest speakers. (Formerly 7600:559)

COMM:560 Science Communication (3 Credits)

Provides an overview of popular communication approaches in science, the role of communication in science, and how to communicate science to non-technical audience. (Formerly 7600:560)

COMM:561 Ethics in Science Communication (3 Credits)

Prerequisites: COMM 560. This course will explore professional approaches to ethical decision making and apply them to science communication. (Formerly 7600:561)

COMM:562 Advanced Media Writing (3 Credits)

Practical applications of script writing principles and techniques, focusing on the skills and discipline required to finish an entire script. (Formerly 7600:562)

COMM:568 Advanced Audio and Video Editing (3 Credits)

Prerequisite: Permission of instructor. A study of film and video editing. It provides practical experience and exposure to the various creative approaches and techniques of film / video editing. (Formerly 7600:568)

COMM:571 Theories of Rhetoric (3 Credits)

Study of key figures in history of rhetorical theory, stressing interrelationships among theories of rhetoric, intellectual climates and social climates. (Formerly 7600:571)

COMM:575 Political Communication (3 Credits)

Students explore the relationship between politicians, citizens, and media. Topics include media coverage, campaign technologies, advertising, debates, engagement, rhetoric, and attitudes. Theories and methodologies analyzed. (Formerly 7600:575)

COMM:581 Film As Art: An Introduction to the Film Form (3 Credits)

A study of the role and function of Cinematography, Editing, Sound, and Mise-en-scene as they shape the meaning of the film, within the context of the traditional / non-traditional narratives and the documentary structure. (Formerly 7600:581)

COMM:590 Workshop in Communication (1-3 Credits)

(May be repeated for a total of six credits) Group study or group projects investigating a particular phase of media not covered by other courses in curriculum. (Formerly 7600:590)

COMM:599 Capstone (1 Credit)

Prerequisite: Completion of 21 credits in the Strategic Communication curriculum. Required capstone project for eligibility for graduation in the online MA in Strategic Communication. (Formerly 7600:599)

COMM:600 Introduction to Graduate Study in Communication (3 Credits)

Introduction to the ideas and scholarship that constitute the various research interests in the department. (Formerly 7600:600)

COMM:601 Mixed Methods of Communication Research (3 Credits)

This course focuses on the basic concepts of how to conduct and analyze communication research using various methodologies. Students will learn quantitative and qualitative methods. (Formerly 7600:601)

COMM:602 Qualitative Methods in Communication (3 Credits)

Prerequisite: COMM 600. The course covers paradigms underlying qualitative inquiry, major methods of inquiry, and techniques utilized in the communication discipline. The course fosters students' ability to conduct qualitative research through gathering and analyzing data. (Formerly 7600:602)

COMM:603 Quantitative Methods in Communication (3 Credits)

An introduction to elementary concepts of empirical and quantitative research and their application in studies of mass media research topics. (Formerly 7600:603)

COMM:606 Communication Problems in the Basic Speech Course (1 Credit)

Designed to train a graduate student in methods and materials of introductory speech course. Required of all teaching graduate assistants. (Formerly 7600:606)

COMM:608 Communication Pedagogy (3 Credits)

Overview of the foundational principles for teaching communication courses including philosophical and theoretical perspectives, strategies and tools. (Formerly 7600:608)

COMM:623 Applied Communication Theory (3 Credits)

This course is designed to merge critical thinking and research skills in order to facilitate explorations of communication phenomena through a number of theoretical perspectives. (Formerly 7600:623)

COMM:624 Survey of Communication Theory (3 Credits)

Study of dimensions of field of communication: information analysis, social interaction and semantic analysis. (Formerly 7600:624)

COMM:625 Theories of Mass Communication (3 Credits)

Prerequisite: COMM 600 or permission of instructor. A review of theories of mass media and studies exploring the effect of media. (Formerly 7600:625)

COMM:630 Communication in Organizations (3 Credits)

Overview of theories and approaches for understanding communication flow and practices in organizations; including interdepartmental, networks, superior-subordinate, formal and informal communication. (Formerly 7600:630)

COMM:631 Analyzing Organizational Communication (3 Credits)

Prerequisite: COMM 630 or permission. Methodology for in-depth analysis and application of communication in organizations; team building, conflict management, communication flow. Individual and group projects; simulations. (Formerly 7600:536)

COMM:637 Training Methods in Communication (3 Credits)

Prerequisite: COMM 600. Principles and concepts in the design and delivery of communication training programs; integration of theory and methodology; presentation skills; matching methods and learner needs. (Formerly 7600:637)

COMM:645 Intercultural Communication Theory (3 Credits)

Analysis of the impact on the communication process of cultural difference between communicators; examination of existing literature in intercultural communication. (Formerly 7600:645)

COMM:670 Communication Criticism (3 Credits)

Introduces the basic elements, approaches and types of critical discourse as it is relevant to communication and mass media studies. (Formerly 7600:670)

COMM:680 Graduate Communication Internship (1-6 Credits)

(May be repeated for a total of six credits.) Prerequisites: must have attained the category of full admission and be in good standing in the School's graduate program; must receive permission and approval of internship placement and research proposal. Provides communication graduate students with opportunity to obtain experience and to apply knowledge of academic concepts in a supervised work setting in the communication field. (Formerly 7600:680)

COMM:691 Advanced Communication Studies (3 Credits)

(May be repeated for a total of six credits.) Special topics in communication in areas of particular faculty expertise. Consult department for particular topic each semester. (Formerly 7600:691)

COMM:697 Graduate Research in Communication (1-6 Credits)

(May be repeated for a total of six credits.) Prerequisites: THEA 600 and approval of project prospectus one term prior to undertaking the project. Performance of research on problems found in mass media-communication. (Formerly 7600:697)

COMM:698 Masters Project/Production (1-6 Credits)

(May be repeated for a total of six credits.) Prerequisite: Permission of the school director. (Formerly 7600:698)

COMM:699 Masters Thesis (1-6 Credits)

(May be repeated for a total of six credits.) Prerequisite: Permission of the school director. (Formerly 7600:699)

Computer Engineering (CPEN)

CPEN:510 Embedded Scientific Computing (3 Credits)

Prerequisite: Permission by Instructor. Organization of scientific and engineering problems for computer solutions. Analysis of error and convergence properties of algorithms. (Formerly 4450:510)

CPEN:515 System Simulation (3 Credits)

Computer simulation of dynamic systems. Discrete system stability, linear multistep and Runge-Kutta methods, nonlinear systems, stiff systems, distributed systems and real-time computing. (Formerly 4450:515)

CPEN:520 Object Oriented Design (3 Credits)

Investigation of object-oriented design paradigm and the design implementation with the object-oriented programming language C++. (Formerly 4450:520)

CPEN:521 Computer Systems Design (3 Credits)

Design of advanced processors at the microarchitecture level. Pipelining. Superscalar, vector and VLIW architectures. Instruction-level parallelism. Compiler support. Multiprocessor architectures. (Formerly 4450:521)

CPEN:522 Embedded Systems Interfacing (3 Credits)

Prerequisite: Permission by instructor. Micro-controller structures and embedded peripherals. Interfaces to physical environments. Software access to peripherals, timers, ADCs and DACs. Synchronous and asynchronous communications. Interrupts. Real-time operating systems. (Formerly 4450:522)

CPEN:523 Programmable Logic (3 Credits)

Electronic circuitry considerations in logic circuits, methods of sequential, threshold logic analysis, synthesis, development of computer arithmetic elements; memory, storage devices, (Formerly 4450:523)

CPEN:527 Computer Networks (3 Credits)

Network architecture and protocol layering. Network design principles, communication protocols, and performance measures. Socket programming, routing, error detection and correction, access control, multimedia networking. (Formerly 4450:527)

CPEN:540 Digital Signal Processing (3 Credits)

Signal sampling and reconstruction; data-converter models. Unilateral and bilateral z transforms. Discrete Fourier Transform (DFT); Fast Fourier Transform (FFT). Digital filter structures and design methods. (Formerly 4450:540)

CPEN:562 Analog Integrated Circuit Design (3 Credits)

CMOS processes and layout; amplifiers, current mirrors, and comparators; current, voltage, and bandgap references; switched capacitor circuits. Frequency and noise analysis techniques. (Formerly 4450:562)

CPEN:567 VLSI Circuits & Systems (3 Credits)

Graduate level introduction to VLSI design. MOSFET structures, design rules, and fabrication. Static, dynamic CMOS. PLAs, ROMs, and RAMs. Layout methodologies and tools. System architecture. (Formerly 4450:567)

CPEN:598 Special Topics: Computer Engineering (1-3 Credits)

(May be taken more than once) Prerequisite: permission of department chair. Special topics in computer engineering. (Formerly 4450:598)

CPEN:606 Computer Architecture (3 Credits)

Historical development of computer architecture. Design methodologies. Processor organization and design of instruction sets. Parallel processing. Control section implementations. Memory organization. System configurations. (Formerly 4450:606)

CPEN:607 Parallel Computer Architecture (3 Credits)

Prerequisite: CPEN 606 or equivalent. This course provides an introduction to parallel computer architectures and parallel processing based on a single instruction, message-passing, or shared memory. (Formerly 4450:607)

CPEN:620 Real-time Scheduling (3 Credits)

Theory of fixed priority scheduling for real-time systems. Aperiodic, Periodic, and Sporadic Task scheduling. (Formerly 4450:620)

CPEN:629 Networked Embedded Systems (3 Credits)

Foundations for design and deployment of asynchronous distributed systems. Wireless sensor-actuator systems. New frontiers in distributed systems including communication, localization, synchronization, failure detection and performance analysis. (Formerly 4450:629)

CPEN:642 Advanced Knowledge Engineering (3 Credits)

Prerequisite: permission of instructor. Advanced study of knowledge acquisition and expert system project management. (Formerly 4450:642)

CPEN:663 VLSI Design & Automation (3 Credits)

Prerequisite: CPEN 567. Methodologies for automated design of VLSI systems. Computer-aided design tools and algorithms. Design for low power, high performance, testability. Research topics in VLSI design. (Formerly 4450:663)

CPEN:693 Special Problems: Computer Engineering (1-3 Credits)

(May be taken more than once) Prerequisite: permission of department chair. For a qualified graduate student. Supervised research or investigation in student's major field. Credit depends upon nature and extent of project. (Formerly 4450:693)

CPEN:794 Advanced Seminar (1-3 Credits)

(May be taken more than once) Prerequisite: permission of department chair. Advanced level coverage of various topics. Intended for student seeking Ph.D. in engineering. (Formerly 4450:794)

Computer Science (CPSC)

CPSC:501 Fundamentals of Data Structures (3 Credits)

Prerequisite: programming experience in C. Basic data structures and algorithms: stacks, queues, linked lists, trees, hash tables, and graphs; sorting and search algorithms. Introduction to data abstraction and algorithm analysis. (May not be used to meet computer science requirements.) (Formerly 3460:501)

CPSC:506 Introduction to C & UNIX (3 Credits)

Prerequisite: Programming experience. C language programming. UNIX shell programming, file structure, system calls, and interprocess communication. (May not be used to meet computer science requirements.) (Formerly 3460:506)

CPSC:508 Windows Programming (3 Credits)

Prerequisite: admission to Computer Science Master's Program or permission. Windows operating systems, integrated development environment, event-driven programming, graphical user interface design, using object libraries, component object model, object linking and embedding, client-server objects. (Formerly 3460:508)

CPSC:511 Human-Computer Interaction (3 Credits)

Prerequisite: Admission to the computer science graduate program. This course introduces the basic concepts and technologies of Human-Computer Interaction (HCI). Students will learn how to design and implement systems for human to interact with computers. Topics include: Categories of HCI, CLI, GUI, NUI, Design, Implementation and Evaluation of HCI, HCI Devices, Virtual Device Drive, HCI Toolkits, HCI Standards, Categories of Interactive Tasks, EDP and Multi-Threading in HCI, VR/AR/MR/XR in HCI, APP HCI, 3D Printing. (Formerly 3460:511)

CPSC:515 Big Data Programming (3 Credits)

Prerequisite: Admission to Computer Science Graduate Program or permission. Fundamentals of big data programming and computing platforms. Wrangling, modeling, visualizing, and analyzing data; computing platforms for data mining and deep learning. (Formerly 3460:515)

CPSC:518 Introduction to Discrete Structures (3 Credits)

Prerequisite: admission to Computer Science Master's Program or permission. Introduction to algebraic structures of particular use in computer science. Topics include algorithms and flow chart language, graphs and digraphs, trees, and lattices codes. (May not be used to meet computer science Master's degree requirements.) (Formerly 3460:518)

CPSC:521 Object-Oriented Programming (3 Credits)

Prerequisite: Admission to Computer Science master's program or permission. Object-oriented design, analysis, and programming using different development models. Comparison with other programming paradigms. (May not be used to meet computer science Master's degree requirements.) (Formerly 3460:521)

CPSC:526 Operating Systems (3 Credits)

Prerequisites: Admission to Computer Science master's program or permission. Introduction to aspects of all modern operating systems: types; storage management; process and resource control; interacting process synchronization. (Formerly 3460:526)

CPSC:528 UNIX System Programming (3 Credits)

Prerequisite: admission to Computer Science Master's Program or permission. An overview of the UNIX operating system. Shell programming. Process management, processor management, storage management, scheduling algorithms, resource protection, and system programming. (Formerly 3460:528)

CPSC:530 Theory of Programming Languages (3 Credits)

Prerequisite: Admission to Computer Science Master's Program or permission. Advanced concepts underlying programming languages and their applications, formal definitions of programming languages, Backus Normal Form, semantics. Alternative programming paradigms including functional programming. (Formerly 3460:530)

CPSC:535 Algorithms (3 Credits)

Prerequisites: Admission to Computer Science master's program or permission. Design and analysis of efficient algorithms for random access machines; derivation of pattern classification algorithms. (Formerly 3460:535)

CPSC:536 Applied Machine Learning (3 Credits)

Prerequisite: Admission to a Computer Science Master's program or permission. This course introduces the fundamentals of machine learning and concepts of deep learning. Topics include machine learning concepts, tasks, and workflow; supervised learning methods for classification and prediction; unsupervised learning methods for pattern recognition; deep learning algorithms such as neural networks and convolutional neural networks. (Formerly 3460:536)

CPSC:538 Interactive Game & Game Engine Design (3 Credits)

Prerequisite: Admission to Computer Science Graduate Program. This course will introduce the basic concepts and techniques of game and game engine design. Students will learn how to design and implement interactive computer games and game engines. Topics include: Interactive Animation, Game Engines, EDP in Game Development, Procedural Animation and Physics Engine, Decision Making and AI Games, Surface & Volume Representation, VR, AR, MR, APP Games, Game Engine Development, and Voxel-Engine. (Formerly 3460:538)

CPSC:540 Compiler Design (3 Credits)

Prerequisites: Admission to Computer Science master's program or permission. Techniques used in constructing compilers, including lexical and syntactic analysis, parsing techniques, object code generation and optimization. Course requires a compiler implementation project. (Formerly 3460:540)

CPSC:545 Introduction to Bioinformatics (3 Credits)

Prerequisite: admission to Computer Science Master's Program or permission. Introduce major themes in bioinformatics. Topics include concepts of molecular genetics, biological databases, database searching, sequence alignments, phylogenetic trees, structure prediction, and microarray data analysis. (Formerly 3460:545)

CPSC:553 Computer Security (3 Credits)

Prerequisite: admission to Computer Science master's program or permission. Principles of computer security: cryptography, authentications, secure network protocols, intrusion detection and countermeasures. (Formerly 3460:553)

CPSC:555 Data Communication & Computer Networks (3 Credits)

Prerequisite: admission to Computer Science Master's Program or permission. ISO-OSI, TCP/IP, SNA data switching, protocols, flow and error control, routing, topology. Network trends, network taxonomies, and socket-based programming. (Formerly 3460:555)

CPSC:557 Computer Graphics (3 Credits)

Prerequisite: admission to Computer Science Master's Program or permission. Topics in vector and raster graphics, interactive graphics languages, scan conversion, clipping, geometric transformation, projection, shading, animation and virtual reality. (Formerly 3460:557)

CPSC:560 Artificial Intelligence & Heuristic Programming (3 Credits)

Prerequisite: admission to Computer Science Master's Program or permission. Study of various programs which have displayed some intelligent behavior. Exploration of level at which computers can display intelligence. (Formerly 3460:560)

CPSC:563 Pervasive Computing (3 Credits)

Prerequisite: admission to Computer Science master's program or permission. Computing from a wireless perspective. Topics include protocols, algorithms, security and sensor networks. (Formerly 3460:563)

CPSC:565 Computer Architecture (3 Credits)

Prerequisite: admission to Computer Science Master's Program or permission. An introduction to hardware organization of computer at register, processor and system level. In-depth study of architecture of a particular computer system family. (Formerly 3460:565)

CPSC:568 Mobile Robotics (3 Credits)

Prerequisite: admission to Computer Science master's program or permission. Introduction to history, hardware and software components, and design of autonomous mobile robots. Multiple projects involving both physical robots and software emulation. (Formerly 3460:568)

CPSC:575 Database Management (3 Credits)

Prerequisite: admission to Computer Science Master's Program or permission. Fundamentals of database organization, data manipulations and representation, data integrity, privacy. (Formerly 3460:575)

CPSC:576 Introduction to NoSQL Data Management (3 Credits)

Prerequisite: CPSC 210. The widespread emergence of big data storage needs has driven the development and adoption of a new class of non-relational databases commonly referred to as NoSQL databases. This course will explore the origins of NoSQL databases and the characteristics that distinguish them from traditional relational database management systems. Core concepts of NoSQL databases will be presented, followed by an exploration of how different database technologies implement these core concepts. We will take a closer look at 1-2 databases from each of the four main NoSQL data models (key-value, column family, document, and graph), highlighting the business needs that drive the development and use of each database. Finally, we will present criteria that decision makers should consider when choosing between relational and non-relational databases and techniques for selecting the NoSQL database that best addresses specific use cases. (Formerly 3460:576)

CPSC:577 Introduction to Parallel Processing (3 Credits)

Prerequisite: admission to Computer Science Master's Program or permission. Commercial processors: past and present. Parallel languages, models of parallel computation. Emphasis on parallel algorithm design and performance evaluation. A broad study of parallel paradigms with relation to real world applications. (Formerly 3460:577)

CPSC:580 Software Engineering (3 Credits)

Prerequisite: Admission to Computer Science master's program or permission. Introduction to formal software specification and validation. Introduction of methodologies and tools of design, development, validation, and maintenance. (Formerly 3460:580)

CPSC:589 Topics in Computer Science (1-3 Credits)

(May be repeated) Prerequisite: permission of instructor. Selected topics in computer science at an advanced level. (Formerly 3460:589)

CPSC:595 Experiential Learning in Computer Science (1-3 Credits)

Prerequisites: must complete 18 graduate credits hours with at least 3.0 overall GPA and have permission of a faculty member. Placement in industry for experience related to computer science. (May not be repeated). (Formerly 3460:595)

CPSC:597 Individual Study in Computer Science (1-3 Credits)

(May be repeated. Can apply to degree, minor or certificate only with department approval.) Prerequisite: permission. Directed studies designed as introduction to research problems under guidance of designated faculty member. (Formerly 3460:597)

CPSC:601 Research Methodology (3 Credits)

Prerequisite: Admission to Computer Science graduate program or permission of instructor. Research process overview: literature review, formulation of problems, research design, writing proposals, data collection, data processing and analysis, evaluation, writing reports, and presenting results. (Formerly 3460:601)

CPSC:626 Advanced Operating Systems (3 Credits)

Prerequisite: admission to Computer Science Master's Program or permission. Advanced topics in operating system design: synchronization mechanisms, performance evaluation, security, distributed operating systems. (Formerly 3460:626)

CPSC:630 Advanced Theory of Programming Languages (3 Credits)

Prerequisite: admission to Computer Science Master's Program or permission. In-depth study of various issues in the design and implementation of programming languages, such as formal type systems, operational and other semantics, and verification. (Formerly 3460:630)

CPSC:631 Abstract Machines (3 Credits)

Prerequisite: Admission to the Computer Science Master's program or instructor permission. The course studies the formal specification of abstract computational devices, representations of programs, static and dynamic semantics, and their implementations. (Formerly 3460:631)

CPSC:635 Advanced Algorithms (3 Credits)

Prerequisite: Admission to Computer Science master's program or permission. Advanced graph algorithms, matrix multiplication, fast Fourier transforms, lower bound theory, complexity hierarchies, NP-complete and intractable problems, approximation techniques. (Formerly 3460:635)

CPSC:636 Graph Analytics (3 Credits)

Prerequisite: Admission to the Computer Science Master's program or instructor permission. Topics include graph's mathematical and statistical properties, basic graph analytic algorithms, and network models, and application of graph analytics to high-dimensional data analysis. (Formerly 3460:636)

CPSC:641 Optimization for Parallel Compilers (3 Credits)

Prerequisite: Graduate standing and permission of instructor. Advanced analysis and transformation strategies to support automatic vectorization and parallelization of code, emphasizing restructuring to improve instruction scheduling. (Formerly 3460:641)

CPSC:645 Computational Biology (3 Credits)

Prerequisite: Admission to Computer Science graduate program or permission of instructor. Topics include sequence analysis, hidden Markov model, RNA structure prediction, microarray data analysis, biological networks, and molecular dynamics simulation as well as Monte Carlo simulation. (Formerly 3460:645)

CPSC:653 Software Security (3 Credits)

Prerequisite: Admission to Computer Science graduate program or permission of instructor. Issues in software security – common software security errors, steganography, spam, cryptography, malware, Internet hacking. (Formerly 3460:653)

CPSC:655 Computer Networks & Distributed Processing (3 Credits)

Prerequisite: admission to Computer Science Master's Program or permission. Interconnection technologies, protocol layering models, datagram and stream transport services, client-server paradigm, principles and protocols of interconnected networks operating as unified systems, and TCP/IP technology. (Formerly 3460:655)

CPSC:658 Visualization (3 Credits)

Prerequisite: admission to Computer Science Master's Program or permission. Visualization pipeline, data representation in visualization, visualization algorithms, object-oriented visualization, scientific visualization, volume visualization, visualization applications and research topics. (Formerly 3460:658)

CPSC:660 Expert Systems (3 Credits)

Prerequisite: admission to Computer Science Master's Program or permission. Architecture of expert systems, knowledge representation and acquisition, inference mechanisms for expert systems, uncertainty management, expert system tools and applications. (Formerly 3460:660)

CPSC:665 Advanced Computer Architecture (3 Credits)

Prerequisite: admission to Computer Science Master's Program or permission. Fundamentals of computer analysis and design, with emphasis on cost/performance tradeoffs. Studies of pipelined, vector, RISC, and multiprocessor architectures. (Formerly 3460:665)

CPSC:670 Advanced Automata & Computability (3 Credits)

Prerequisite: admission to Computer Science Master's Program or permission. An in-depth study of concepts related to computability. Topics include nondeterministic automata, recursive function theory, the Chomsky hierarchy, Turing machines and undecidability. (Formerly 3460:670)

CPSC:676 Data Mining (3 Credits)

Prerequisite: admission to Computer Science Master's Program or permission. Study fundamental data mining algorithms and their applications in the process of Knowledge Discovery from Databases. Study Data warehousing systems and architectures. (Formerly 3460:676)

CPSC:677 Parallel Processing (3 Credits)

Prerequisite: admission to Computer Science Master's Program or permission. Advanced computer architectures, theories of parallel computing, system resources optimization, efficient programming languages and application requirements of cost-effective computer systems. Classical results and practical insights into implementing parallel algorithms on actual parallel machines. (Formerly 3460:677)

CPSC:678 Data Integration (3 Credits)

Prerequisites: Admission to Computer Science graduate program or permission of instructor. Topics include Datalog, Conjunctive Queries, Query Containment and Equivalence, Schema Matching and Mapping, Wrappers, Query Evaluation, Source Descriptions, Semantic Web, and Crowdsourcing. (Formerly 3460:678)

CPSC:680 Software Engineering Methodologies (3 Credits)

Prerequisite: admission to Computer Science Master's Program or permission. Introduction to current techniques and methodologies used in software design, development, validation, and maintenance. (Formerly 3460:680)

CPSC:689 Advanced Topics in Computer Science (1-3 Credits)

(May be repeated) Prerequisite: permission of instructor. At most, six credits may be applied to Master's degree requirements. Selected topics in computer science at an advanced level. (Department consent required for application to computer science Master's degree requirements.) (Formerly 3460:689)

CPSC:695 Practicum in Computer Science (1-3 Credits)

Prerequisite: graduate teaching assistant or permission. Training and experience in college teaching of computer science under the supervision of an experienced faculty member. May not be used to meet degree requirements. Credit/non-credit. (Formerly 3460:695)

CPSC:697 Individual Study in Computer Science (1-3 Credits)

(May be repeated. Can apply to degree only with department approval) Prerequisite: permission of instructor. Directed studies designed as introduction to research problems under guidance of designated faculty member. (Formerly 3460:697)

CPSC:698 Master's Research (1-6 Credits)

Prerequisite: permission of advisor. Research in computer science topic culminating in research paper. No more than three credits may be applied to the minimum degree requirements (May be repeated.) (Formerly 3460:698)

CPSC:699 Master's Thesis (1-6 Credits)

(May be repeated) Prerequisite: permission. Properly qualified candidate for a master's degree may enroll for research experience which culminates in presentation of a faculty-supervised thesis. (Formerly 3460:699)

Counseling (COUN)

COUN:515 Mental Illness & Media (2 Credits)

Mental illness is often portrayed negatively the media. This course focuses on mental illness, stigma, and how movies portray specific mental disorders. (Formerly 5600:515)

COUN:526 Career Education (2 Credits)

Prerequisite: junior, senior or graduate standing. Examination of current career education models and programs with emphasis on infusion of career education activities into elementary and secondary curriculum. (Formerly 5600:526)

COUN:550 Counseling Problems Related to Life-Threatening Illness & Death (3 Credits)

Prerequisite: permission. Consideration of the global issues, current research, coping behavior, support systems and family and individual needs in regard to life-threatening situations. (Formerly 5600:550)

COUN:590 Workshop: Educational Guidance & Counseling (1-3 Credits)

Special instruction designed as in-service and/or upgrading individuals on current issues and practices in counseling. (Formerly 5600:590)

COUN:591 Workshop: Educational Guidance & Counseling (1-3 Credits)

Special instruction designed as in-service and/or upgrading individuals on current issues and practices in counseling. (Formerly 5600:591)

COUN:592 Workshop: Educational Guidance & Counseling (1-3 Credits)

Special instruction designed as in-service and/or upgrading individuals on current issues and practices in counseling. (Formerly 5600:592)

COUN:593 Workshop: Educational Guidance & Counseling (1-4 Credits)

Special instruction designed as in-service and/or upgrading individuals on current issues and practices in counseling. (Formerly 5600:593)

COUN:594 Counseling Institute (1-4 Credits)

In-service programs for counselors and other helping professionals. (Formerly 5600:594)

COUN:600 Professional Orientation & Ethics (2 Credits)

Addresses professional orientation and ethical standards in the counseling profession as well as an introduction to School of Counseling. (Formerly 5600:600)

COUN:601 Research and Program Evaluation in Counseling (3 Credits)

Overview of research methods and statistics, understanding and conducting counseling research, and program assessment and evaluation knowledge. (Formerly 5600:601)

COUN:602 Introduction to Counseling (2 Credits)

Understanding guidance and counseling principles including organization, operation and evaluation of guidance programs (designed for non-counseling major). (Formerly 5600:602)

COUN:610 Counseling Skills for Teachers (3 Credits)

Prerequisite: COUN 631 or permission. The study and practice of selected counseling techniques that can be applied by teachers in working with students, parents and colleagues. (Formerly 5600:610)

COUN:619 Traumatology (1 Credit)

This course will provide introductory instruction on the impacts or trauma, assessment strategies, and treatment strategies when treating victims of traumas and violent experiences. (Formerly 5600:619)

COUN:620 Issues in Sexuality for Counselors (3 Credits)

A seminar covering, in addition to changing current topics, sexuality across the lifespan, diversity and sexual orientation, and assessment. (Formerly 5600:620)

COUN:621 Counseling Youth At Risk (3 Credits)

This course is designed to prepare counselors and other helping professionals to work with at-risk children and adolescents in school and community settings. (Formerly 5600:621)

COUN:622 Introduction to Play Therapy (3 Credits)

Prerequisites: enrolled in a master's or doctoral program in counseling or related field, or special nondegree students (i.e., professional counselor). This course is designed to give students an introduction to play therapy from a child-centered perspective. Students will develop competencies in child-centered play therapy. (Formerly 5600:622)

COUN:623 Marriage & Family Counseling/Therapy Ethics & Professional Identity (3 Credits)

This course is designed to help students learn about marriage and family counseling/therapy as a distinct profession and about its corresponding ethical codes. (Formerly 5600:623)

COUN:631 Introduction to School Counseling (3 Credits)

Prerequisite: Admission to the Counseling program. Introductory class; examines the role of school counselors and counseling practices in elementary, middle and high school settings. (Formerly 5600:631)

COUN:635 Introduction to Clinical Counseling (2 Credits)

Overview of clinical counseling identity, philosophy, roles, work settings, laws, advocacy, and related professional duties. (Formerly 5600:635)

COUN:636 College Admission Counseling I (3 Credits)

Through readings, websites, class activities, discussion, and experiential projects students will learn the fundamental skills needed to assist counselees in the college admission process. (Formerly 5600:636)

COUN:637 College Admission Counseling II (3 Credits)

Prerequisite: COUN 636. Students will continue to enhance their knowledge in guiding students through the college admission process through extensive field work at surrounding college campus locations. (Formerly 5600:637)

COUN:640 Counseling Adolescents (3 Credits)

Prerequisite: Graduate student in counseling or related field. The examination of the physical, cognitive, emotional, and social developmental processes of the adolescent as these affect learning performance in a diverse population will be addressed. (Formerly 5600:640)

COUN:643 Counseling: Theory & Philosophy (3 Credits)

Examination of major counseling theories including philosophical and theoretical underpinnings and related treatment approaches. (Formerly 5600:643)

COUN:645 Tests & Appraisal in Counseling (3 Credits)

Prerequisites: COUN 601. Study of the nature of tests and appraisal in counseling including reliability, validity, test construction and selection, administration, scoring, and basic interpretation of selected measures. (Formerly 5600:645)

COUN:646 Multicultural Counseling (3 Credits)

Examination of multicultural counseling theories, research and treatment approaches necessary to serve culturally diverse persons. (Formerly 5600:646)

COUN:647 Career Development & Counseling Across the Life-Span (3 Credits)

Addresses career development and choice over the lifespan including personal, family, and societal characteristics that affect career counseling-related treatment approaches. (Formerly 5600:647)

COUN:648 Individual & Family Development Across the Life-Span (3 Credits)

Examination of individual and family development theories of human behavior, learning and personality with an emphasis on understanding the relationship between the individual and his/her family. (Formerly 5600:648)

COUN:649 Counseling & Personnel Services in Higher Education (3 Credits)

Prerequisite: COUN 635 or permission of instructor. Counseling services as related to psychological needs and problems of the college student. (Formerly 5600:649)

COUN:650 Filial Therapy (3 Credits)

Prerequisite: COUN 590 or COUN 622 and graduate student in counseling or related field. This course is designed to train students how to teach parents specific child-centered play therapy skills to use with their children. (Formerly 5600:650)

COUN:651 Techniques of Counseling (3 Credits)

Study of selected counseling techniques used to establish an effective counseling relationship and facilitate the treatment process. (Formerly 5600:651)

COUN:652 Techniques of MFT (3 Credits)

Prerequisites: COUN 655 and COUN 669. This experiential and didactic course provides students with core knowledge and practice of effective interventions related to Marriage and Family Therapy. Students will gain experience with various Marriage and Family Therapy-related techniques that may be used with individuals, couples and families. (Formerly 5600:652)

COUN:653 Group Counseling (4 Credits)

Prerequisite: COUN 651 or COUN 655 or COUN 669. Knowledge and understanding of theory, research, and techniques necessary for conducting group counseling sessions. An experiential component is included. (Formerly 5600:653)

COUN:655 Marriage & Family Therapy: Theory & Techniques (3 Credits)

An overview of the theory and techniques of marital and family therapy, including exposure to the history, terminology and contributions of significant persons in the field. (Formerly 5600:655)

COUN:656 Assessment Methods & Treatment Issues in Marriage & Family Therapy (3 Credits)

Prerequisites: COUN 655 and COUN 669. Provides advanced counseling students with the knowledge and skills in assessment methods, techniques, and instruments relevant to the practice of marriage and family therapy. (Formerly 5600:656)

COUN:657 Consultant: Counseling (3 Credits)

Prerequisites: COUN 631, COUN 651 or permission. Examination of consultation models with focus on process and product. (Formerly 5600:657)

COUN:659 Leadership, consultation and collaboration in school counseling (3 Credits)

Prerequisites: Admission to the Counseling program and COUN 631, or permission. School counselors serve as leaders and advocates in school settings. Collaboration is critical to the work of school counselors. This course will introduce students to the American School Counselor Association's (ASCA) national model, comprehensive school counseling programs, examine school counselor leadership practices and community engagement. Leadership and consultation in school counseling. (Formerly 5600:659)

COUN:660 Counseling Children (3 Credits)

Prerequisite: Graduate student in counseling or related field. This course is designed as an entry level course for counselors, school counselors, school psychologists, or other professionals preparing to engage in therapeutic work with children. It is not a class in diagnosis of childhood disorders. (Formerly 5600:660)

COUN:661 Seminar in Guidance (2 Credits)

Prerequisites: COUN 645, COUN 647, COUN 653 and COUN 657. Primary models for understanding and modifying children's behavior in classroom including technique development and review of guidance materials and programs. (Formerly 5600:661)

COUN:662 Diagnosis in Counseling (3 Credits)

Principles of the diagnostic process, and the use of current diagnostic tools, such as the current edition of the Diagnostic and Statistical Manual of Mental Disorders and International Classification of Diseases. (Formerly 5600:662)

COUN:663 School Counseling Seminar (3 Credits)

Prerequisites: Admission to the Counseling program and COUN 631. A seminar designed for perspective school counselors to learn developmentally appropriate counseling strategies. These strategies will include learning techniques that foster academic achievement, career and college readiness and personal social development techniques. (Formerly 5600:663)

COUN:664 Advanced Diagnosis in Counseling (3 Credits)

Prerequisite: COUN 662. Advanced principles of the diagnostic process and differential diagnosis through in-depth practice with current diagnostic tools, such as the current edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM) and International Classification of Diseases. (Formerly 5600:664)

COUN:665 Seminar in Counseling Practice (3 Credits)

Prerequisite: COUN 635 or permission. Study of topics of concern to a student specializing in community and college counseling. Topics may differ each semester according to students' needs. (Formerly 5600:665)

COUN:666 Treatment in Clinical Counseling (3 Credits)

Prerequisite: COUN 662. Addresses treatment planning and interventions for prevention and recovery from mental disorders common in clinical practice. (Formerly 5600:666)

COUN:667 Marital Therapy (3 Credits)

In-depth study of theories and interventions which focus on the nature and quality of marital relationships. (Formerly 5600:667)

COUN:669 Systems Theory in Family Therapy (3 Credits)

In-depth exploration of systems theory in family therapy. Major assumptions of systems theory will be examined and the implications for interventions will be explored. (Formerly 5600:669)

COUN:673 PrePracticum in MFT (1-2 Credits)

Prerequisites: COUN 623, COUN 655, and COUN 669. Addresses clinical knowledge and skills needed for Practicum, including the therapeutic process documentation, supervision, and special needs. (Formerly 5600:673)

COUN:674 Prepracticum in Counseling (2 Credits)

Prerequisites: COUN 651 and COUN 662. Addresses clinical knowledge and skills needed for Practicum, including the counseling process, documentation, supervision, and special topics. (Formerly 5600:674)

COUN:675 Practicum in Counseling (5 Credits)

Prerequisites: See program/degree student handbook for required prerequisites, as course prerequisites may differ based on program/degree. Supervised clinical experience including direct counseling services and related professional duties. (Formerly 5600:675)

COUN:676 Practicum in Counseling II (2-5 Credits)

Prerequisite: COUN 675. Advanced supervised counseling experience. (Formerly 5600:676)

COUN:685 Master's Internship (3 Credits)

Prerequisite: COUN 675. Must be repeated for a minimum of 6 credit hours. May be repeated for a maximum of 12 credit hours. Paid or unpaid supervised clinical experience accomplished immediately following completion of COUN 675. Credit/noncredit. (Formerly 5600:685)

COUN:695 Field Experience: Masters (1-10 Credits)

Prerequisites: permission of advisor and department chair. Placement in selected setting for purpose of acquiring experiences and/or demonstration skills related to student's counseling program. (Formerly 5600:695)

COUN:697 Independent Study (1-3 Credits)

(May be repeated for a total of nine credits) Prerequisites: permission of advisor and department chair. Specific area of investigation determined in accordance with student needs. (Formerly 5600:697)

COUN:698 Masters Problem (2-4 Credits)

Prerequisite: permission of advisor. In-depth study of a research problem in education. Student must be able to demonstrate critical and analytical skills in dealing with a problem in educational guidance and counseling. (Formerly 5600:698)

COUN:699 Masters Thesis (4-6 Credits)

Prerequisites: permission of advisor and department chair. In-depth study and analysis of counseling problem. (Formerly 5600:699)

COUN:702 Advanced Counseling Practicum (4 Credits)

(May be repeated for a total of 12 credit hours) Prerequisite: COUN 675, COUN 720/DSM, COUN 710. Supervised counseling experience in selected settings. (Formerly 5600:702)

COUN:707 Supervision in Counseling Psychology I (4 Credits)

Prerequisite: doctoral residency or permission. Instruction and experience in supervising graduate student in counseling. (Formerly 5600:707)

COUN:708 Supervision in Counseling Psychology II (4 Credits)

Prerequisite: doctoral residency or permission. Instruction and experience in supervising graduate student in counseling. (Formerly 5600:708)

COUN:709 Introduction to Counseling Psychology (2 Credits)

Prerequisite: Graduate standing in the Collaborative Program in Counseling Psychology. Introduction to historical foundations of and recent developments in counseling psychology, with an emphasis on contemporary research literature in the field. (Formerly 5600:709)

COUN:710 Theories of Counseling & Psychotherapy (4 Credits)

Prerequisite: PSYC 630 or departmental permission. Major systems of individual psychotherapy explored within a philosophy of science framework. Freudian, behavioral, Rogerian, cognitive and other. Includes research, contemporary problems and ethics. (Formerly 5600:710)

COUN:711 Vocational Behavior (4 Credits)

Prerequisite: PSYC 630 or departmental permission. Theories and research on vocational behavior and vocational counseling. Topics include major theories on vocational behavior, empirical research on these theories, applied work in vocational counseling and applied research. (Formerly 5600:711)

COUN:712 Principles & Practice of Individual Intelligence Testing (4 Credits)

Prerequisites: PSYC 630 or graduate standing in school psychology, and instructor's permission. History, principles and methodology of intelligence testing, supervised practice in administration, scoring and interpretation of individual intelligence tests for children and adults. (Formerly 5600:712)

COUN:713 Professional, Ethical & Legal Issues in Counseling Psychology (4 Credits)

Prerequisite: doctoral residency or permission. Examination of major issues in the field such as the counselor as a professional and as a person, and issues, problems and trends in counseling. (Formerly 5600:713)

COUN:714 Evaluation of Mental Status (3 Credits)

Overview of methods for evaluating mental and emotional status including objective personality testing. (Formerly 5600:714)

COUN:715 Research Design in Counseling I (3 Credits)

Prerequisite: doctoral residency or permission. Study of research designs, evaluation procedures and review of current research. (Formerly 5600:715)

COUN:716 Research Design in Counseling II (3 Credits)

Prerequisite: doctoral residency or permission. This course is designed for doctoral students utilizing the qualitative approach for conducting research. Theory, methods, and design of qualitative inquiry are reviewed. (Formerly 5600:716)

COUN:717 Issues of Diversity in Counseling Psychology (4 Credits)

Prerequisites: PSYC 630; one semester of practicum work. Critical examination and application of research and theory in counseling diverse populations, focusing on race/ethnicity, sex/gender, sexual orientation, age, disability, and spirituality. (Formerly 5600:717)

COUN:718 History & Systems in Psychology (2 Credits)

Prerequisite: PSYC 630. Philosophical and scientific antecedents of psychology and details of the development of systematic viewpoints in the 19th and 20th centuries. (Formerly 5600:718)

COUN:720 Topical Seminar: Guidance & Counseling (1-4 Credits)

Prerequisite: permission of instructor. A topical study with a variety of disciplinary input. Staffing will be by department faculty and other professionals in counseling and related fields. A maximum of six credits may be applied to a degree. (Formerly 5600:720)

COUN:722 Introduction to Play Therapy (3 Credits)

Prerequisites: enrolled in a master's or doctoral program in counseling or related field, or special nondegree students (i.e., professional counselor). This course is designed to give students an introduction to play therapy from a child-centered perspective. Students will develop competencies in child-centered play therapy. (Formerly 5600:722)

COUN:723 Legal and Ethical Issues in Counselor Education (4 Credits)

Prerequisite: admission into the Counselor Education and Supervision Program. Examination of major ethical/legal issues in the field of counseling and marriage & family therapy. (Formerly 5600:723)

COUN:724 Pedagogy in Counselor Education and Supervision: Theory and Practice (3 Credits)

This course provides an in-depth study of instructional principles, pedagogy, and evaluation procedures in counselor education and supervision. (Formerly 5600:724)

COUN:725 Doctoral Professional Seminar in Counselor Education (3 Credits)

Prerequisite: admission to the doctoral program in Counselor Education and Supervision To be taken the first fall term upon admission. Required of all Counselor Education & Supervision doctoral students. Professional issues in the counseling field, doctoral identity acculturation, and development are covered. (Formerly 5600:725)

COUN:726 Doctoral Research Proposal in Counselor Education (3 Credits)

Prerequisites: COUN 715, EDFN 744. This course provides theoretical and practical aspects of designing dissertation research in counseling and counselor education and supervision and successfully defending a draft of a proposal design. (Formerly 5600:726)

COUN:728 Advanced Diversity in Counselor Education (3 Credits)

This course examines issues of human diversity broadly, including knowledge, awareness and skills especially related to mental health service and training in counselor education and supervision. (Formerly 5600:728)

COUN:730 Use of Assessment Data (4 Credits)

Prerequisite: Doctoral level status. Study of the methods and materials used to assess individuals and the effective use of the data obtained leading to professional decisions reading the diagnosis of individual's present condition, and recommendations for appropriate treatment/intervention. (Formerly 5600:730)

COUN:732 Addiction Counseling I: Theory & Assessment (3 Credits)

Examination of the foundations, theoretical models, assessment strategies, and treatment approaches associated with addictive disorders. (Formerly 5600:732)

COUN:734 Addiction Counseling II: Treatment Planning & Intervention Strategies (3 Credits)

This course is designed to teach graduate-level students the process of treatment planning and range of treatment interventions used with addictive disorders. (Formerly 5600:734)

COUN:737 Clinical Supervision I (4 Credits)

Prerequisite: successful completion of advanced practicum. Instruction and experience supervising graduate students in counseling. (Formerly 5600:737)

COUN:738 Clinical Supervision II (4 Credits)

Prerequisite: successful completion of advanced practicum and successful completion of supervision I. Instruction and experience in supervising graduate students in counseling. (Formerly 5600:738)

COUN:756 Outcome Research in Marriage & Family Therapy (3 Credits)

Prerequisite: COUN 667; EDFN 640, EDFN 741. This course will provide an in-depth examination of marriage and family therapy outcome research. (Formerly 5600:756)

COUN:760 Counseling Children (3 Credits)

Prerequisite: graduate student in counseling or related field. This course is designed as an entry-level course for counselors, school counselors, school psychologists, or other professionals preparing to engage in therapeutic work with children. It is not a class in diagnosis of childhood disorders. (Formerly 5600:760)

COUN:764 Cognitive Assessment (2 Credits)

Prerequisite: PSYC 750 and enrollment in the Collaborative Program in Counseling Psychology, OR instructor's permission. History, principles and methodology of cognitive assessment, supervised practice in administration, scoring and interpretation of individual intelligence tests for late adolescents and adults. (Formerly 5600:764)

COUN:765 Objective Personality Assessment (2 Credits)

Prerequisites: Completion of PSYC 750 and students must be enrolled in the Collaborative Program in Counseling Psychology. Study of the development, administration, and interpretation of objective measures of personality assessment (MMPI, PAI, and selected additional inventories). (Formerly 5600:765)

COUN:766 Applications of Assessment (2 Credits)

Prerequisites: Completion of COUN 764 and COUN 765. Student must be enrolled in the Collaborative Program in Counseling Psychology. Corequisite: 5600:777. Study of integrative report writing and other applications of assessment. (Formerly 5600:766)

COUN:785 Doctoral Internship (3 Credits)

May be repeated for a total of 6 credit hours. Prerequisite: Completion of COUN 702, COUN 737 and COUN 738. Supervised experience in clinical settings, teaching, supervision, or research. 600 clock hours must be completed in over two consecutive semesters. Credit/noncredit. (Formerly 5600:785)

COUN:796 Counseling Psychology Practicum (4 Credits)

(May be repeated for a total of 12 credits) Advanced counseling psychology students will have supervised training with clients in a variety of settings and will focus on supervised development of specialized theoretical applications. (Credit/noncredit.) (Formerly 5600:796)

COUN:797 Independent Reading and/or Research in Counseling Psychology (1-5 Credits)

(May be repeated) Prerequisite: permission of instructor. Independent readings and/or research in an area of counseling psychology under the direction of a faculty member. (Formerly 5600:797)

COUN:895 Field Experience: Doctoral (1-6 Credits)

(May be repeated) Prerequisite: doctoral candidate status. Placement in selected setting for purpose of acquiring experiences and/or developing skills related to student's doctoral program. (Formerly 5600:895)

COUN:897 Independent Study: Educational Guidance & Counseling (1-3 Credits)

(May be repeated for a total of nine credits) Prerequisites: permission of advisor and department chair. Specific area of investigation determined in accordance with student needs. (Formerly 5600:897)

COUN:898 Research Projects in Special Areas (1-2 Credits)

(May be repeated) Prerequisites: permission of advisor and department chair. Study, analysis and reporting of counseling problem. (Formerly 5600:898)

COUN:899 Doctoral Dissertation (1-20 Credits)

Prerequisites: permission of major doctoral advisor and department chair. Study, design and analysis of counseling problem. (Formerly 5600:899)

Curricular and Instructional Studies (EDCI)

EDCI:503 Global Education and Technology (3 Credits)

Theories, materials, and methods for teaching global education through e-learning and web-based tools. The focus will be on opportunities and challenges in using technology to teach about the world, its people, and issues. (Formerly 5500:611)

EDCI:520 Advanced Instructional Techniques (3 Credits)

Methods of teaching a particular area of the middle and secondary school curriculum for students in the Master's with Licensure program. (Formerly 5500:520)

EDCI:521 Advanced Instructional Techniques II (3 Credits)

Prerequisite: EDCI 520. Instructional experience in the 7-12 classroom to apply theory and research to practice. (Formerly 5500:521)

EDCI:522 Content Area Literacy (3 Credits)

Examines instructional strategies for constructing meaning in content subjects (e.g., science, social studies, mathematics) using print and electronic texts. (Formerly 5500:522)

EDCI:524 Teaching Reading to Culturally Diverse Learners (3 Credits)

Knowledge, skills, and attitudes to employ effective methods of teaching reading to diverse populations and/or learners whose language patterns are nonstandard. (Formerly 5500:524)

EDCI:530 Clinical Teaching I (3 Credits)

Prerequisites: EDCI 619, EDCI 629, EDIS 605. Corequisite: EDCI 520. Filed application to observe and apply education methodologies and theories in a school/classroom setting. (Formerly 5500:530)

EDCI:531 Clinical Teaching II (3 Credits)

Prerequisite: EDCI 530. Corequisite: EDCI 521. Full-time field application to apply education methodologies and theories in a classroom environment. Follows Clinical Teaching I. (Formerly 5500:531)

EDCI:539 Engineering for Educators (3 Credits)

Engineering design concepts and their applications course for teachers. Students will engage in engineering problem solving activities and design lesson plans. (Formerly 5500:539)

EDCI:540 Principles of Bilingual/Multicultural Education (3 Credits)

An introduction to the theoretic, cultural, sociolinguistic bases of bilingual/multicultural education. Legislation, court decisions, program implementation included. (Formerly 5500:540)

EDCI:541 Teaching Literacy to English Learners (3 Credits)

Course applies methods for teaching literacy to English learners, assessment of literacy skills, & development of materials. 12 required field experience. (Formerly 5500:541)

EDCI:542 Teaching Mathematics, Social Studies & Science to Bilingual Students (3 Credits)

Prerequisites: elementary education majors, 5500:333, 5500:336, 5500:338; secondary education majors, 5500:311 (science, social studies in the bilingual/multicultural classroom. Course applies methodologies for teaching mathematics, science, social studies in the bilingual multicultural classroom. The bilingual student's native language stressed. (Formerly 5500:542)

EDCI:543 Techniques of Teaching English as a Second Language (3 Credits)

Course includes teaching language skills to Limited English Proficient students in grades K-12, administration of language assessment tests, selection and evaluation of materials. (10 field hours) (Formerly 5500:543)

EDCI:555 Literacy for Multiage Licensure (3 Credits)

Organizing instruction, use of oral language development protocols, strategies for word skill development, comprehension and assessment as they relate to content areas. (Formerly 5500:555)

EDCI:556 Scaffolding Language and Content Learning for English Learners (3 Credits)

Prerequisite: ENGL 573. This course introduces and explains quality, research-based sheltered instruction to accelerate academic achievement for English learners. (Formerly 5500:556)

EDCI:558 Inclusive Field Experience (1 Credit)

Corequisite: EDIS 457 or EDIS 557. In this inclusive field based experience, teacher candidates explore the challenges and best practices in providing quality educational services for all learners. (Formerly 5500:558)

EDCI:575 Instructional Technology Applications (3 Credits)

Focus on developing learner competencies in the use of instructional technologies to enhance both the instructor's personal and professional productivity. (Formerly 5500:575)

EDCI:588 Practicum: Teaching English as a Second Language (2 Credits)

Prerequisites: EDCI 541 and EDCI 543. A practical experience for teacher candidates to practice teaching an English as a second language classroom supervised by a TESOL-endorsed teacher. 50 hours. (Formerly 5500:588)

EDCI:590 Workshop: Curriculum & Instruction (1-3 Credits)

Workshop for educators to improve teaching skills in a specific area of the curriculum. (May be repeated for a maximum of 6 credits.) (Formerly 5500:590)

EDCI:591 Workshop: Curriculum & Instruction (1-3 Credits)

Workshop for educators to improve teaching skills in a specific area of the curriculum. (May be repeated for a maximum of 6 credits.) (Formerly 5500:591)

EDCI:592 Workshop: Curriculum & Instruction (1-3 Credits)

Workshop for educators to improve teaching skills in a specific area of the curriculum. (May be repeated for a maximum of 6 credits.) (Formerly 5500:592)

EDCI:594 Educational Institutes (1-4 Credits)

Special courses designed as in-service upgrading programs. Frequently provided with support of national foundations. (Formerly 5500:594)

EDCI:600 Concepts of Curriculum & Instruction (3 Credits)

An analysis of the philosophies, theories, and ideologies of curricula and their influences on programs, schools, and instruction. (3 field hours) (Formerly 5500:600)

EDCI:605 Seminar in Trends & Issues in Curriculum & Instruction (3 Credits)

A study of recent research and theory in curriculum and instruction with special attention to educational decision making. (Formerly 5500:605)

EDCI:609 Global Education (3 Credits)

This course focuses on theories, materials and methods for teaching global education through e-learning and web-based tools. (Formerly 5500:609)

EDCI:612 Models of Epistemology and Inquiry (3 Credits)

An exploration of various epistemological and methodological frameworks that are the foundation of systematic and complex educational inquiry. Doctoral level status is preferred but Master's level students are encouraged to enroll in consult with the instructor. (Formerly 5500:612)

EDCI:615 Philosophy & Organization of Middle Schools (3 Credits)

Philosophy, theory, research, and exemplary organizational, assessment, and evaluation components of middle level education. (Formerly 5500:615)

EDCI:616 Middle School Curriculum & Instruction (3 Credits)

Theories, research, and exemplary practices focusing on middle school curriculum and instruction. (Formerly 5500:616)

EDCI:617 Seminar: Licensure in Curricular and Instructional Studies (3 Credits)

This course should be taken at the beginning of the Master's with Licensure Program as an introduction to curriculum and pragmatics of teaching. (Formerly 5500:617)

EDCI:619 Instructional & Management Practices (3 Credits)

This course addresses the practical interpretation and application of the theoretical foundations for the development of standards-based instruction and the organization of the learning environment. Teacher candidates learn to use teaching models and management strategies for effective instruction. Field experience in local school required. (Formerly 5500:619)

EDCI:621 Advanced Instructional Techniques: Modern Language P-8 (3 Credits)

Prerequisite: EDCI 617 or permission of instructor. Focus is on theories of language acquisition, models of instruction suited to teaching foreign languages and cultures in the elementary school (P-8), and strategies that promote appropriate levels of language competence and proficiency for young learners. (35 field hours) (Formerly 5500:621)

EDCI:622 Children's Literature in the Curriculum (3 Credits)

Examination of literary genre with emphasis on methods and techniques for presenting literature to children in preschool, elementary, and middle grades. (Formerly 5500:622)

EDCI:625 Contemporary Issues in Literacy Instruction and Phonics (3 Credits)

Survey course exploring current research in reading and writing as constructive processes of meaning-making. (Formerly 5500:625)

EDCI:626 Assessment of Reading Difficulties (3 Credits)

Examines formal and informal assessments and intervention strategies for students grades K - 12 with reading difficulties. (Formerly 5500:626)

EDCI:627 Special Topics in Curricular & Instructional Studies (3 Credits)

(3-9 credits; may be repeated with a change in topic). Prerequisite: permission of instructor. Groups study of special topics of critical, contemporary concern in professional education. (Formerly 5500:627)

EDCI:628 Literacy Assessment Practicum (3 Credits)

Laboratory experience within classroom, small groups and individuals. A student diagnoses, implements procedures, and follows prescribed reading improvement. (Formerly 5500:628)

EDCI:629 Reading Programs in Secondary Schools (3 Credits)

For all subject teachers both with and without previous study in the teaching of reading. Materials, class organization and procedures for developing reading improvement programs, for all secondary school and college students. (Formerly 5500:629)

EDCI:631 Advanced Behavioral Strategies for the Educator (3 Credits)

This course provides the educator with an advanced examination of strategies designed to improve student behavior in the school setting. (Formerly 5500:631)

EDCI:635 Seminar in Teaching Foreign Languages (3 Credits)

(May be repeated for a total of six credits.) Issues and subjects related to research in foreign language education and language learning theories. Different topics will be offered from section to section. (Formerly 5500:635)

EDCI:637 Seminar: Research & Theory in Foreign Language Education (3 Credits)

(May be repeated for a total of six credits.) Issues and subjects related to research in foreign language education and language learning theories. Different topics will be offered from section to section. (Formerly 5500:637)

EDCI:639 Introduction to Teacher Leadership (3 Credits)

This course philosophically, scientifically, and historically explores contemporary teacher leadership in the United States through scholarly, critical and practical inquiry in addition to reflective action in diverse learning ecologies. (Formerly 5500:639)

EDCI:640 Development of Children: Grades Four and Five (3 Credits)

Prerequisite: Course is only open to candidates who hold an Early Childhood P-3 teaching license. Course focuses on nature/needs of grades 4-5 adolescents; development including physical, cognitive-intellectual, moral, psychological and social-emotional. Explore related issues in home, school and community contexts. (Formerly 5500:640)

EDCI:641 Fourth Grade Curriculum and Instruction (3 Credits)

Prerequisite/Corequisite: EDCI 640. The language arts, mathematics, science and social studies, the arts and technology content and the knowledge of inquiry and problem-based instruction necessary for fourth-grade learners. (Formerly 5500:641)

EDCI:642 Fifth Grade Curriculum and Instruction (3 Credits)

Prerequisite/Corequisite: EDCI 640. Models an inquiry-based format that integrates math, science, social studies, and technology standards where students learn to create, implement, manage, and evaluate student-centered learning environments. (Formerly 5500:642)

EDCI:644 Collaboration and Consultation Skills for Teacher Leadership (3 Credits)

Prerequisites: EDFN 643 and EDIT 639. This course provides teachers in the leadership endorsement with skills in communication, collaboration, and team process to facilitate a collaborative learning culture. (Formerly 5500:644)

EDCI:645 Theory & Practice in Elementary School Mathematics (3 Credits)

Focuses on the development of mathematics education, current trends in the teaching of elementary school mathematics, and future directions in mathematics education. (Formerly 5500:645)

EDCI:650 Elementary Science Curriculum & Instruction (3 Credits)

A critical analysis of contemporary science curriculum and instructional methods for the young learner with particular attention to constructivism and national standards. (Formerly 5500:650)

EDCI:651 Secondary Science Curriculum & Instruction (3 Credits)

A critical analysis of the theory and practice of curriculum and instructional methods in science for early adolescent and adolescent learners. (Formerly 5500:651)

EDCI:652 Nature, History, and Philosophy of STEM (3 Credits)

This course examines the historical evolution of STEM disciplines, and the philosophical assumptions that distinguishes ways of knowing in these disciplines. Applications to educational research are examined. (Formerly 5500:652)

EDCI:660 Coaching in Diverse Classrooms (2 Credits)

This course focuses on the preparation of literacy specialists to coach teachers in the implementation of culturally responsive literacy instruction for diverse learners. (Formerly 5500:660)

EDCI:661 Coaching for Effective Assessment Practice (2 Credits)

Designed for reading specialists, this course teaches knowledge, skills and dispositions in school-based professional development and coaching on classroom-based literacy assessment concepts and skills. (Formerly 5500:661)

EDCI:662 Pedagogy of Effective Literacy Instruction (2 Credits)

The course enables candidates to demonstrate knowledge of a wide range of instructional practices, methods, and curriculum materials, including technology, that support effective literacy instruction. (Formerly 5500:662)

EDCI:663 Professional Development in Literacy (2 Credits)

An introduction to research and knowledge bases related to teacher professional development with an examination of coaching as one venue of supporting teacher professional development. (Formerly 5500:663)

EDCI:664 Advanced Literacy Research (2 Credits)

This course is an introduction to literacy research as an integral part of professional development and supports engagement in inquiry that advances candidates' understanding of literacy instruction. (Formerly 5500:664)

EDCI:665 Literacy Specialist Internship (4 Credits)

The internship is a school-based practicum that integrates the accomplishment of the Literacy Specialist Endorsement Standards and focuses on data-based decision making to inform coaching. (Formerly 5500:665)

EDCI:690 Educational Inquiry I (3 Credits)

Prerequisite: Admission to the M.A. program in Curricular and Instructional Studies. The implementation of a research design for an inquiry into a curricular and/or instruction problem within an educational setting. (Formerly 5500:690)

EDCI:691 Educational Inquiry II (3 Credits)

Prerequisite: EDCI 690 and admission to the program. Students implement a research design for an inquiry into a curricular and/or instruction problem inside or outside of an educational setting. (Formerly 5500:691)

EDCI:692 Field Experience: Colloquium (1 Credit)

Prerequisite: admission to student teaching. Corequisite: EDCI 694. Instructional experience in the 7-12 classroom to apply theory and research to practice. (Formerly 5500:692)

EDCI:693 Field Experience: Masters with Licensure (1-3 Credits)

Instructional experience in the 7-12 classroom to apply theory and research to practice. (May be repeated for a maximum of 6 credits.) 1-3 credits (50 field hours per credit hour) (Formerly 5500:693)

EDCI:694 Field Experience: Classroom Instruction (1-12 Credits)

Prerequisites: Admission to Student Teaching. Corequisite: EDCI 692. Planned teaching experience in schools selected and supervised by Office of Field Experience. (Formerly 5500:694)

EDCI:695 Field Experience: Masters (1-6 Credits)

Prerequisites: permission of advisor and department chair. Experience in an educational setting to apply educational theory and research to practice. (Formerly 5500:695)

EDCI:696 Masters Project (1-6 Credits)

In-depth investigation of specific problem pertinent to student's area of concentration in education. (Formerly 5500:696)

EDCI:697 Independent Study (1-3 Credits)

Selected areas of independent investigation as determined by advisor and related to student's academic needs. (Formerly 5500:697)

EDCI:699 Masters Thesis (4-6 Credits)

In-depth study of research problem in education. Student must be able to demonstrate necessary competencies to deal with research problem in education. (Formerly 5500:699)

EDCI:750 Current Research & Theory in STEM Education (3 Credits)

Intensive examination of contemporary theory and research literature in STEM teaching and learning for preschool through senior high school students. (Formerly 5500:750)

EDCI:780 Seminar: Curricular & Instructional Studies (1-3 Credits)

(May be repeated.) Intensive examination of a particular area of curriculum and instruction. (Formerly 5500:780)

EDCI:800 Professional Seminar in STEM Education (3 Credits)

Prerequisite: admission to the Ph.D. in Integrative STEM Education program. Learners will develop individualized programs of study and plan their doctoral studies. An overview of process and procedures will be addressed. (Formerly 5500:800)

EDCI:820 Advanced Study & Research in Reading Instruction (3 Credits)

Survey of research, comparison and evaluation of programs, design and development of projects in reading through group or individual study. (Formerly 5500:820)

EDCI:880 Doctoral Seminar in Curricular & Instructional Studies (1-3 Credits)

Prerequisite: Admission to the Ph.D. program in either Elementary Education or Secondary Education, or department consent. Intensive examination of a particular area of teacher education. (May be repeated with change of topic and for a total of 9 credits.) (Formerly 5500:880)

EDCI:895 Doctoral Field Experience (1-6 Credits)

(May be repeated for a total of 6 hours.) Intensive job-related experience pertinent to student's needs. Student must be able to demonstrate skills and leadership abilities in an on-the-job situation. (Formerly 5500:895)

EDCI:898 Independent Study (1-3 Credits)

(May be repeated for a total of 6 hours.) Area of study determined by student's needs. (Formerly 5500:898)

EDCI:899 Doctoral Dissertation (1-20 Credits)

Study and in-depth analysis of a research problem in curriculum and instruction. (Formerly 5500:899)

Dance Performance (DNCE)

DNCE:590 Workshop in Dance (1-3 Credits)

(May be repeated for a total of eight credits) Prerequisite: Permission. Group study/projects investigating a particular field of dance not covered by other courses. (Formerly 7920:590)

Divorce Mediation (CHFD)

CHFD:501 American Families in Poverty (3 Credits)

Prerequisite: Permission of instructor. Overview of the issues, trends, and social policies affecting American families living in poverty. Online section available. (Formerly 3760:501)

CHFD:503 Home-Based Intervention Theory (3 Credits)

Prerequisite: Admission to Certificate Program. Overview of home-based intervention to include philosophy and description of this programming as well as assessment of family, their home and community environment. (Formerly 1820:503)

CHFD:504 Middle Childhood and Adolescence (3 Credits)

Prerequisite: Permission of instructor. The influences of middle childhood and adolescent behavior on the family and the influences of the family environment on middle childhood and adolescent development. (Formerly 3760:504)

CHFD:505 Home-Based Intervention Internship (3-5 Credits)

Prerequisite: CHFD 504. Gives students the opportunity to apply knowledge of home-based intervention in actual delivery process working with families in their homes under the direct supervision of trained, experienced home-based intervention therapists. (Formerly 1820:505)

CHFD:506 Family Financial Management (3 Credits)

Analysis of the family as a financial unit including financial problems and their resolution, decision-making patterns and financial practices behavior. Cases, exercises, problems and computer analysis. (Formerly 3760:506)

CHFD:540 Family Crisis (3 Credits)

Study of family stress and crisis including internal and external variables and their influence on degree of disorganization, coping and recovery. Includes theory, research and application dimensions. (Formerly 3760:540)

CHFD:541 Family Relationships in Middle and Later Years (3 Credits)

Study of family patterns and problems during middle and later years of life with emphasis on psychological and biological changes and economic and social adequacy. Research and trends in gerontology. (Formerly 3760:541)

CHFD:542 Human Sexuality (3 Credits)

Prerequisite: permission of instructor. Introduction to problems and values. Emphasis is on the role of values in intimate relationships, the diverse dimensions of sexual responsibility. (Formerly 3760:542)

CHFD:546 Culture, Ethnicity & Family (3 Credits)

Prerequisite: Permission of instructor. Study of the role of culture and ethnicity in adaptation of the family system to environment. Program applications considered. Online section available. (Formerly 3760:546)

CHFD:548 Before & After School Child Care (2 Credits)

Study of the development, implementation and evaluation of school-age child-care programs for before and after school and vacation periods. (Formerly 3760:548)

CHFD:560 Organization & Supervision of Child Care Centers (3 Credits)

Theory, principles and procedures involved in establishing and operating centers for infants, toddlers, preschool and school-age children. (Formerly 3760:560)

CHFD:561 Case Management for Children & Families I (3 Credits)

Provides an overview of Case Management basics in a multi-systems collaborative context. Includes roles, values, principles, state and service systems, and service coordination. (Formerly 3760:561)

CHFD:562 Case Management for Children & Families II (3 Credits)

Prerequisite: CHFD 561 or permission of instructor. Provides in-depth exploration of Case Management principles and practice. Emphasis on process and functions, assessment, cross-system service planning and coordination, advocacy, and cultural diversity. (Formerly 3760:562)

CHFD:564 Home-Based Intervention Techniques & Practice (3 Credits)

Prerequisite: CHFD 503. Provides intervention techniques and skill areas required for home-based intervention and learning opportunities for matching techniques with specific family problems. (Formerly 1820:504)

CHFD:585 Seminar in Child and Family Development (1-3 Credits)

Exploration and evaluation of current developments in selected areas. (Formerly 3760:585)

CHFD:590 Workshop in Family & Consumer Sciences (1-3 Credits)

Investigation of current issues or topic in selected areas of family and consumer sciences. May be an off-campus study tour or an on-campus full-time group meeting. (Formerly 3760:590)

CHFD:594 Practicum in Parent & Family Education (3 Credits)

Prerequisites: CHFD 596 and CHFD 605. Provides on-site opportunities to apply parent and family education skills. Includes a review of strategies, ethical considerations, and supervision by the on-site director. (Formerly 3760:594)

CHFD:596 Parent Education (3 Credits)

Prerequisite: permission of the instructor. Practical application that reviews and analyzes parent education methods with major emphasis on the evaluation of parent education programs. Online section available. (Formerly 3760:596)

CHFD:601 Divorce Mediation (3 Credits)

Prerequisite: Admission to the Graduate Certificate Program on Divorce Mediation. Overview of divorce mediation process includes guidelines for negotiating separation and divorce agreements, division of personal and real property, support, custody, and future plans. (Formerly 1800:601)

CHFD:602 Family in Lifespan Perspective (3 Credits)

Study of individual and family development across life span. Emphasis on adjustment patterns and interpersonal competence. Implications for education theory research and social policy. (Formerly 3760:602)

CHFD:604 Orientation to Graduate Studies in Child and Family Development (1 Credit)

Introduction to the concepts and processes necessary for graduate study in the interdisciplinary field of child and family development. (Formerly 3760:604)

CHFD:605 Developmental Parent-Child Interactions (3 Credits)

Prerequisite: permission of the instructor. Study of reciprocal interactions between parent and child from birth to adulthood. Consideration of cross-culture studies, historical and societal influences and various family characteristics and structures. Online course. (Formerly 3760:605)

CHFD:607 Family Dynamics (3 Credits)

Development of techniques in home economics programs utilizing role theory, exchange theory and systems theory as understood through the study of the family across the life cycle. (Formerly 3760:607)

CHFD:610 Child Development Theories (3 Credits)

Prerequisite: permission of the instructor. A comparative study of developmental theories of the child within the family context. Application of the theories to child rearing in the family will be emphasized. (Formerly 3760:610)

CHFD:665 Development in Infancy & Early Childhood (3 Credits)

Analysis of research and theoretical frameworks regarding infant and child development from conception through age five. Implications for guidance and education. (Formerly 3760:665)

CHFD:680 Grant & Proposal Writing (3 Credits)

An important organizational function is acquiring resources to sustain and grow critical programs and funding through grants is one such avenue. Developing effective grant writing skills are essential to acquire competitive funding from government agencies and private foundations alike. This course will provide students with the background necessary to develop a competitive funding proposal. (Formerly 3760:680)

CHFD:685 Research Methods in Child and Family Development (3 Credits)

Research methods emphasizing the scientific method, data collection techniques, ethical considerations, and statistics as they apply to research with children and families. (Formerly 3760:685)

CHFD:687 Divorce Mediation Practicum (2 Credits)

Prerequisite: CHFD 601. Practical application of divorce mediation procedures. Review of strategies and ethical considerations. (Formerly 1800:602)

CHFD:688 Advanced Internship in Child and Family Development (5 Credits)

Prerequisite: Permission of advisor or instructor. A minimum of 200 hours of supervised experience in an approved community setting to acquire skills related to area of specialization. (Formerly 3760:688)

CHFD:694 Master's Project (5 Credits)

Prerequisite: Permission of advisor. The development, implementation, and evaluation of a community-based, supervised project that makes a significant contribution to the field. (Formerly 3760:694)

CHFD:697 Individual Investigation in Family Development (1-3 Credits)

Prerequisite: permission of graduate advisor only. Individual pursuit and analysis in specific area of student's interest and design under direction of faculty advisor. (Formerly 3760:697)

CHFD:698 Individual Investigation in Child Development (1-3 Credits)

Prerequisite: permission of graduate advisor only. Individual pursuit and analysis in specific area of student's interest and design under direction of faculty advisor. (Formerly 3760:698)

CHFD:699 Masters Thesis in Child & Family Development (5 Credits)

Prerequisite: Placement of advisor. Supervised research in a specialized area of Child & Family Development that contributes to the field and may lead to publication. (Formerly 3760:699)

Economics (ECON)

ECON:506 State & Local Public Finance (3 Credits)

Prerequisite: Admission to the master's program in Economics or permission. Examines economic rationale and problems for provision of goods and services by different governmental units. Considers alternative revenue sources and special topics. (Formerly 3250:506)

ECON:515 Cost-Benefit Analysis (3 Credits)

Prerequisites: Admission to the master's program in Economics or permission. Introduction to tool for public project evaluation. Includes development of analytical framework and methods of determining benefits and costs over time. Stresses application of techniques. (Formerly 3250:515)

ECON:523 Applied Game Theory (3 Credits)

Prerequisite: Admission to the master's program in Economics or permission. Application of the basic concepts of game theory (analysis of strategic behavior) to relevant economics issues including bargaining, cartels, voting, conflict resolution and non-competitive pricing. (Formerly 3250:523)

ECON:527 Economic Forecasting (3 Credits)

Prerequisite: Admission to the master's program in Economics or permission. Study of methods for building, identifying, fitting and checking dynamic economic models and use of these models for forecasting. Emphasis is on the application of available computer software systems. (Formerly 3250:527)

ECON:530 Labor Market and Social Policy (3 Credits)

Prerequisite: Admission to the master's program in Economics or permission. Intensive study of current labor and social policy issues (e.g., discrimination, poverty, migration, education, demographic and labor market changes, impact of international trade on employment). (Formerly 3250:530)

ECON:536 Health Economics (3 Credits)

Prerequisite: Permission of instructor. Economic analysis of health care. Stresses health policy issues, includes study of demand and supply of medical services and insurance, analysis of health care industries. (Formerly 3250:536)

ECON:538 Economics of Sports (3 Credits)

Prerequisite: Permission of instructor. Sports franchises as profit maximizing firms; costs and benefits of a franchise to a city; labor markets in professional sports; the economics of college sports. (Formerly 3250:538)

ECON:540 Special Topics in Economics (3 Credits)

Prerequisite: Permission. Opportunity to study special topics and current issues in economics. (Formerly 3250:540)

ECON:560 Economics of Developing Countries (3 Credits)

Prerequisite: Admission to the master's program in Economics or permission. Basic problems of economic development. Theories of economic development, issues of political economy and institutions. Topics include poverty, population, migration, employment, finance, international trade, environment. (Formerly 3250:560)

ECON:561 Principles of International Economics (3 Credits)

Prerequisite: Admission to master's program in Economics or permission. International trade and foreign exchange, policies of free and controlled trade, international monetary problems. (Formerly 3250:561)

ECON:575 Development of Economic Thought (3 Credits)

Prerequisite: Admission to the master's program in Economics or permission. Evolution of theory and method, relation of ideas of economists contemporary to conditions. (Formerly 3250:575)

ECON:581 Monetary & Banking Policy (3 Credits)

Prerequisite: Admission to the master's program in Economics or permission. Control over currency and credit, policies of control by central banks and governments, United States Treasury and Federal Reserve System. (Formerly 3250:581)

ECON:587 Urban Economics: Theory & Policy (3 Credits)

Prerequisite: Admission to the master's program in Economics or permission. Analysis of urban issues from an economic perspective. Emphasis on urban growth, land-use patterns, housing, income distribution, poverty and urban fiscal policy. (Formerly 3250:587)

ECON:591 Workshop in Economics (1-3 Credits)

(May be repeated) Group studies of special topics in economics. May not be used to meet undergraduate or graduate major requirements in economics. May be used for elective credit only. (Formerly 3250:591)

ECON:600 Foundations of Economic Analysis (3 Credits)

Prerequisite: graduate standing. Determination of national income, employment and price level; aggregate consumption, investment and asset holding; decision problems faced by household and firm. Partial equilibrium and analysis of competition and monopoly and general equilibrium analysis. May not be substituted for 602, 603, 611, or applied toward the 30 graduate credits required for M.A. in economics. (Formerly 3250:600)

ECON:601 Economic Decision Making for Business (3 Credits)

Prerequisite: Graduate standing or permission of department. An application of microeconomic analysis to solving business problems and a macroeconomic perspective on national output, unemployment, and inflation. (Formerly 3250:601)

ECON:602 Macroeconomic Analysis I (3 Credits)

Prerequisite: Admission to the master's program in economics or permission of the department. Construction of static macroeconomic models. Analysis predominantly in terms of comparative statistics with only relatively brief mention of dynamic models. (Formerly 3250:602)

ECON:606 Economics of the Public Sector (3 Credits)

Prerequisite: Admission to the master's program in economics or permission of the department. Examination of public sector economies emphasizes public revenues, public expenditures. Develops objectives of taxation, welfare aspects of the public sector, theory of public goods. Considers specific taxes, cost-benefit analysis, expenditures analysis, fiscal federalism. (Formerly 3250:606)

ECON:610 Framework of Economic Analysis (3 Credits)

Prerequisite: graduate standing. Development of theoretical and analytical framework for decision making. Discussion of applications of the framework to situations concerning demand, cost, supply, production, price, employment and wage. (Formerly 3250:610)

ECON:611 Microeconomic Theory I (3 Credits)

Prerequisite: Admission to the master's program in economics or permission of the department. Modern theory of consumer behavior and of the firm. Determination of market prices. Optimization models, establishment of criteria for productive, allocative and distributive efficiency. (Formerly 3250:611)

ECON:615 Industrial Organization (3 Credits)

Prerequisite: ECON 611 or permission. Examines link between market structure, firm conduct and economic performance. Measurement and effects of monopoly power, industrial concentration and changes. (Formerly 3250:615)

ECON:617 Economics of Regulation (3 Credits)

Prerequisite: ECON 615 or permission of instructor. Examines rationale, methods and success of government regulation of public utility, transportation and communications industries. (Formerly 3250:617)

ECON:620 Application of Mathematical Models to Economics (3 Credits)

Prerequisite: Admission to the master's program in economics or permission of the department. Review of selected topics of differential and integral calculus and their application to economic analysis. Theory of optimization in production and consumption; static macroeconomic models. Analysis of growth and stability. (Formerly 3250:620)

ECON:621 Application of Linear Models in Economic Analysis (3 Credits)

Prerequisite: Admission to the master's program in economics or permission of the department. Review of selected topics of linear algebra application to economic theory. Static open and closed input-output tables, dynamic models, consumption technology and theory of demands, linear programming, general equilibrium analysis. (Formerly 3250:621)

ECON:626 Applied Econometrics I (3 Credits)

Prerequisite: Admission to the master's program in economics or permission of the department. Students will learn statistical methods and standard econometric tools by reading and conducting empirical research requiring problem articulation, data assembly and appropriate model specification. (Formerly 3250:626)

ECON:627 Applied Econometrics II (3 Credits)

Prerequisite: ECON 626 or equivalent. Students will learn advanced econometric topics, continuing to build on modeling, interpretation, and evaluation skills through economic problems, culminating in an empirical research paper. (Formerly 3250:627)

ECON:628 Seminar in Research Methods (3 Credits)

Prerequisite: Admission to the master's program in economics or permission of the department. A seminar in the research use of applied mathematical economics or econometrics. Emphasis is on individual development of a theoretical proposition or research statement, its empirical examination and policy implications. (Formerly 3250:628)

ECON:633 Theory of Wages & Employment (3 Credits)

Prerequisite: Admission to the master's program in economics or permission of the department. Analytical approach to integration of economic theory with observed labor market phenomena. Discussion of wage and employment theories, effects of unions, collective bargaining theories and effects of government regulation. (Formerly 3250:633)

ECON:640 Special Topics in Economics (3 Credits)

Prerequisite: Admission to the Master's Program in economics or permission of department. Opportunity to study special topics and current issues in economics at an advanced level. Repeatable with permission of instructor. (Formerly 3250:640)

ECON:664 Seminar on Economic Growth & Development (3 Credits)

Prerequisite: Admission to the master's program in economics or permission of the department. Review of main theories of economic growth since age of classical economics. Problems in development of emerging countries. Discussion of aggregative macro-models of capital formation, investment, technology and external trade. (Formerly 3250:664)

ECON:666 Seminar on Regional Economic Analysis & Development (3 Credits)

Prerequisite: Admission to the master's program in economics or permission of the department. Study of a particular national or international regional development. Any one or a combination of following regions may be considered: Middle East, North Africa, areas within Latin America, Southern Europe, Southeast Asia or Eastern Europe. (Formerly 3250:666)

ECON:670 International Monetary Economics (3 Credits)

Prerequisite: Admission to the master's program in economics or permission of the department. International financial relations. Foreign exchange market and exchange rate adjustments. Balance of payments adjustment policies. International monetary system. (Formerly 3250:670)

ECON:671 International Trade (3 Credits)

Prerequisite: Admission to the master's program in economics or permission of the department. Traditional trade theory. Recent developments in trade theory, policy implications in trade relations among developed and developing economics. (Formerly 3250:671)

ECON:683 Monetary Economics (3 Credits)

Prerequisite: Admission to the master's program in economics or permission of the department. Intensive study of important areas of monetary theory. Emphasis on integration of money and value theory among other areas, plus some pressing policy issues. (Formerly 3250:683)

ECON:695 Graduate Internship in Economics (1-3 Credits)

Prerequisites: Eighteen credit hours of economics graduate courses. Career application of student's graduate coursework. Supervisor reports and assignments required. May be repeated for a maximum of three credits. (Formerly 3250:695)

ECON:697 Reading in Advanced Economics (1-4 Credits)

(A maximum of six credits may be applied toward the master's degree in economics.) Prerequisite: Admission to the master's program in economics or permission of the department. Intensive investigation of selected problem area in advanced economics under supervision of instructor. Since the subject matter is decided upon in each case, the course may be taken repeatedly for credit. (Formerly 3250:697)

ECON:698 Reading in Advanced Economics (1-4 Credits)

(A maximum of six credits may be applied toward the master's degree in economics.) Prerequisite: Admission to the master's program in economics or permission of the department. Intensive investigation of selected problem area in advanced economics under supervision of instructor. Since the subject matter is decided upon in each case, the course may be taken repeatedly for credit. (Formerly 3250:698)

ECON:699 Master's Thesis (3 Credits)

(May be repeated for a total of six credits) (Formerly 3250:699)

Educational Foundations & Leadership (EDFN)

EDFN:520 Introduction to Instructional Computing (3 Credits)

Prepares the student in the use of instructional technologies in educational and business settings. Segments of the course are offered in an online format. (Formerly 5100:520)

EDFN:590 Workshop in Educational Foundations & Leadership (1-3 Credits)

Individual work under staff guidance on curriculum problems, utilization of community resources, planning of curriculum units. (Formerly 5100:590)

EDFN:591 Workshop in Educational Foundations & Leadership (1-3 Credits)

Individual work under staff guidance on curriculum problems, utilization of community resources, planning of curriculum units. (Formerly 5100:591)

EDFN:592 Workshop in Educational Foundations & Leadership (1-3 Credits)

Individual work under staff guidance on curriculum problems, utilization of community resources, planning of curriculum units. (Formerly 5100:592)

EDFN:594 Educational Institutes: Educational Foundations & Leadership (1-4 Credits)

Special course designed as in-service upgrading programs, frequently provided with the support of curriculum units. (Formerly 5100:594)

EDFN:600 Philosophies of Education (3 Credits)

Examination of basic philosophical problems underlying broad educational questions that confront society. Provides foundation for understanding of questions of modern society and education. (Formerly 5100:600)

EDFN:602 Comparative & International Education (3 Credits)

Comparative study of selected national school systems with reference to forces that shape their characteristics. Different theoretical approaches used in study of comparative education also investigated. (Formerly 5100:602)

EDFN:604 Topical Seminar in the Cultural Foundations of Education (3 Credits)

(May be repeated for a total of six credits) Issues and subjects related to study of educational institutions, theories and/or ideas. Different topics will be offered from section to section. Delivered in face to face web enhanced format and fully online format. (Formerly 5100:604)

EDFN:610 Introduction to Statistics in Human Services (3 Credits)

Applying basic statistical concepts and use statistics to address real world problems in social science. (Formerly 5100:610)

EDFN:620 Psychology of Instruction for Teaching & Learning (3 Credits)

Current theories and research in the areas of cognition and learning, development, and motivation that underlay approaches to teaching in any context. (Formerly 5100:620)

EDFN:624 Seminar in Educational Psychology (3 Credits)

In-depth study of research in selected areas of learning, development, evaluation, and motivation. Offered in face-to-face and online formats. (Formerly 5100:624)

EDFN:629 Fundamentals of E-Learning (1 Credit)

The nature, purpose, history and philosophy of e-learning will be explored through examination of associated trends and issues. Establishment of a learning community will be addressed in the face-to-face course component. E-learning course/certificate overviews will be discussed. (Formerly 5100:629)

EDFN:630 Topical Seminar in Computer-Based Education (3 Credits)

(May be repeated for a total of six credits. Advanced topics related to development, implementation, research and evaluation in C.B.E. Student involvement emphasized, required. Knowledge of programming language recommended. (Formerly 5100:630)

EDFN:637 Philosophies of Educational Technology (3 Credits)

To introduce students to the many philosophies of educational technologies and the manner in which information technology especially influences our pedagogy. (Formerly 5100:637)

EDFN:640 Using Research to Inform Practice (3 Credits)

Research methods and techniques commonly used in education and behavioral sciences; preparation of research reports. Includes library, historical, survey and experimental research and data analysis. Delivered in face to face web enhanced format and fully online format. (Formerly 5100:640)

EDFN:642 Introduction to Classroom Assessment for Teachers (3 Credits)

The focus of this class is on the practical classroom assessment skills future and practicing teachers need for decision-making about student learning. (Formerly 5100:642)

EDFN:643 Vision, Goal Planning and Professional Practice for Teacher Leaders (3 Credits)

This course reviews the main research, theories, and practices that make for effective organizational leadership and professional practice for teacher leaders. (Formerly 5100:643)

EDFN:646 Multicultural Counseling (3 Credits)

Prerequisites: COUN 643 or permission of instructor. An examination of multicultural counseling theory and research necessary to work with culturally diverse people. (Formerly 5100:646)

EDFN:647 Data and Evidence-based Practice for Teacher Leaders (3 Credits)

An examination of applied research techniques for school leadership and improvement efforts. (Formerly 5100:647)

EDFN:648 Individual & Family Development Across the Lifespan (3 Credits)

An exploration of individual and family development. Emphasis will be placed on understanding the relationship between the individual and his/her family. (Formerly 5100:648)

EDFN:650 Data Collection Methods for Educators (3 Credits)

Students will develop, implement and evaluate various data collection methods such as achievement tests, commercially published instruments, surveys, and individual and group interviews. (Formerly 5100:650)

EDFN:651 Data-Driven Decision Making for Educators (3 Credits)

The purpose of this course is to facilitate the understanding and utilization of data to identify classroom/school improvement needs and make informed decisions in effecting change. (Formerly 5100:651)

EDFN:652 Introduction to Educational Evaluation (3 Credits)

Introduction to core concepts of educational evaluation including; the purpose, process, standards, and models of evaluation. Students will develop skills in interpreting and critiquing evaluation reports. (Formerly 5100:652)

EDFN:653 Practical Applications of Educational Evaluation (3 Credits)

Prerequisite: EDFN 652. This course is designed as the second part of educational evaluation with a focus on the application of evaluation concepts and theory to real world situations. (Formerly 5100:653)

EDFN:654 Master's Project in Assessment & Eval - Part I (3 Credits)

Prerequisite: Permission of advisor This capstone course is the culminating learning experience for the Masters Degree in Assessment and Evaluation. Students complete a comprehensive evaluation project of their choice. (Formerly 5100:654)

EDFN:655 Master's Project in Assessment & Eval Part 2 (3 Credits)

Prerequisite: EDFN 654. This capstone course is the culminating learning experience for the Masters Degree in Assessment and Evaluation. Students complete a comprehensive evaluation project of their choice. (Formerly 5100:655)

EDFN:695 Field Experience: Masters (1-3 Credits)

Prerequisites: permission of department chair and instructor. Area determined in accordance with student's program and professional goals. (Formerly 5100:695)

EDFN:697 Independent Study (1-3 Credits)

(May be repeated for a total of six credits) Prerequisites: permission of department chair and instructor. Specific area of study determined in accordance with student's program and professional goals. (Formerly 5100:697)

EDFN:698 Masters Problem (2-4 Credits)

Prerequisite: permission of advisor. In-depth study of a research problem in education. Student must be able to demonstrate critical and analytical skills in dealing with problems in educational foundations. (Formerly 5100:698)

EDFN:699 Masters Thesis (4-6 Credits)

Prerequisites: permission of department chair and instructor. In-depth study of research problem within humanistic and behavior foundation. (Formerly 5100:699)

EDFN:701 History of Education in American Society (3 Credits)

Historical development of education in American social order, with special emphasis on social, political and economic setting. (Formerly 5100:701)

EDFN:703 Seminar: History & Philosophy of Higher Education (3 Credits)

Prerequisite: EDFN 600 or equivalent. History and philosophy related to genesis and development of higher education in the Western world, with special emphasis given to higher education's development in United States. Delivered in face to face web enhanced format and fully online format. (Formerly 5100:703)

EDFN:705 Seminar: Social-Philosophical Foundations of Education (3 Credits)

(May be repeated for a total of six credits) Prerequisite: EDFN 600 or equivalent. Inquiry into selected ideological social, economic and philosophical factors affecting educational development in United States and other countries. (Formerly 5100:705)

EDFN:710 Adult Learning, Development & Motivation (3 Credits)

Emerging theories of intelligence; theories of adult learning; stage theories of adult cognitive, conceptual and moral development; life cycle development; adult life transitions. (Formerly 5100:710)

EDFN:721 Learning Processes (3 Credits)

Study of principles underlying classroom learning processes with particular emphasis on teaching as means of modifying pupil behavior; cognitive, motor, social and affective. (Formerly 5100:721)

EDFN:723 Teacher Behavior & Instruction (3 Credits)

Prerequisite: EDFN 600. Intensive survey of theoretical and empirical literature involving teacher and conceptions of instruction. A student reports on theory, empirical research and applications in areas of individual interests. (Formerly 5100:723)

EDFN:740 Research Design (3 Credits)

Topics include problem statement, research questions, literature review, choosing a sample, selecting an appropriate research design and data collection method, and ethical and legal issues. (Formerly 5100:740)

EDFN:741 Data Collection Methods (3 Credits)

Prerequisite: EDFN 740. Emphasis on developing, selecting, and administering common data collection methods in education and social science research including standardized tests, inventories, questionnaires, focus groups, and content analysis. (Formerly 5100:741)

EDFN:742 Statistics in Education (3 Credits)

Statistical methods and techniques used in educational measurement and in educational research. Emphasis on hypothesis testing. (Formerly 5100:742)

EDFN:743 Advanced Educational Statistics (3 Credits)

Prerequisite: EDFN 741. Emphasis on interpreting advanced statistics in education and the social sciences. (Formerly 5100:743)

EDFN:744 Qualitative Methods I (3 Credits)

Provides an overview of theory about and hands-on experience with methods of qualitative research. Techniques of participant-observation, interviewing, and document collection will be covered. (Formerly 5100:744)

EDFN:745 Qualitative Methods II (3 Credits)

Prerequisite: EDFN 744. Provides more advanced experience with theory and methods of qualitative research. Data collection and analysis will focus on students' research interests and possible dissertation topics. (Formerly 5100:745)

EDFN:798 Research Project in Special Areas (1-3 Credits)

Prerequisite: permission of department chair and instructor. Critical and in-depth study of specific problem in educational foundations. (Formerly 5100:798)

EDFN:801 Research Seminar: Educational Foundations & Leadership (3 Credits)

Prerequisites: EDFN 640 and EDFN 740; permission of department chair and instructor. Intensive study of research methods applicable to education. Emphasis on developing a dissertation proposal. (Formerly 5100:801)

EDFN:897 Independent Study (1-4 Credits)

(May be repeated for a total of eight credits.) Prerequisites: permission of department chair and instructor. Specific area of inquiry within humanistic and behavioral foundations of education determined in advance by student and faculty advisor. (Formerly 5100:897)

Educational Foundations - Higher Education (EDHE)

EDHE:515 Administration in Higher Education (3 Credits)

In-depth study of administrative roles, functions, knowledge and skills requirements, and administrative behavior. Trends in administrative theory and application will also be explored. Delivered in face-to-face web enhanced format and fully online format. (Formerly 5190:515)

EDHE:521 Law & Higher Education (3 Credits)

Legal aspects of higher education, sources of law and authority presented; impact on, interaction with, and implications of the administration of higher education will be discussed. Delivered in face-to-face, web-enhanced format, and fully online format. (Formerly 5190:521)

EDHE:525 Topical Seminar: Higher Education (3 Credits)

(May be repeated.) Topical study in a variety of areas related to public and/or private higher education institutions, organizations. Maximum of six credits applied to degree. Delivered in face-to-face web enhanced format and fully online format. (Formerly 5190:525)

EDHE:526 Student Services & Higher Education (3 Credits)

Examination of issues related to the delivery and evaluation of student services in higher education. Delivered in face-to-face web enhanced format and fully online format. (Formerly 5190:526)

EDHE:527 American College Student (3 Credits)

Introduction to the sociopsychological literature concerning the impact of college on students and student development theory. Delivered in face-to-face web enhanced format and fully online format. (Formerly 5190:527)

EDHE:530 Higher Education Curriculum & Program Planning (3 Credits)

Study of curriculum planning at the college and university level, factors influencing curriculum design, theories and practices of curricular change and innovation are also explored. Delivered in face-to-face web enhanced format and fully online format. (Formerly 5190:530)

EDHE:590 Workshop: Higher Education Administration (3-6 Credits)

(May be repeated for a total of six credits.) Emphasizing the development and demonstration of leader behavior appropriate to the college or university setting. (Formerly 5190:590)

EDHE:600 Advanced Administrative Colloquium in Higher Education (3 Credits)

Prerequisite: permission of instructor. Examination of higher education administration perspectives and issues, including those that pose particular concern to students. Capstone experience for students poised for program completion. Delivered in face-to-face web enhanced format and fully online format. (Formerly 5190:600)

EDHE:601 Internship in Higher Education (1-3 Credits)

(May be repeated for a total of six credits) Prerequisite: permission. Corequisite: EDHE 602. Opportunity for administrative work experience in a higher education setting. Delivered in face-to-face, web-enhanced format, or fully online format. (Formerly 5190:601)

EDHE:602 Internship in Higher Education Seminar (1 Credit)

(May be repeated for a total of three credits) Prerequisite: permission. Corequisite: EDHE 601. To be taken in conjunction with internship for synthesis of problems encountered in internship experience and to provide the opportunity to share ideas and experiences from various areas of higher education internship placement. Delivered in face-to-face web enhanced format and fully online format. (Formerly 5190:602)

EDHE:610 Diversity Issues in Higher Education (3 Credits)

Examination of psychosocial literature and theories related to diverse groups and issues within higher education. Theoretical application and perspectives to administrative practice emphasized. (Formerly 5190:610)

EDHE:615 Historical Foundations of American Higher Education (3 Credits)

Overview of the historical foundations, academic history, and educational traditions emerging from its European roots into American higher education to inform contemporary practice. (Formerly 5190:615)

EDHE:620 Finance & Higher Education (3 Credits)

Facilitates student's understanding of how American Higher Education is financed, identifies various methodologies used, and political and economic impacts and processes involved. Delivered in face-to-face web enhanced format and fully online format. (Formerly 5190:620)

EDHE:626 Policy, Assessment, and Accountability in Higher Education (3 Credits)

Familiarizes student with assessment, policy-making, and accountability in higher education. Theoretical approaches explored, internal and external policy actors identified and implementation issues are examined. Delivered in face-to-face web enhanced format and fully online format. (Formerly 5190:626)

EDHE:635 Instructional Strategies & Techniques for the College Instructor (3 Credits)

Selected topics in instruction theory, techniques and strategies which are appropriate to instructional planning and development of college-level courses. Delivered in face-to-face web enhanced format and fully online format. (Formerly 5190:635)

EDHE:645 Independent Study in Higher Education (1-3 Credits)

Selected areas of independent investigation in an area of higher education as determined by the advisor and student in relation to student's academic needs and career goals. Delivered in face-to-face web enhanced format and fully online format. (Formerly 5190:645)

Educational Foundations - Instructional Technology (EDIT)

EDIT:590 Workshop (1-3 Credits)

Individual work under staff guidance on curriculum problems, utilization of community resources, planning of curriculum units. Delivered in face-to-face, web-enhanced format and fully on-line format. (Formerly 5150:590)

EDIT:610 Introduction to Instructional Technology (3 Credits)

Course will provide the learner with foundational understanding of technology standards will provide the conceptual framework for the study of technology's impact on teaching and learning in the 21st Century. (Formerly 5150:610)

EDIT:614 Technology Leadership and Planning (3 Credits)

Prerequisite: Admission to a graduate program in the Buchtel College of Arts & Sciences. Pre/Corequisite: EDIT 610. Emphasizes the leadership and process of planning for the use of technology in schools, businesses, and institutions. Includes plans for instructor/faculty support and alternative management of technology integration. (Formerly 5150:614)

EDIT:631 Instructional Design (3 Credits)

Corequisite: EDIT 610. The theory and practice of instructional design (ID) involves a systematic approach to the analysis, design, development, evaluation, and implementation of effective instruction. (Formerly 5150:631)

EDIT:632 Designing Online Learning (3 Credits)

Prerequisite: Admission to a graduate program in the Buchtel College of Arts & Sciences. Pre/Corequisite: EDIT 610. Help students become proficient in the design, development, and evaluation of online learning modules/courses for training and education. Students will be prepared to design online courses and online learning modules. (Formerly 5150:632)

EDIT:633 Interactive Web Design and Development (3 Credits)

Prerequisite: Admission to a graduate program in the Buchtel College of Arts & Sciences. Pre/Corequisite: EDIT 610. Introduces students to design and develop an interactive website through integrating a variety of digital media (i.e. image, audio, video, and authoring tutorials) in a web-based format to support learning. (Formerly 5150:633)

EDIT:634 Visual Literacy (3 Credits)

This course will combine a basic understanding of design principles and concepts with research findings on the use of visuals in the learning process. (Formerly 5150:634)

EDIT:635 Emerging Technologies for Instruction (3 Credits)

This course examines emerging technologies (hardware, software, systems) that support teaching/learning, and methods for assessing the utility of any technology used for instructional purposes. (Formerly 5150:635)

EDIT:636 Topical Seminar in Educational Technology (3 Credits)

(Repeatable for up to nine credits.) Current trends and practices in educational technology: computer authoring software, tools and processes for instructional video production, presentation systems. (Formerly 5150:636)

EDIT:638 Integrating and Implementing Technology (3 Credits)

Designed to equip teachers with tools, resources, and strategies to support the integration and implementation of effective use of technology in the classroom. (Formerly 5150:638)

EDIT:639 Strategies for Online Teaching & Learning (3 Credits)

Corequisite: EDIT 610. Prepare instructors to make the transition from teaching in a physical classroom to facilitating learning in virtual classroom. Delivered in a fully-online format. (Formerly 5150:639)

EDIT:696 Master Technology Project (2-3 Credits)

Prerequisite: permission of advisor. Prepare and test a technology learning package that includes any combination of text, graphics, sound, color, motion, and the provision for interaction by the target students. (Formerly 5150:696)

EDIT:697 Independent Study (1-3 Credits)

(May be repeated for a total of six credits) Prerequisites: permission of department chair and instructor. Specific area of study determined in accordance with student's program and professional goals. (Formerly 5150:697)

Educational Leadership (EDLP)

EDLP:590 Workshop: General Administration (1-3 Credits)

Individual work under staff guidance on curriculum problems, utilization of community resources, planning of curriculum units. (Formerly 5170:590)

EDLP:591 Workshop: General Administration (1-3 Credits)

Individual work under staff guidance on curriculum problems, utilization of community resources, planning of curriculum units. (Formerly 5170:591)

EDLP:592 Workshop: General Administration (1-3 Credits)

Individual work under staff guidance on curriculum problems, utilization of community resources, planning of curriculum units. (Formerly 5170:592)

EDLP:593 Workshop: General Administration (1-3 Credits)

Individual work under staff guidance on curriculum problems, utilization of community resources, planning of curriculum units. (Formerly 5170:593)

EDLP:594 Educational Institutions: General Administration (1-4 Credits)

Special course designed as in-service upgrading programs, frequently provided with the support of curriculum units. (Formerly 5170:594)

EDLP:601 Organizational Leadership (3 Credits)

A perspective of educational leadership and the context in which it operates, with emphasis on the processes, tasks, roles and relationships involved. Field based research required. (Formerly 5170:601)

EDLP:602 Management of Physical Resources (3 Credits)

A comprehensive view of the principles, practices, and new dimensions involved in the planning and management of educational facilities. (Formerly 5170:602)

EDLP:603 Management of Human Resources (3 Credits)

An orientation to the major dimensions of the personnel function. (Formerly 5170:603)

EDLP:604 School Contexts and Community Involvement (3 Credits)

The course is for graduate students interested in P-12 school leadership. It focuses on understanding strategies for collaborating with members of the school community. (Formerly 5170:604)

EDLP:606 Evaluation in Educational Organizations (3 Credits)

Prerequisites: EDLP 601 and EDFN 640. An examination of the general concepts, models, practical applications and considerations involved in the evaluation of educational organizations. (Formerly 5170:606)

EDLP:607 School Law (3 Credits)

An examination of the legal principles underlying education in the United States as reflected in statutory provisions, court decisions and administrative orders. Field based research required. Course also available fully online. (Formerly 5170:607)

EDLP:608 School Finance & Economics (3 Credits)

A study of financial operations of school systems, including taxes, other sources of revenue, expenditures, budgeting and effects of economic factors. (Formerly 5170:608)

EDLP:609 Principles of Curriculum Development (3 Credits)

Prerequisites: EDLP 601 and EDFN 640. This course is intended to help the student develop the performance competencies necessary to engage in curriculum decision making. (Formerly 5170:609)

EDLP:610 Supervision of Instruction (3 Credits)

An introduction to the school function that improves instruction through direct assistance, curriculum, staff and group development and action research. (Formerly 5170:610)

EDLP:613 Student Services and Interagency Collaboration (3 Credits)

Overview of pupil services including analysis of the nature and development of each component and program and discussion of current issues and trends. Field based research required. (Formerly 5170:613)

EDLP:615 Student Services and Disability Law (3 Credits)

The course examines the statutory and case laws and regulations affecting students with disabilities. Laws are reviewed, policy implications identified, and legally compliant practices proposed. (Formerly 5170:615)

EDLP:620 School Culture and Governance (3 Credits)

An examination of leadership as it relates to the development and maintenance of a school climate and culture conducive to teaching and learning. (Formerly 5170:620)

EDLP:695 Principal Internship (3 Credits)

Students are required to successfully complete a two-semester internship in a school district chosen by the student and his/her advisor. (Formerly 5170:695)

EDLP:696 Principal Internship (3 Credits)

Students are required to successfully complete a two-semester internship in a school district chosen by the student and his/her advisor. (Formerly 5170:696)

EDLP:697 Independent Study (1-3 Credits)

Prerequisites: permission of advisor and supervisor of the independent study. Area of study determined by student's needs. (May be repeated for a total of six credits.) (Formerly 5170:697)

EDLP:704 Advanced Organizational Leadership (3 Credits)

Study of organizations and strengths and weaknesses of common methods of administering them. Practical means by which overcoming bureaucratic weaknesses of bureaucracies are offset or lessened by educational institutions. (Formerly 5170:704)

EDLP:705 Decision Making in Educational Administration (3 Credits)

Decision making is portrayed as a central function of the educational administrator with a united presentation of the theory, research and practice of decision making. (Formerly 5170:705)

EDLP:707 The Superintendency (3 Credits)

An orientation to the superintendent's role and an examination of the strategies for dealing with the major relational and functional aspects of the superintendency. (Formerly 5170:707)

EDLP:708 Economics in Education (3 Credits)

Issues related to the changing marketplace of public, private schooling and higher education institutions as they relate to an urban environment. (Formerly 5170:708)

EDLP:709 Advanced Principles of Curriculum Development (3 Credits)

A second course in curriculum development with an emphasis on the performance competencies needed to engage in curriculum planning and decision making. (Formerly 5170:709)

EDLP:710 Advanced School Law (3 Credits)

An in-depth study of the law as it pertains to the function and role of the administrator as instructional leader; disciplinarian; building, facilities, and auxiliary services manager. (Formerly 5170:710)

EDLP:716 Advanced Evaluation of Educational Organization (3 Credits)

An evaluation course to help educational leaders plan and assess educational priorities and outcomes. (Formerly 5170:716)

EDLP:720 Topical Seminar: Educational Administration (1-3 Credits)

(May be repeated.) Prerequisite: permission of instructor. Topical studies in selected areas of concern to students, practicing administrators in public, private educational institutions, organizations. (Formerly 5170:720)

EDLP:730 Residency Seminar (3 Credits)

Focus on recent research in administration and educational administration theory. (Formerly 5170:730)

EDLP:731 Residency Seminar (3 Credits)

Prerequisite: EDLP 601. Focus on recent research in administration and educational administration theory. (Formerly 5170:731)

EDLP:732 Public & Media Relations in Educational Organizations (3 Credits)

A course in educational public relations intended to help educational leaders facilitate the development of common perceptions about school issues with multiple constituencies. (Formerly 5170:732)

EDLP:740 Theories of Educational Supervision (3 Credits)

Extends EDLP 610, including supervisory models, staff development, and the organizational environment's impact on the climate for effective supervision. (Formerly 5170:740)

EDLP:745 Seminar: Urban Educational Issues (3 Credits)

A study of the linkages between educational organizations and their social contexts, particularly as they relate to educational change. Research project required. (Formerly 5170:745)

EDLP:746 Politics of Education (3 Credits)

Emphasis given to recent efforts to bring about reform at all levels of the educational enterprise and to conceptual perspectives and research findings. (Formerly 5170:746)

EDLP:795 Internship in Educational Administration (1-5 Credits)

Students are required to successfully complete a two-semester internship in a school district chosen by the student and his/her advisor. (Formerly 5170:795)

EDLP:796 Internship in Educational Administration (1-5 Credits)

Students are required to successfully complete a two-semester internship in a school district chosen by the student and his/her advisor. (Formerly 5170:796)

EDLP:895 Doctoral Internship (1-6 Credits)

Candidates for the doctoral degree in educational administration must prepare and complete a research proposal that includes research questions, a literature review, and a research design. They must collect, analyze, and interpret data. (Formerly 5170:895)

EDLP:896 Doctoral Internship (1-6 Credits)

Candidates for the doctoral degree in educational administration must prepare and complete a research proposal that includes research questions, a literature review, and a research design. They must collect, analyze, and interpret data. (Formerly 5170:896)

EDLP:897 Independent Study (1-3 Credits)

Prerequisites: permission of advisor. In-depth study of a research problem in education. Student must be able to demonstrate critical and analytical skills in dealing with a problem in education. (May be repeated for a total of six credits.) (Formerly 5170:897)

EDLP:898 Research Project in Special Areas (1-2 Credits)

Prerequisite: permission of advisor. Critical and in-depth study of specific problem in educational administration. (Formerly 5170:898)

EDLP:899 Doctoral Dissertation (1-20 Credits)

Prerequisite: permission of advisor. Specific research problem that requires student to apply research skills and techniques to the problem being studied. (Formerly 5170:899)

Electrical Engineering (ELEN)

ELEN:541 Digital Communication (3 Credits)

Introduction to digital communication theory and systems. Sampling, formatting and baseband communications. Digital modulation techniques and optimal receivers. Error performance analysis. Error control coding. (Formerly 4400:541)

ELEN:545 Wireless Communications (3 Credits)

Theory and analysis of wireless communication systems, wireless propagation, multiple access, modulation, demodulation, multipath channel characterization, diversity, cellular, and PCS services and standards. (Formerly 4400:545)

ELEN:548 Optical Communication Networks (3 Credits)

Optical waveguides and optical integrated components, optical transmitters and receivers, optical communication network design. (Formerly 4400:548)

ELEN:553 Antenna Theory (3 Credits)

Theory of EM radiation. Wire antennas, arrays, receiving antennas, reciprocity. Integral equations for induced currents, self and mutual impedances. Equivalent principle, radiation from aperture antennas. (Formerly 4400:553)

ELEN:555 Microwaves (4 Credits)

Dynamic fields, Maxwell's equation and wave equations. Field analysis of wave guides, microwave components, techniques and systems. (Formerly 4400:555)

ELEN:561 Optical Electronics and Photonic Devices (3 Credits)

Lightwave engineering, photonic principles and optical electronic device technology. (Formerly 4400:561)

ELEN:572 Control Systems II (4 Credits)

State variable analysis, design of control systems. Discrete systems, analysis, digital computer control. Experiments include hybrid, AC control system, digital computer control. (Formerly 4400:572)

ELEN:583 Power Electronics I (3 Credits)

Elements of power electronics circuits. Rectifiers, converters, inverters analysis and design. (Formerly 4400:583)

ELEN:584 Power Electronics Laboratory & Design Project (2 Credits)

Prerequisite: ELEN 583 or equivalent. Experiments on different types of power electronic converters: AC/DC, DC/DC, DC/AD, and AC/AC. Design project to include design, simulation, building, and testing of a power electronic circuit. (Formerly 4400:584)

ELEN:585 Electric Motor Drives (3 Credits)

Application of electric machines, choice of motor for particular drive. Application of power semiconductor circuits in electric machinery. (Formerly 4400:585)

ELEN:589 Design of Electric and Hybrid Vehicles (3 Credits)

Prerequisite: Permission by Instructor. Principles of electric and hybrid vehicles. Characteristics of electric machines, engines, transmissions, batteries, fuel cells, ultracapacitors. Vehicle control strategies, communication networks, and overall system integration. (Formerly 4400:589)

ELEN:598 Special Topics: Electrical Engineering (1-3 Credits)

(May be taken more than once.) Prerequisite: permission of department chair. Special topics in electrical engineering. (Formerly 4400:598)

ELEN:641 Random Signal Analysis (3 Credits)

Analysis, interpretation and smoothing of engineering data through application of statistical and probability methods. (Formerly 4400:641)

ELEN:642 Imaging System Engineering (3 Credits)

Prerequisite: ELEN 561. Engineering principles of imaging systems, analysis, design, and evaluation of imaging systems, processing techniques, and applications. (Formerly 4400:642)

ELEN:643 Information Theory (3 Credits)

Source and channel models, entropy, relative entropy, mutual information, data compression, random coding bound and channel coding theorem, channel capacity for Gaussian channels, practical coding schemes, network information theory. (Formerly 4400:643)

ELEN:645 Advanced Wireless Communications (3 Credits)

Advanced topics in wireless communications including MIMO, multiuser and cooperative communications. (Formerly 4400:645)

ELEN:646 Digital Signal Processing (3 Credits)

Relations between continuous-and discrete-time Fourier expansions. Sampling, aliasing, sampling rate conversion. Operator concepts in signal processing, all-pass systems, FFT, digital filter design. (Formerly 4400:646)

ELEN:647 Digital Spectral Analysis & Signal Modeling (3 Credits)

Prerequisites: ELEN 646 or permission of instructor. Methods and theory of spectral analysis and signal modeling are investigated in detail. Applications of theory include speech processing, optimal filtering, biomedical systems, digital communications. (Formerly 4400:647)

ELEN:648 Optical Network Architecture (3 Credits)

Prerequisite: ELEN 548. Principles of optical network architecture, analysis, design, control, and fault management. (Formerly 4400:648)

ELEN:649 Error Control Coding (3 Credits)

Error control coding techniques for communications including block codes, cyclic codes, convolutional codes, turbo codes, LDPC codes, coded modulation and iterative decoding. (Formerly 4400:649)

ELEN:650 Electromagnetic Theory I (3 Credits)

Prerequisite: permission of instructor. Electrostatics: uniqueness theorem, boundary-value problems, constructions of Green's functions. Magnetostatics. Electrodynamics: energy and momentum, EM potentials, Stratton-Chu formulation, radiation, dyadic Green's functions. (Formerly 4400:650)

ELEN:651 Electromagnetic Theory II (3 Credits)

Prerequisite: ELEN 650 or permission of the course instructor. Scattering; TEM waves; guided wave theory: transmission lines, closed-boundary guides and cavities, modal orthogonality and completeness, Green's function, excitation and coupling, open-boundary waveguides. (Formerly 4400:651)

ELEN:652 Computer Electromagnetics (3 Credits)

Prerequisite: ELEN 650 or permission of the course instructor. Analytic and numerical techniques for electromagnetic fields, conformal mapping, finite difference method, finite element method, and the method of moments. (Formerly 4400:652)

ELEN:655 Advanced Antenna Theory & Design (3 Credits)

Prerequisite: ELEN 553 or equivalent. Basic properties and recent advances of microstrip antennas. Analysis and design of reflector antennas. Analysis and synthesis of linear and planar antenna arrays. (Formerly 4400:655)

ELEN:666 Simulation of Nanoscale and Moleecular-Scale Systems (3 Credits)

The course describes modern simulation techniques for the analysis of nano-scale phenomena: molecular dynamics, fast algorithms for multiatomic and multiparticle systems, and initio methods in electronic structure calculation. (Formerly 4400:666)

ELEN:673 Nonlinear Control (3 Credits)

Corequisite: ELEN 674 or instructor permission. Designed to provide students with qualitative insights into nonlinear systems as well as techniques for controlling such systems. Topics include describing functions, Popov and circle criteria, jump resonances, subharmonics, phase plane, conservative systems, Lyapunov theory, bifurcation of attractors, and routes to chaos. (Formerly 4400:673)

ELEN:674 Control System Theory (3 Credits)

Prerequisite: instructor permission. Advance modern control theory for linear systems. Controlability, observability, minimal realizations of multivariate systems, stability, state variable feedback, estimation, and an introduction to optimal control. (Formerly 4400:674)

ELEN:677 Optimal Control I (3 Credits)

Prerequisite: ELEN 674. Formulation of optimizational problem; application of variational calculus, maximum principle and optimality principle to control problems. Computational techniques in optimization. (Formerly 4400:677)

ELEN:680 Dynamics & Control of Power Electronic Circuits (3 Credits)

Prerequisites: ELEN 583 or equivalent. Averaged and sampled-data models for rectifiers and DC/DC converters. Small-and large-signal models about the cyclic steady-state. Feedback controls using classical and modern approaches. (Formerly 4400:680)

ELEN:686 Dynamics of Electric Machines (3 Credits)

Prerequisites: graduate status in Electrical Engineering. Voltage and mechanical differential equations of electric machines, analytical and numerical methods for solution of a system of machine differential equations. (Formerly 4400:686)

ELEN:687 Power Electronics II (3 Credits)

Prerequisite: ELEN 583 or equivalent. Effects of the nonidealities of the power circuit components, magnetics, base and gate drives, thyristor commutation circuits, heat transfer and thermal issues. Analysis and design of advanced power circuits. (Formerly 4400:687)

ELEN:688 Control of Electric Machines (3 Credits)

Prerequisites: graduate student in Electrical Engineering. Elements of control circuits for electric drives, techniques for torque/speed control of electric machines. (Formerly 4400:688)

ELEN:689 Power Semiconductor Devices (3 Credits)

Prerequisite: graduate status in Electrical Engineering. Structure and physics of power semiconductor devices: diodes, Bipolar junction transistors, MOSFETs, Thyristors, Power MOS-Bipolar devices (IGT,MCT). Emphasis on the issues that characterize these devices from the lower power semiconductor devices. (Formerly 4400:689)

ELEN:693 Special Problems: Electrical Engineering (1-3 Credits)

(May be taken more than once) Prerequisite: permission of department chair. For a qualified graduate student. Supervised research or investigation in major field of training or experience. Credits dependent upon nature and extent of project. (Formerly 4400:693)

ELEN:697 Engineering Report (2 Credits)

Prerequisite: Permission of advisor. Study of a relevant problem in Electrical and Computer Engineering for students electing the non-thesis Master's option. (Formerly 4400:697)

ELEN:698 Master's Research: Electrical Engineering (1-6 Credits)

Prerequisite: Permission of advisor. (May be repeated.) Research on a suitable topic in electrical engineering culminating in a master's thesis. (Formerly 4400:698)

ELEN:699 Master's Thesis (1-6 Credits)

Prerequisite: permission of department chair. Research and thesis on some suitable topic in electrical engineering. (Formerly 4400:699)

ELEN:753 Topics in Electromagnetics (3 Credits)

Prerequisite: ELEN 651. Introduction to advanced techniques in fields. Topics include application of Green's function techniques and related boundary value problems. (Formerly 4400:753)

ELEN:772 Model Reduction Techniques for Control Systems (3 Credits)

Prerequisite: ELEN 674 or permission of the instructor. Classical, modern, and optimal techniques for computing reduced order models of linear, nonlinear, and infinite dimensional systems. Minimal realizations of multi-variable systems are also considered. (Formerly 4400:772)

ELEN:774 Advanced Linear Control Systems (3 Credits)

Prerequisite: ELEN 674 and a course in Real Analysis or equivalent. Covers topics related to the design of robust control systems. The synthesis of controllers which yield stable closed-loop systems will be considered. The H8-optimality criterion for controller design is included. Special emphasis will be given to the robust stabilization problem and the disturbance attenuation problem. (Formerly 4400:774)

ELEN:775 Robust Control (3 Credits)

Prerequisite: ELEN 674. Input-output and state-space characterizations of robust control systems, and design techniques based on the algebraic Riccati equation. Decentralized and reliable control design methodologies. (Formerly 4400:775)

ELEN:777 Optimal Control II (3 Credits)

Prerequisite: ELEN 677. Advanced state-feedback optimal control. Output-feedback issues, including loop transfer recovery, optimal observer design, reduced-order controllers, frequency weighting, and decentralized control. (Formerly 4400:777)

ELEN:778 Adaptive Control (3 Credits)

Prerequisite: Permission of instructor. This course will provide the advanced graduate student with the techniques required for the control of time-varying nonlinear and stochastic systems. Topics include minimum prediction error control, least squares estimation, certainty equivalence adaptive control. Kalman filtering, minimum variance control, LQG control and stochastic adaptive control. (Formerly 4400:778)

ELEN:779 Advanced Topics in Control (3 Credits)

Prerequisite: ELEN 677. Discussions of recent advances in control systems. (Formerly 4400:779)

ELEN:794 Advanced Seminar: Electrical Engineering (1-3 Credits)

(May be taken more than once) Prerequisite: permission of department chair. Advanced level coverage of specialized topics. For student seeking Ph.D. in engineering. (Formerly 4400:794)

ELEN:898 Preliminary Research (1-15 Credits)

(May be repeated.) Prerequisite: approval of dissertation director. Preliminary investigations prior to submission of a dissertation proposal to the Interdisciplinary Doctoral Committee. (Formerly 4400:898)

ELEN:899 Doctoral Dissertation (1-15 Credits)

(May be repeated.) Prerequisite: acceptance of research proposal by the Interdisciplinary Doctoral Committee and approval of the dissertation director. Original research by the doctoral student. (Formerly 4400:899)

Engineering Applied Mathematics (ENAM)

ENAM:790 Advanced Seminar in Applied Mathematics (1-4 Credits)

Prerequisite: Permission. (May be repeated for a total of 12 credits.) For students seeking graduate degrees in Applied Mathematics. Advanced projects and studies in various areas of applied mathematics. (Formerly 3490:790)

ENAM:898 Preliminary Research (1-15 Credits)

Prerequisite: Permission. (May be repeated.) Completion of qualifying examination and approval of Student Advisory Committee. Preliminary investigation of Ph.D. dissertation topic. (Formerly 3490:898)

ENAM:899 Doctoral Dissertation (1-15 Credits)

Prerequisite: Permission. (May be repeated.) Completion of Candidacy examination and approval of Student Advisory Committee. Original research by a Ph.D. candidate. (Formerly 3490:899)

English (ENGL)

ENGL:500 Anglo Saxon (3 Credits)

Studies in Old English language and Old English prose and poetry, including Beowulf. (Formerly 3300:500)

ENGL:503 Development of Arthurian Legend (3 Credits)

Traces evolution of Arthurian materials from 540 to 1500 and beyond, with emphasis on characters, themes, events and treatments. (Formerly 3300:503)

ENGL:506 Chaucer (3 Credits)

Close study of Chaucer's major works - The Canterbury Tales and Troilus and Criseyde in Middle English. (Formerly 3300:506)

ENGL:507 Middle English Literature (3 Credits)

Study of genres, topics, styles and writers of the Middle English literary works from 12th to 15th centuries. Readings in Middle English. (Formerly 3300:507)

ENGL:521 Swift & Pope (3 Credits)

An intensive study of the major satires of Swift and Pope. Concentration on the rhetorical strategies of each author within the context of the shifting intellectual and cultural milieu at the end of the 17th and beginning of the 18th Centuries. (Formerly 3300:521)

ENGL:524 Early English Fiction (3 Credits)

Development of English novel before 1830. Focus on works of Defoe, Richardson, Fielding, Smollett, Sterne, Austen and Scott. (Formerly 3300:524)

ENGL:530 Victorian Poetry & Prose (3 Credits)

Poetry, prose of the late 19th Century, excluding fiction, with attention to Tennyson, Browning, Arnold, Carlyle, Ruskin and other major writers. (Formerly 3300:530)

ENGL:531 Victorian Fiction (3 Credits)

Reading major novels of Victorian era, of varying length, by Emily Bronte, Dickens, Eliot, Thackeray and Hardy. Characterization, theme and attitude toward life emphasized. (Formerly 3300:531)

ENGL:535 20th Century British Poetry (3 Credits)

Concentrated study of major poems of Yeats, Eliot and Auden, with attention also to Hardy, Housman, Spender, C. Day Lewis, Dylan Thomas and others. (Formerly 3300:535)

ENGL:536 British Fiction: 1900-1925 (3 Credits)

Study of Conrad, Joyce, D.H. Lawrence and Virginia Woolf, with attention to their innovations in narrative and style, their psychological realism and symbolism. (Formerly 3300:536)

ENGL:537 British Fiction Since 1925 (3 Credits)

Study of important British novelists since 1925, excluding Lawrence, Joyce and Woolf. Attention to development of British short story from 1925 to present. (Formerly 3300:537)

ENGL:548 American Romantic Fiction (3 Credits)

Examination of early American fiction, tracing its genesis, romantic period and germinal movements toward realism. Writers discussed include Cooper, Poe, Hawthorne and Melville. (Formerly 3300:548)

ENGL:549 American Fiction: Realism & Naturalism (3 Credits)

Examination of American writers of realistic and naturalistic fiction (e.g. Howells, James, Crane, Dreiser), tracing developments in American fiction against background of cultural and historical change. (Formerly 3300:549)

ENGL:550 Modern American Fiction (3 Credits)

Study of significant American short and long fiction from World War I to the present. (Formerly 3300:550)

ENGL:553 American Women Poets (3 Credits)

Study of modern poets' uses and revisions of tradition, women's relationships, conceptions of art and of the artist-as-woman, and the debate between "public" and "private" poetry. (Formerly 3300:553)

ENGL:556 Thoreau, Emerson and Their Circle (3 Credits)

A study of work and life of Henry David Thoreau, Ralph Waldo Emerson, and other key figures of the American Renaissance. (Formerly 3300:556)

ENGL:557 Writers on Writing (3 Credits)

A close look at what established writers have to say about the process of writing. Students write response essays and take exams on readings. (Formerly 3300:557)

ENGL:560 Film and Literature (3 Credits)

Analysis of literary texts and their film adaptations. Emphasis on genre, structure, and visual elements as counterparts to written texts. (Formerly 3300:560)

ENGL:566 Linguistics and Language Arts (3 Credits)

Foundation course in linguistics with pedagogical implications for second language learners. Fundamental topics (morphology, syntax, semantics, phonetics, pragmatics) and related topics (sociolinguistics, contrastive analysis) covered. (Formerly 3300:566)

ENGL:567 Modern European Fiction (3 Credits)

Representative European writers from about 1850 to present, in translation. Focus on fiction of such writers as Zola, Tolstoy, Dostoyevsky, Mann, Proust, Kafka and Solzhenitsyn. (Formerly 3300:567)

ENGL:568 International Poetry (3 Credits)

This survey of world poetry focuses on the stylistic concerns and social consequences of literature from Latin America, Africa, Asia, Europe, and beyond. (Formerly 3300:568)

ENGL:569 Eros & Love in Early Western Literature (3 Credits)

An analysis of sex and love in the western literature from Greco-Roman times to 1800. Emphasis allegorical, satiric, fantastic or realistic uses of sexuality and "romantic" love. (Formerly 3300:569)

ENGL:570 History of English Language (3 Credits)

Development of English language, from its beginnings: sources of its vocabulary, its sounds, its rules; semantic change; political and social influences on changes; dialect origins; correctness. (Formerly 3300:570)

ENGL:571 U.S. Dialects: Black & White (3 Credits)

Study of differences in pronunciation, vocabulary and grammar among U.S. language varieties. Origins, regional and social dimensions are explored. Correctness, focusing on black English and Appalachian speech, explored. (Formerly 3300:571)

ENGL:572 Syntax (3 Credits)

Principles of syntactic description. Sentence structures are investigated from a variety of languages, with emphasis on English. (Formerly 3300:572)

ENGL:573 Theoretical Foundations and Principles of ESL (3 Credits)

Prerequisites: ENGL 371 or ENGL 466/566. Corequisites: ENGL 371 or ENGL 466/566. Second language acquisition theories and teaching methodologies surveyed. Second language teaching principles from research in linguistics, psycholinguistics, and second language pedagogy explored. (Formerly 3300:573)

ENGL:574 African American English (3 Credits)

African American English grammatical structure, pronunciations, origins, and cultural role. Comparisons with academic English. Discussion of language correctness, legal status, and role in education. (Formerly 3300:574)

ENGL:575 Theory of Rhetoric (3 Credits)

Ancient and modern theories of rhetoric, with attention to classical oration, "topics" of rhetoric and their application to teaching of English. (Formerly 3300:575)

ENGL:577 Sociolinguistics (3 Credits)

Major sociolinguistic concepts and methodology examined, as well as relationships between language, socio-cultural factors, and education. Issues of Standard English, power, and gender also examined. (Formerly 3300:577)

ENGL:578 Grammatical Structures of Modern English (3 Credits)

Contemporary understanding of Modern English sentence structure: parts of speech, sentence types, phrase types, modification, coordination and subordination, parentheticals. Traditional grammar and sentence rhetoric discussed. (Formerly 3300:578)

ENGL:579 Management Reports (3 Credits)

Study of principles and writing practice in effective business style, specialized structure, and purpose for business reports. (Formerly 3300:579)

ENGL:585 Science Fiction (3 Credits)

A study of twentieth-century British and American science fiction, featuring primary forms of the science fiction story and the work of major authors. (Formerly 3300:585)

ENGL:586 Learner English (3 Credits)

Introduction to tools for and practice in analyzing second language learners' production of English. Theory and practice of teaching oral and written English also covered. (Formerly 3300:586)

ENGL:587 Field Experience: Teaching Second Language Learners (3 Credits)

Prerequisite: Permission of the instructor required to enroll. Practical experience in which second language teachers-in-training observe, participate in, and practice teaching under the supervision of the instructor and/or an experienced, certified teacher. (Formerly 3300:587)

ENGL:589 Seminar in English (2-3 Credits)

(May be repeated with different topics.) Special studies, and methods of literary research, in selected areas of English and American literature and language. (Formerly 3300:589)

ENGL:590 Workshop in English (1-3 Credits)

(May be repeated with different topics.) Group studies of special topics in English. Cannot be used to meet undergraduate or graduate major requirements in English; for elective credit only. (Formerly 3300:590)

ENGL:592 Internship in English (1-3 Credits)

Prerequisite: permission of instructor. Graduate internship, including analytical reading and writing focused on liberal arts and career applications of the study of English. May count up to three credit. (Formerly 3300:592)

ENGL:600 Teaching College Composition Practicum (3 Credits)

Prerequisite: teaching assistantship. Orientation and weekly analysis of teaching rationale and practice, limited to teaching assistants in the Department of English. (Credits may not be used to meet M.A. in English degree requirements.) (Formerly 3300:600)

ENGL:610 New Directions in the Teaching of Writing (3 Credits)

This course introduces recent approaches to teaching writing through modes of digital composition, as well as considering composing for audiences with varying access needs. (Formerly 3300:610)

ENGL:611 Argument and Research Writing (3 Credits)

This course introduces students to major theories of argumentation and research writing, with an emphasis on pedagogy. (Formerly 3300:611)

ENGL:615 Shakespearean Drama (3 Credits)

Concentrated study of several Shakespearean plays with emphasis on historical, critical and dramatic documents pertinent to development of Shakespeare's art. (Formerly 3300:615)

ENGL:616 Shakespeare's Contemporaries in English Drama (3 Credits)

Readings in such playwrights as Lyly, Greene, Marlowe, Jonson, Beaumont, Fletcher, Webster, Middleton and Ford and in contemporary writings relevant to theory and practice of drama. (Formerly 3300:616)

ENGL:618 Milton (3 Credits)

Emphasis on Milton's major poems and prose works: Paradise Lost, Paradise Regained, Areopagitica. Student becomes acquainted with Milton the man and Milton the artist. (Formerly 3300:618)

ENGL:619 Seventeenth-Century English Literature (3 Credits)

An examination of seventeenth-century British authors, including Donne, Jonson, Marvell, Milton, Bacon, and Bunyan, their canonical positions, their craft, and their literary criticism. (Formerly 3300:619)

ENGL:620 Autobiography as Literature (3 Credits)

This course examines the genre of autobiography and memoir. A wide representation of autobiographies will be the focus of discussion and analysis. (Formerly 3300:620)

ENGL:625 Autobiographical Writing (3 Credits)

Using a workshop format, this course examines autobiographical essays written by class members. Attention will also be given to the art and craft of writing autobiography. (Formerly 3300:625)

ENGL:627 Keats & Contemporaries (3 Credits)

Writings of John Keats, studied against background of romantic poetic theory and poetry of Keats' contemporaries. (Formerly 3300:627)

ENGL:629 Twentieth Century Literature (3 Credits)

This course introduces students to recent approaches to Twentieth Century Literature. The class is based on three thematic units and includes poetry, fiction, and drama. (Formerly 3300:629)

ENGL:630 Literature of the 1930s (3 Credits)

A study of 1930s American literature in its social context, using recent critical theory to examine relationships between history and literature. (Formerly 3300:630)

ENGL:643 Seminar in James (3 Credits)

A study of Henry James' life and works. Primary emphasis will be on James' fiction, both long and short, early and late; but some attention will also be given to his literary criticism, travel pieces and plays. (Formerly 3300:643)

ENGL:645 Poe and Hawthorne (3 Credits)

Substantial readings from each author: tales, novels, essays, letters, poetry. Also, representative literary criticism about each author. (Formerly 3300:645)

ENGL:646 Whitman & Dickinson (3 Credits)

Students study the work of Walt Whitman, Emily Dickinson, and the appropriate recent scholarship. Students conduct, write about, and present their own scholarly research. (Formerly 3300:646)

ENGL:650 The New Rhetorics (3 Credits)

This seminar examines the impact of rhetorical theory on the study and teaching of writing. We will study works from classical, modern, and postmodern rhetoricians. (Formerly 3300:650)

ENGL:651 The Pragmatists (3 Credits)

This seminar examines the pragmatic roots of composition studies—the "tacit tradition," including classical expressivism, and criticisms of that movement. (Formerly 3300:651)

ENGL:660 Cultural Studies: Theory and Practice (3 Credits)

This course explores the relationship between Cultural Studies and English Studies, examining the impact of Cultural Studies on the practice of textual analysis. (Formerly 3300:660)

ENGL:665 Literary Criticism (3 Credits)

Inquiry into nature and value of literature and problems of practical criticism as represented in major statements of ancient and modern critics. (Formerly 3300:665)

ENGL:670 Modern Linguistics (3 Credits)

Introductory examination of methods and results of modern grammatical research in syntax, semantics, phonology and dialects. Goals include understanding of language variation and background preparation for linguistic studies of literature. (Formerly 3300:670)

ENGL:673 Theories of Composition (3 Credits)

Study of composition theories and research, with attention to their implications for writing and writing instruction. Particular focus on such topics as composing processes, invention, form, style, modes of writing, language varieties and evaluation of writing. Class sessions include discussion of readings and presentations. (Formerly 3300:673)

ENGL:674 Research Methodologies in Composition (3 Credits)

Research methodologies in composition and their application. Students will define research areas, summarize and evaluate work already done, and propose and complete semester research projects. (Formerly 3300:674)

ENGL:675 Writing for MBAs (3 Credits)

Emphasizes managerial writing. Writing tasks are presented as decision-making tools, and students develop strategies for messages to subordinates, analytical reports and messages to outside audiences. (Formerly 3300:675)

ENGL:676 Theory & Teaching of Basic Composition (3 Credits)

Review of current research and exploration of specific instructional methods for teaching basic composition. (Formerly 3300:676)

ENGL:677 Science Writing (3 Credits)

Study of principles and writing practice for effective communication in the physical or social sciences, including purpose, audience, specialized document structure, and oral presentations. (Formerly 3300:677)

ENGL:679 Scholarly Writing (3 Credits)

Study of composing, analyzing and evaluating academic arguments. Practice in specific forms of academic writing such as reviews of research, articles and book reviews. (Formerly 3300:679)

ENGL:683 Seminar in Satire (3 Credits)

A study of satire from the Middle Ages through the late 20th Century, with particular attention to techniques of satiric attack, modes of comedy and irony and literary criticism. (Formerly 3300:683)

ENGL:689 Seminar in English (2-3 Credits)

(May be repeated with change of topics) Special topics within the general field of literature and language, usually focusing on major figures or themes. (Formerly 3300:689)

ENGL:690 Critical Approaches to Literature (3 Credits)

Critical Approaches to Literature is a graduate-level course designed to familiarize high school teachers with strategies for introducing analysis, theory, and research to their students. (Formerly 3300:690)

ENGL:698 Individual Reading in English (1-3 Credits)

Individual study under guidance of professor who directs and coordinates student's reading and research. (Formerly 3300:698)

ENGL:699 Master's Thesis/Capstone (3 Credits)

Prerequisites: 18 credit hours completed in the program and permission of the department. Original work in the field of literature and language, culminating in the completion of either a thesis or a capstone. (Formerly 3300:699)

Entrepreneurship (ENTRE)

ENTRE:510 Selected Topics in Entrepreneurship (1-3 Credits)

Prerequisites: upper-college or graduate standing and MGMT 301 or HRM 600 or equivalent. Facilitates comparative international study of entrepreneurship, introduction of entrepreneurship to large organizations, or application of student's entrepreneurial skills. Six hour limit. (Formerly 6500:510)

ENTRE:608 Entrepreneurship and Innovation (3 Credits)

Prerequisite: Graduate Standing. Students develop skills and abilities that contribute to an entrepreneurial mindset and utilization of innovative problem solving in identifying, validating, and pursuing new opportunities outside and inside organizations. (Formerly 6500:608)

Exercise Science/Exercise Physiology (EXER)

EXER:500 Musculoskeletal Anatomy I: Upper Extremity (3 Credits)

Prerequisites: BIOL 200, BIOL 201, BIOL 202, BIOL 203 and EXER 201. Designed to address the upper portions of the musculoskeletal system in comprehensive detail. Includes articulations, cytology, histology, and neurological integration with lab and practical experiences. (Formerly 5550:500)

EXER:501 Musculoskeletal Anatomy II: Lower Extremity (3 Credits)

Prerequisites: BIOL 200, BIOL 201, BIOL 202, BIOL 203 and EXER 201. Designed to address the lower portions of the musculoskeletal system in comprehensive detail. Includes articulations, cytology, histology, and neurological integration with lab and practical experiences. (Formerly 5550:501)

EXER:505 Advanced Strength and Conditioning (3 Credits)

This course teaches strength and conditioning programs design for heterogeneous populations. The course covers high-level sport specific exercise prescriptions that aids injury prevention and performance enhancement. (Formerly 5550:505)

EXER:518 Cardiorespiratory Function (3 Credits)

This course is designed to study the normal structure and function of the respiratory system and how it is affected by different types of disease. (Formerly 5550:518)

EXER:526 Nutrition for Sports (3 Credits)

This course will provide an explanation of the consumption, absorption, and recommendation for diet of athletes and the physically active individual. (Formerly 5550:526)

EXER:538 Cardiac Rehab Principles (3 Credits)

This course will teach students the core competencies for cardiac rehab professionals, based upon the American Association of Cardiovascular and Pulmonary Rehabilitation Specialists (AAVCP). (Formerly 5550:538)

EXER:540 Injury Management for Teachers & Coaches (2 Credits)

This course challenges the graduate student to understand ways to provide and care for the safety of individual they teach. (Formerly 5550:540)

EXER:541 Advanced Athletic Injury Management: Upper Extremity (4 Credits)

Prerequisites: BIOL 200, BIOL 201, BIOL 202, BIOL 203 and EXER 240. This course is designed to cover recognition, evaluation, and rehabilitation of upper extremity injuries as well as general medical pathologies of the upper extremity. (Formerly 5550:541)

EXER:565 Psychology of Injury Rehabilitation (2 Credits)

Prerequisites: BIOL 200, BIOL 201, BIOL 202, and BIOL 203. This course will address the cognitive and affective aspects of injury and rehabilitation of injury. Specifically the stages of rehabilitation and techniques to aid in the rehabilitation process. (Formerly 5550:565)

EXER:570 Orthopedic Injury and Pathology (3 Credits)

Prerequisites: BIOL 200, BIOL 201, BIOL 202, and BIOL 203. This course will discuss common musculoskeletal pathology and surgical procedure associated with a physically active population. (Formerly 5550:570)

EXER:600 Biomechanics Applied to Sport and Physical Activity (4 Credits)

Training future professionals in an integrated approach to qualitative diagnosis of motor skills for a variety of professional settings. Required clinical/field experiences. (Formerly 5550:600)

EXER:605 Physiology of Muscular Activity & Exercise (3 Credits)

Functions of body systems and physiological effects of exercise. Laboratory experiences, lectures, discussions. (Formerly 5550:605)

EXER:606 Statistics: Quantitative & Qualitative Methods (3 Credits)

Prerequisite: EDFN 640. Research methods/designs, statistics (application and interpretation), use of computers and appropriate software as they relate to various disciplines in the area of physical activity. (Formerly 5550:606)

EXER:607 Health Behavior Change: Theory to Practice (3 Credits)

This course provides an overview of the CAAHEP performance domains and associated competencies related to behavioral strategies for exercise/physical activity adoption, adherence and maintenance. This course prepares students to assess client readiness to change behavior, and to recommend strategies for behavior modification based on fitness level, disease status, and client goals. (Formerly 5550:607)

EXER:612 General Medical Aspects (3 Credits)

Covers various topics related to sports medicine and general medical conditions. Students will gain perspectives and exposure to a variety of allied health care professionals. (Formerly 5550:612)

EXER:615 Exercise Pathophysiology (3 Credits)

This course prepares students for theoretical and practical aspects of applying physical activity as therapeutic exercise for a wide array of conditions and diseases. Course content explores the epidemiology, etiology, pathophysiology, disease implications and therapeutic interventions of cardiovascular, pulmonary, metabolic, immunological, neuromuscular, psychological, sensory and cognitive disorders consisting of both classroom lectures and hands-on laboratory skills. Course material will cover performance domain standards and guidelines aligning with the recommendation of the CAAHEP Committee on Accreditation for Exercise Sciences (CoAES) to prepare students for the Exercise Physiology profession. Focus on clinical contraindications and safety precautions for each disease and illness will be highlighted. The course is designed to provide the student with understanding of the pathophysiology and exercise responses in these populations in preparation for professional work in the community as an applied or clinical exercise physiologist. (Formerly 5550:615)

EXER:618 Clinical Exercise Testing & Prescription (3 Credits)

This course provides the framework to prepared both the Applied and Clinical Exercise Physiologists for theoretical and practical aspects of fitness assessments, evaluations, testing and prescription. Students will become competent in electrocardiography interpretation and exercise testing protocols. This course will cover performance domain standards and guidelines aligning with the recommendation of the CAAHEP Committee on Accreditation for Exercise Sciences (CoAES) to prepare students for the Exercise Physiology profession. (Formerly 5550:618)

EXER:620 Laboratory Instrumentation Techniques in Exercise (3 Credits)

This is a course designed to provide hands-on laboratory experiences for students in the area of exercise science. (Formerly 5550:620)

EXER:680 Special Topics in Health & Physical Education (2-4 Credits)

(May be repeated) Prerequisite: permission of instructor. Group study of special topics in health and physical education and sports medicine. (Formerly 5550:680)

EXER:695 Field Experience: Masters (1-6 Credits)

Prerequisite: permission of advisor. Participation in a work experience related to physical education. The experience may not be part of current position. Documentation of project required. (Formerly 5550:695)

EXER:697 Independent Study: Physical Education (1-3 Credits)

Prerequisite: Permission of advisor. In-depth analysis of current practices or problems related to physical education. Documentation of the study required. (Formerly 5550:697)

EXER:698 Masters Problem (2-4 Credits)

Prerequisite: permission of advisor. In-depth study of a research problem in education. Student must be able to demonstrate critical and analytical skills in dealing with a problem in physical education. (Formerly 5550:698)

EXER:699 Masters Thesis (4-6 Credits)

Prerequisite: permission of advisor. In-depth research investigation. Student must be able to demonstrate necessary competencies to deal with a research problem in physical education. (Formerly 5550:699)

Family and Consumer Sciences (FCSC)

FCSC:507 FCS Occupational Employment Experience (4 Credits)

Provides student with knowledge of current business and industrial practices at level minimally commensurate with employment expectations of graduates of vocational job training programs in Family and Consumer Sciences. (Formerly 7400:507)

FCSC:531 Professional Presentation Skills in Family and Consumer Sciences (3 Credits)

Prerequisite: permission of instructor. Emphasis on development of abilities and strengths in coordination of equipment, materials, motion, speech and presentation delivery relating to education and industry in Family and Consumer Sciences. (Formerly 7400:531)

FCSC:585 Seminar in Family & Consumer Sciences (1-3 Credits)

Prerequisite: permission of instructor. Exploration and evaluation of current developments in selected areas. (Formerly 7400:585)

FCSC:591 Career-Technical FCS Instructional Strategies (3 Credits)

Prerequisites: senior standing or permission. Organization of Career-Technical Family and Consumer Sciences programs in public schools grades 4-12. Emphasis on strategies, compliance with state career-technical directives, student organizations, and program planning. (Formerly 7400:591)

FCSC:598 Student Teaching Seminar (1 Credit)

Corequisite: EDCI 695. Seminar for students currently enrolled in Family and Consumer Sciences student teaching. Emphasis on block and lesson plan development, licensure, portfolio development, Praxis III, professional development, and student teaching reflections. (Formerly 7400:598)

FCSC:604 Orientation to Graduate Studies in Family & Consumer Sciences (1 Credit)

Introduction to the concepts and processes necessary for graduate study in the interdisciplinary field of family and consumer sciences. (Formerly 7400:604)

FCSC:631 Problems in Design (1-3 Credits)

(May be repeated, but no more than 6 credits will apply to M. A.) Prerequisite: written proposal approved by faculty advisor. Individual solution of a specific design problem within the student's area of clothing, textiles and interior specialization. (Formerly 7400:631)

FCSC:634 Material Culture Studies (3 Credits)

Methods of studying clothing, textiles, and interiors from a cultural and historical perspective. (Formerly 7400:634)

FCSC:639 Theories of Fashion (3 Credits)

In-depth analysis of the theories underlying fashion and evaluation of current research related to the study of fashion. (Formerly 7400:639)

FCSC:652 Professional Presentation in Family & Consumer Sciences (3 Credits)

Developing effective home economics professional presentations. Emphasis on visuals, display, demonstrations, public relations materials, user manuals, conference management, portfolio development, and learning styles. (Formerly 7400:652)

FCSC:677 Social Psychology of Dress & the Near Environment (3 Credits)

Study of dress and the near environment as they relate to human behavior at the micro and macro level. (Formerly 7400:677)

FCSC:680 Historical & Conceptual Bases of Family & Consumer Sciences (3 Credits)

History of the field of family and consumer sciences with emphasis on the leaders and the conceptual basis of the field. (Formerly 7400:680)

FCSC:688 Practicum in Family & Consumer Sciences (3 Credits)

Prerequisite: permission of advisor/instructor. A minimum of 150 hours of supervised experience in an approved community setting to acquire skills related to area of specialization. (Formerly 7400:688)

FCSC:690 Thesis Research/Reading (3 Credits)

Prerequisite: permission of thesis advisor. Supervised reading and research related to approved thesis topic. May be repeated once. (Formerly 7400:690)

FCSC:694 Masters Project (5 Credits)

Prerequisite: permission of advisor. The development, implementation and evaluation of a community-based supervised project which makes a significant contribution to the field and may lead to publication. (Formerly 7400:694)

FCSC:696 Individual Investigation in Family & Consumer Sciences (1-3 Credits)

Prerequisite: permission of advisor. Individual investigation and analysis of a specific topic in student's area of specialization of interest under direction of a faculty advisor. (Formerly 7400:696)

FCSC:699 Masters Thesis (5 Credits)

Prerequisite: permission of advisor. Supervised research in a specialized area of family and consumer sciences which makes a contribution to the field and may lead to publication. (Formerly 7400:699)

Finance (FIN)

FIN:537 International Financial Management (3 Credits)

Prerequisite: FIN 602 or ECON 561 or permission of the instructor. This course emphasizes international finance, particularly the impact of exchange rates on economies and businesses. Theory and practice of financial wealth maximization in the international business enterprise. (Formerly 6400:537)

FIN:538 International Markets and Institutions (3 Credits)

Prerequisite: FIN 537 or ECON 561 or permission of instructor. This course emphasizes a broad look at international markets and institutions. This course is a blend of technical and descriptive material. Instructor is aware that students in this class come from a variety of academic backgrounds and preparation, particularly both the finance and the international business areas. (Formerly 6400:538)

FIN:589 Financial Analytics (3 Credits)

Prerequisites: ECON 601 and FIN 602 or permission of the instructor. This course is designed to give students experience in analyzing large datasets using rigorous financial models widely employed in the corporate finance and asset management industries. Using Microsoft Excel spreadsheet software, the course will emphasize the development of computer-based tools rather than the use of existing tools or templates. Students will gain practical experience in analyzing financial data and implementing concepts and theories that are used in the fields of economics and finance. (Formerly 6400:589)

FIN:602 Managerial Finance (3 Credits)

Pre/Corequisite: ACCT 601 or equivalent. FIN 602 may be taken concurrently with ACCT 601. Emphasis on financial decision making related to goal of firm; specifically, the investment decision, the financial decision and the dividend decision. (Formerly 6400:602)

FIN:620 Corporate Financial Reporting (2 Credits)

An introduction to Generally Accepted Accounting Principles (GAAP) and an overview of the construction of financial statements and their use in business decision making. (Formerly 6750:620)

FIN:631 Financial Markets & Institutions (3 Credits)

Prerequisite: FIN 602 or equivalent. A study of major financial markets and financial institutions with an emphasis on the decision making processes within a rapidly changing, but regulated operating environment. (Formerly 6400:631)

FIN:641 Fundamentals of Financial Principles (2 Credits)

Introduction to financial principles needed for effective managerial decision making. (Formerly 6750:641)

FIN:645 Investment Analysis (3 Credits)

Prerequisite: FIN 602 or equivalent. Study of the economic and market forces that influence security prices. Techniques of analysis used in evaluating limited income and equity securities. (Formerly 6400:645)

FIN:646 Financial Strategy in Modern Business (3 Credits)

Prerequisites: FIN 641 and ISM 652. Explores problems faced by the financial manager through identification, analysis, and evaluation of financial resources and strategies consistent with firm goals and shareholder value. (Formerly 6750:645)

FIN:650 Techniques of Financial Modelling (3 Credits)

Prerequisites: ECON 600 and FIN 602. Current techniques and methods of financial analysis are examined, including the use of financial models for short and long run profitability decisions. (Formerly 6400:650)

FIN:674 Strategic Financial Decision Making (3 Credits)

Prerequisite: FIN 602. Examines the role of financial decision makers as strategic consultants to other business units/functions with integrative risk management as a unifying theme. (Formerly 6400:674)

FIN:678 Capital Budgeting (3 Credits)

Prerequisite: FIN 602 or equivalent. Attempt to integrate various theories of capital budgeting into comprehensive conceptual scheme. Theoretical concepts and practical applications blended for better understanding of capital problems. (Formerly 6400:678)

FIN:690 Selected Topics in Finance (3 Credits)

(May be repeated for a total of six credits) Prerequisite: FIN 602 or equivalent. Provides study of contemporary issues and areas not covered in current finance graduate courses. (Formerly 6400:690)

FIN:695 Research in Finance (1-3 Credits)

Prerequisites: [FIN 602 and MGMT 601] or [ECON 626 and ECON 627] or equivalent, or permission of the instructor. Corequisites: RMI 514 or RMI 515 or RMI 616 or FIN 631 or FIN 645 or FIN 650 or FIN 674 or FIN 678. Taken concurrently with or following a 500/600-level field Finance course. Involves independent out-of-class work on a project designed in consultation with the designated graduate-level course instructor. (Formerly 6400:695)

FIN:697 Independent Study in Finance (1-3 Credits)

(May be repeated for a total of six credits) Focus on special topics of study and research in finance on an independent basis. (Formerly 6400:697)

French (FREN)

FREN:502 Advanced French Grammar (3 Credits)

Prerequisite: Graduate status or permission of department. Advanced study of normative French grammar with emphasis on syntax, morphology, grammatical structure and phonetic principles. (Formerly 3520:502)

FREN:513 French Cinema (3 Credits)

Prerequisite: Graduate standing or permission of department. Study and discussion of various aspects of French culture and civilization as characterized in movies. (Formerly 3520:513)

FREN:522 French: Special Topics in Advanced Language Skills, Culture, or Literature (1-4 Credits)

Prerequisite: Graduate standing or permission of department. (May be repeated.) Development of specialized language skills or reading of significant works of literature or culture not studied in other courses. (Formerly 3520:522)

FREN:527 20th Century French Literature. (4 Credits)

Prerequisite: Graduate standing or permission of department. Reading and discussion of the most representative works of period. Conducted in French. (Formerly 3520:527)

FREN:530 Contemporary Quebec (3 Credits)

Historical, political, sociological and cultural overviews of Québec, offering an in-depth examination of questions of identity through the study of literature and popular culture. (Formerly 3520:530)

FREN:531 Francophone Literature (3 Credits)

The problematics of identity (race, class) in a postcolonial context, studied through literary texts by authors from Africa, Caribbean, and Québec. (Formerly 3520:531)

FREN:550 Explication De Textes (3 Credits)

See department for course description. (Formerly 3520:550)

FREN:560 Selected Themes in French Literature (3 Credits)

(May be repeated.) Conducted in French. Prerequisite: Graduate standing or permission of department. Reading and discussion of literary works selected according to an important theme. (Formerly 3520:560)

FREN:597 Individual Reading in French (1-4 Credits)

Prerequisite: Graduate status or permission of department. Individual reading in French, offered at the graduate level. (May be repeated for a total of eight credits.) (Formerly 3520:597)

FREN:697 Individual Reading & Research in French (1-4 Credits)

Prerequisite: Graduate status or permission of department. Independent study and research in specific areas. Considerable reading and writing required. (Formerly 3520:697)

FREN:698 Individual Reading & Research in French (1-4 Credits)

Prerequisite: Graduate status or permission of department. Independent study and research in specific areas. Considerable reading and writing required. (Formerly 3520:698)

General Engineering (GNEN)

GNEN:600 CEPS Graduate Internship (1-3 Credits)

Prerequisite: Student must have completed at least one academic year in the program. Exposure to engineering research practice in industry or federal labs. Credits equivalent to preliminary research, master research, or master project. College of Engineering and Polymer Science approval through the Dean's Office. (Formerly 4100:600)

GNEN:697 Engineering Management Report (2 Credits)

Prerequisite: Permission of advisor. A relevant problem in engineering management is studied in depth. Final report must be approved by advisor and advisory committee. (Formerly 4100:697)

Geography & Planning (GEOG)

GEOG:505 Geographic Information Systems (3 Credits)

Introduction to the principles and concepts underlying geographic information systems (GIS) and their application in professional practice and academic research. Laboratory. (Formerly 3350:505)

GEOG:507 Advanced Geographic Information Systems (3 Credits)

Prerequisite: GEOG 505 or permission. Advanced instruction in the theory and application of geographic information systems (GIS) including hands-on experience with both raster and vector GIS. Laboratory. (Formerly 3350:507)

GEOG:509 Archaeogeophysical Survey (3 Credits)

Prerequisite: Permission. Advanced instruction in subsurface geophysical survey techniques in archaeology. Emphasis on magnetic gradiometry and electrical resistivity techniques, image processing and geological and archaeological interpretation. (Formerly 3350:509)

GEOG:515 Environmental Planning (3 Credits)

Scientific and technical principles for decision-making in planning, with emphasis on soils, land use, and water quality issues. Data sources and methods of site evaluation. (Formerly 3350:515)

GEOG:520 Urban Geography (3 Credits)

Spatial structure of urban systems; interaction between cities; internal structure of cities. Perspectives on urban change; contemporary urban geographic problems; urban and regional planning issues. (Formerly 3350:520)

GEOG:522 Transportation Systems Planning (3 Credits)

Study and analysis of transportation systems from a geographic perspective. Emphasis on transportation problems and issues, elements of transportation planning. (Formerly 3350:522)

GEOG:524 Military Geography (3 Credits)

Influence of physical and human geography on military operations and military history. Role played by geography in international conflicts. (Formerly 3350:524)

GEOG:532 Land Use Planning Law (3 Credits)

Acquaint student with past and present approaches to land use control in the United States and examine the political, economic, social and legal forces which have shaped existing land-use legislation. (Formerly 3350:532)

GEOG:533 Practical Approaches to Planning (3 Credits)

Role of geographic investigation in city, regional and resource planning. (Formerly 3350:533)

GEOG:537 Planning Analysis & Projection Methods (3 Credits)

Introduction to the primary analytic techniques for small-area demographic and economic analysis and projection. (Formerly 3350:537)

GEOG:538 Land Use Planning Methods (3 Credits)

Application of GIS and other computer-based tools to the preparation, implementation and evaluation of comprehensive land use plans. (Formerly 3350:538)

GEOG:539 History of Urban Design & Planning (3 Credits)

Origins of human settlements and planning from the perspective of urban design and related societal trends. Comparison of world regional and historical urban forms. Experience in "reading" settlements as visual landscapes. (Formerly 3350:539)

GEOG:540 Cartography (3 Credits)

Theoretical and practical applications of cartographic principles used to design and produce maps for research reports, public presentations, publication, and other professional uses. (Formerly 3350:540)

GEOG:541 Global Positioning Systems (GPS) (1 Credit)

Fundamentals of Global Positioning System (GPS), with emphasis on geographic and planning activities. Includes hands-on exercises. (Formerly 3350:541)

GEOG:542 Cartographic Theory & Design (3 Credits)

Prerequisite: GEOG 540 or permission of instructor. Principles and techniques of thematic mapping. Stresses maps as communication tools. Examines principal thematic mapping techniques and means of presenting quantitative and qualitative data. Laboratory. (Formerly 3350:542)

GEOG:543 Urban Applications in GIS (3 Credits)

Prerequisite: GEOG 505 or permission. Applications of GIS in the urban context, including methods used for analysis of population density gradients, migration, and accessibility. (Formerly 3350:543)

GEOG:544 Applications in Cartography & Geographic Information Systems (3 Credits)

Prerequisites: GEOG 505 and GEOG 540 or permission. Application of analytic and presentation techniques from cartography and geographic information systems to practical problems in geography and planning. Laboratory. (Formerly 3350:544)

GEOG:545 GIS Database Design (3 Credits)

Prerequisite: GEOG 505 or permission. Introduction to theory and concepts of geographic data modeling, geodatabase design, and topology. Emphasis on current practices and methodologies in geography and planning. (Formerly 3350:545)

GEOG:546 GIS Programming and Customization (3 Credits)

Prerequisite: GEOG 505 or permission. Introduction to use of scripting languages for customizing the interface and extending the functionality of desktop GIS software. (Formerly 3350:546)

GEOG:547 Remote Sensing (3 Credits)

Concepts, systems, and methods of applying aerial photography, satellite imagery, and other remote-sensing data for analyzing geographic, geological, and other earth phenomena. (Formerly 3350:547)

GEOG:549 Advanced Remote Sensing (3 Credits)

Prerequisite: GEOG 547 or permission. Current research in remote sensing. Applications in study of human cultural and biophysical environment. Practice in planning, design, execution and interpretation of remote sensing studies. (Laboratory.) (Formerly 3350:549)

GEOG:550 Development Planning (3 Credits)

A study of planning concepts and techniques for developing countries, including growth and development, planning agencies, regional inequities and alternative approaches. (Formerly 3350:550)

GEOG:560 Political Geography (3 Credits)

Principles and theory in contemporary domestic and international political geographies. Emphasis on the changing local and global patterns of electoral politics, security, and diplomacy. (Formerly 3350:560)

GEOG:581 Research Methods in Geography & Planning (3 Credits)

Investigation of library and archive resources. Emphasis on development of professional writing skills. (Formerly 3350:581)

GEOG:583 Spatial Analysis (3 Credits)

Analysis of mapped statistical surfaces. Principles for use of map as model for statistical evidence, prediction, hypothesis testing. (Formerly 3350:583)

GEOG:589 Special Topics in Geography (1-3 Credits)

(May be repeated) Selected topics of interest in geography. (Formerly 3350:589)

GEOG:590 Workshop in Geography (1-3 Credits)

(May be repeated for a total of six credits) Group studies of special topics in geography. (Formerly 3350:590)

GEOG:595 Soil & Water Field Studies (3 Credits)

Properties, origins and uses of major soil and water regime landscapes. Stresses relationships between soil and the hydrological cycle, urbanization, suburbanization and agriculture. Field trips required. (Formerly 3350:595)

GEOG:596 Field Research Methods (3 Credits)

Field work enabling student to become competent in collecting, organizing and analysis of data while carrying out field research projects. Field trips required. (Formerly 3350:596)

GEOG:597 Regional Field Studies (1-3 Credits)

Off-campus intensive study of geographic features of a region or regions through direct observations and travel using appropriate field study methods. (repeatable up to 6 credits) (Formerly 3350:597)

GEOG:600 Seminar in Geography and Planning (3 Credits)

(May be repeated for a maximum of six credits each) Prerequisite: permission. Investigation and analysis of selected topics in particular fields of geography. Specialization indicated by second portion of title. (Formerly 3350:600)

GEOG:601 Seminar in Geography and Planning (3 Credits)

(May be repeated for a maximum of six credits each) Prerequisite: permission. Investigation and analysis of selected topics in particular fields of geography. Specialization indicated by second portion of title. (Formerly 3350:601)

GEOG:630 Planning Theory (3 Credits)

Introduction to the political, institutional and ethical foundations and procedural theories of urban and regional planning. (Formerly 3350:630)

GEOG:631 Facilities Planning (3 Credits)

Study of need, process and limitation of urban facilities planning. (Formerly 3350:631)

GEOG:633 Comparative Planning (3 Credits)

A survey of national, regional and local planning implementation measures in use in the developed world. Particular attention will be given to the planning experiences of European nations and their impact on American planning theory and practice. (Formerly 3350:633)

GEOG:680 Advanced Spatial Analysis (3 Credits)

Prerequisite: GEOG 583 or permission. Advanced concepts and methodologies in geographic research. Emphasis on quantitative revolution in geographical analysis including multivariate procedures as factor, discriminant and economical analysis, and multidimensional scaling. (Formerly 3350:680)

GEOG:685 Planning Internship (3 Credits)

Prerequisite: permission. Individual experience in selected planning agencies for supervised performance in professional planning work. (May be repeated but only 3 credits may be applied to total credit hours needed for degree requirements.) Credit/Non-Credit. (Formerly 3350:685)

GEOG:687 History of Geographic Thought (3 Credits)

Critical review of major developments in geographic concepts from ancient times to present. (Formerly 3350:687)

GEOG:695 Graduate Colloquium (1 Credit)

(May be repeated for a maximum of four credits.) Lecture series on topics of interest in geography and planning, by academic and non-academic professionals for both faculty and students. Does not satisfy degree requirements. Credit/noncredit. (Formerly 3350:695)

GEOG:698 Individual Reading & Research (1-3 Credits)

(May be repeated for a total of six credits) Prerequisite: permission of instructor. Intensive investigation of selected topics under guidance of faculty member. (Formerly 3350:698)

GEOG:699 Thesis Research (1-6 Credits)

Independent and original work toward a thesis. (Formerly 3350:699)

Geology (GEOL)

GEOL:505 Archaeological Geology (3 Credits)

Prerequisite: admission to Geology Master's program or permission. Provides background in geologic principles and techniques relevant to archaeologists. Topics include stratigraphy, absolute dating, locality assessment, zooarchaeology, taphonomy, and remote sensing. Required lab, field trips. (Formerly 3370:505)

GEOL:507 Archaeogeophysical Survey (3 Credits)

Prerequisite: admission to Geology Master's program or permission. Advanced instruction in subsurface geophysical survey techniques in archaeology. Emphasis on magnetic gradiometry and electrical resistivity techniques, image processing and geological and archaeological interpretation. (Formerly 3370:507)

GEOL:510 Regional Geology of North America (3 Credits)

Prerequisite: admission to Geology Master's program or permission. Examination of physiographic provinces of North America emphasizing structure, tectonic setting, stratigraphy and processes responsible for landforms in each province. Laboratory, field trips. (Formerly 3370:510)

GEOL:511 Glacial Geology (3 Credits)

Prerequisite: admission to Geology Master's program or permission. Causes and effects of Pleistocene expansion of polar ice masses with emphasis on glacial deposits and world climatic changes. Field trips. (Formerly 3370:511)

GEOL:521 Coastal Geology (3 Credits)

Prerequisite: admission to Geology Master's program or permission. Study of the origins and evolution of coasts and coastal deposits with particular attention paid to the interaction of waves and currents with sediment, and the development of associated sedimentary features. Field trips. (Formerly 3370:521)

GEOL:525 Principles of Sedimentary Basin Analysis (3 Credits)

Prerequisite: admission to Geology Master's program or permission. Primarily the study of depositional systems, regional and global stratigraphic cycles, and sedimentation and plate tectonics. (Formerly 3370:525)

GEOL:532 Optical Mineralogy - Introductory Petrology (3 Credits)

Prerequisite: Admission to Geology Master's program or permission. Optical techniques for identification, characterization, and classification of minerals and rocks using the petrography microscope. Laboratory. (Formerly 3370:532)

GEOL:533 Advanced Petrology (3 Credits)

Prerequisite: GEOL 532. Petrogenesis of igneous, metamorphic and sedimentary rocks as determined by microscopic studies of textures and mineral assemblages using thin section. Laboratory. (Formerly 3370:533)

GEOL:535 Petroleum Geology (3 Credits)

Prerequisite: admission to Geology Master's program or permission. Natural occurrences of petroleum. Characteristics, origin, entrapment and exploration methods. Laboratory, field trips. (Formerly 3370:535)

GEOL:536 Coal Geology (3 Credits)

Prerequisite: admission to Geology Master's program or permission. Origin, composition and occurrence of coal with emphasis on depositional environments, coalification processes, exploration, evaluation and exploitation. Laboratory, field trips. (Formerly 3370:536)

GEOL:537 Economic Geology (3 Credits)

Prerequisite: admission to Geology Master's program or permission. Study of metallic and nonmetallic mineral deposits emphasizing paragenesis and exploration. Laboratory, field trips. (Formerly 3370:537)

GEOL:541 Fundamentals of Geophysics (3 Credits)

Prerequisite: admission to Geology Master's program or permission. Fundamental concepts in solid earth geophysics, planetary physics, geodesy, and geomagnetism. Contributions of geophysics to recent major developments in geoscience. (Formerly 3370:541)

GEOL:543 Rivers (3 Credits)

Prerequisites: Permission of department. Study of the geologic and environmental aspects of river systems and related human impacts. Includes mandatory, 0 credit weekend field work. (Formerly 3370:543)

GEOL:544 Environmental Magnetism (3 Credits)

Prerequisite: admission to Geology Master's program or permission. Introduction to the theory and methods of environmental magnetism and the application of environmental magnetism to interpreting sedimentary deposits. (Formerly 3370:544)

GEOL:545 Environmental and Engineering Geophysics (3 Credits)

Advanced subsurface exploration using ground penetrating radar and multi-channel electrical resistivity. Applications in environmental assessment, civil engineering and geotechnical engineering. Field trips. (Formerly 3370:545)

GEOL:546 Exploration Geophysics (3 Credits)

Prerequisite: admission to Geology Master's program or permission. Basic principles and techniques of geophysical exploration with emphasis on gravimetric, magnetic, seismic and electrical methods and application to geological problems. Laboratory, field trips. (Formerly 3370:546)

GEOL:550 Advanced Structural Geology (3 Credits)

Prerequisite: admission to Geology Master's program or permission. Fundamental and advanced concepts of structural geology with emphasis on current and developing concepts. Laboratory, field trips. (Formerly 3370:550)

GEOL:551 Field/Lab Studies in Environmental Science (3 Credits)

Prerequisite: permission of instructor. Field/Laboratory inquiry into a specific interdisciplinary, environmental science topic. Students complete a research project involving collecting, analyzing and interpreting real world data. (May be repeated once.) (Formerly 3370:551)

GEOL:552 Geology and Environmental Science Service Learning (1-3 Credits)

Graduate students gain experience as project managers for class projects by designing research plans, supervising data collection, lab analyses and preparing final project reports. (Formerly 3370:552)

GEOL:553 Geology Field Camp I (3 Credits)

Prerequisite: admission to Geology Master's program and permission of instructor. Introduction to collection and interpretation of field data and construction of geologic maps. (Formerly 3370:553)

GEOL:554 Geology Field Camp II (3 Credits)

Prerequisite: admission to Geology Master's program and permission of instructor. Advanced techniques and methods of field geology necessary for interpreting detailed geological maps. (Formerly 3370:554)

GEOL:555 Field Studies in Geology (1-3 Credits)

Prerequisite: Permission of instructor. Field trip course emphasizing aspects of geology not readily studied in Ohio. Includes pre-trip preparation and post-trip examination. Student will bear trip expenses. (May be repeated for up to four credits.) (Formerly 3370:555)

GEOL:562 Macroevolution (3 Credits)

Prerequisite: admission to Geology Master's program or permission. Provides a comprehensive treatment of macroevolutionary theory, focusing on evidence from the fossil record. Topics include genetics, speciation, development, and fossil lineages. Laboratory. (Formerly 3370:562)

GEOL:563 Environmental Micropaleontology (3 Credits)

Prerequisite: admission to Geology Master's program or permission. Introduction to techniques of micropaleontology evolution and paleoecology of selected microfossil groups. Laboratory, field trips. (Formerly 3370:563)

GEOL:565 Geomicrobiology (3 Credits)

Prerequisite: Graduate standing. A course addressing the physiology, ecology, and activities of microorganisms that mediate important biogeochemical processes, and the interdisciplinary approaches to studying them. (Formerly 3370:565)

GEOL:570 Geochemistry (3 Credits)

Prerequisite: admission to Geology Master's program or permission. Application of chemical principles to the study of geologic processes. Laboratory, field trips. (Formerly 3370:570)

GEOL:572 Stable Isotope Geochemistry (3 Credits)

Prerequisite: admission to Geology Master's program or permission. Application of stable isotope geochemistry to the study of the hydrologic and carbon cycles, modern sedimentary environments, and the interpretation of sedimentary rocks. (Formerly 3370:572)

GEOL:574 Groundwater Hydrology (3 Credits)

Prerequisite: admission to Geology Master's program or permission. Origin, occurrence, regimen and utilization of groundwater. Qualitative and quantitative presentation of geological and geochemical aspects of groundwater hydrology. Laboratory, field trips. (Formerly 3370:574)

GEOL:580 Seminar in Environmental Studies (2 Credits)

Prerequisite: Graduate status. Discussion of specific environmental topic(s) from an interdisciplinary viewpoint; resource persons are drawn from the University and surrounding community. (Formerly 3370:580)

GEOL:581 Analytical Methods in Geology (2 Credits)

Prerequisite: admission to Geology Master's program or permission. A survey of analytical methods used to solve geologic problems with emphasis on method selection, proper sample collection, analysis of data quality and data presentation. (Formerly 3370:581)

GEOL:584 Geoscience Research & Consulting Methods (2 Credits)

Prerequisite: Must be a Geology Department graduate student or senior major in geology, or have permission of instructor. Methods for finding, gathering, managing, and evaluating geoscience information. Emphasis on finding data sources (including electronic), creating valid data sets, visualizing data. (Formerly 3370:584)

GEOL:585 Individual Readings in Geology (1-4 Credits)

Prerequisite: permission of graduate advisor required. (May be repeated for a total of 8 credits; credits may not be used to meet degree requirements.) Directed reading to fit individual student programs. Credit/Noncredit. (Formerly 3370:585)

GEOL:590 Workshop in Geology and Environmental Science (1-3 Credits)

Group studies of special topics in geology and environmental science. May not be used to meet graduate degree requirements in the Department. May be used for elective credit only. (May be repeated.) (Formerly 3370:590)

GEOL:591 Graduate Internship in Geology and Environmental Science (1-3 Credits)

Prerequisite: Permission of the Chair. Supervised professional experience in geology or geophysics. (May only apply three credits toward minimum graduate requirements in Geology and Environmental Science.) (Formerly 3370:591)

GEOL:631 Rocks & Minerals (4 Credits)

Prerequisite: admission to Geology Master's program or permission. Intensive course integrating crystallography, mineralogy and petrology for the science teacher and graduate student from disciplines other than geology. Laboratory. (Formerly 3370:631)

GEOL:639 Nuclear Geology (3 Credits)

(Two hour lecture, three hour laboratory) Prerequisites: minimum of seven credits in chemistry, eight credits in physics, eight credits in calculus and eight credits in geology or permission. Discusses nature of radioactive and stable isotopes, their applications in geology, radioactive minerals, radioactive background and disposal of radioactive wastes. Nuclear analytical techniques will also be discussed; lecture, laboratory and field study. (Formerly 3370:639)

GEOL:643 Geostatistics (3 Credits)

Prerequisite: admission to Geology Master's program or permission. Application of statistical methods to geology and geophysics including tests of hypotheses, trend surface analysis, analysis of variance, nonparametric statistics and time series analysis. (Formerly 3370:643)

GEOL:655 Advanced Field Studies in Geology (1-3 Credits)

Prerequisite: Permission of instructor. Field trip course studying aspects of geology not seen in Ohio; includes pre- and post-trip academic activities. Students will bear costs. (May be repeated for a total of four credits.) (Formerly 3370:655)

GEOL:656 Global Tectonics (3 Credits)

Prerequisite: admission to Geology Master's program or permission. Theoretical study of physical forces involved in formation and deformation of earth's crust with emphasis on plate tectonics and associated diastrophic features. (Formerly 3370:656)

GEOL:661 Geologic Record of Past Global Change (3 Credits)

Prerequisite: equivalent of baccalaureate degree in geology or permission of instructor. Study of the geologic record of past global climate and environmental change from geochemical, paleontological, sedimentological and other geological evidence. (Formerly 3370:661)

GEOL:674 Advanced Ground Water Hydrology (3 Credits)

Prerequisite: admission to Geology Master's program or permission. Study of water table and artesian aquifers under steady and nonsteady state conditions. Collection and evaluation of field data with regard to theory. Water well and well field design. Laboratory and field work. (Formerly 3370:674)

GEOL:680 Seminar in Geology (2 Credits)

(May be repeated for a total of six credits) Selected topics with reference material from original sources. (Formerly 3370:680)

GEOL:684 Selected Topics in Geology (1-3 Credits)

(May be repeated for a total of eight credits) Prerequisite: permission. Topics not regularly offered as formal courses, generally of classic current importance. Entails lectures, readings, discussions and/or guided laboratory work. (Formerly 3370:684)

GEOL:685 Advanced Individual Readings in Geology (1-4 Credits)

Prerequisite: Permission of graduate advisor. Directed readings to fit individual student programs. (May be repeated for a maximum of nine credits.) (Formerly 3370:685)

GEOL:688 Geology Teaching Practicum (2 Credits)

Corequisite: graduate assistantship. Training and experience in college teaching of geology under supervision of experienced faculty. May be repeated for a maximum of 8 credits. Credits may not be used to meet degree requirements. Credit/Noncredit. (Formerly 3370:688)

GEOL:696 Geology Colloquium (1 Credit)

Lecture on current topics in geological sciences and thesis proposals and defenses by graduate students. May be repeated. Does not satisfy degree requirements. (Formerly 3370:696)

GEOL:698 Graduate Research Problems (1-3 Credits)

(May be repeated for a total of six credits) Prerequisite: permission. Directed reading and research in an aspect of geology chosen by student in consultation with an instructor. (Formerly 3370:698)

GEOL:699 Master's Thesis (1-6 Credits)

Independent and original investigation. Must be successfully completed, report written and defended before a committee. (Formerly 3370:699)

German (GERM)

GERM:597 Individual Reading in German (1-4 Credits)

Prerequisite: Graduate status or permission of department. Individual reading in German, offered at the graduate level. (May be repeated for a total of eight credits.) (Formerly 3530:597)

Health Care Management (HCM)

HCM:585 Special Topics in Health Services Administration (1-3 Credits)

Prerequisite: permission of instructor. Special topics in health services administration (e.g., management) focusing on historical and/or contemporary managerial organizational and/or policy/strategy issues as related to health-care organizations and health-care systems. Separate topics may be repeated for a maximum of six credits. For those registered for graduate credit, a major research paper is required. (Formerly 6500:585)

HCM:681 Foundations of Health Care Leadership (3 Credits)

Introductory course for health professionals covering principles and concepts of management applied to health services organizations. (Formerly 6500:681)

HCM:683 Health Services Systems Management (3 Credits)

Prerequisite: Graduate Standing. Study of health services organizations, comparative delivery systems, the roles of third-party payors and government policy in health care. Seminar format: major research paper required. (Formerly 6500:683)

HCM:686 Health Services Research Project (3 Credits)

Prerequisite: HCM 683 or permission of instructor. In-depth field study in health services administration with applications of research and analysis skills. Course requires review of literature and a major research paper. (Formerly 6500:686)

HCM:688 Independent Study: Health Services Administration (1-3 Credits)

(May not be repeated for more than three credits) Prerequisites: HCM 681 or HRM 600 or equivalent or permission of instructor. Independent study and research of a special topic of interest in health services administration (e.g., management), chosen by the student in consultation with and under the supervision of the instructor. (Formerly 6500:688)

Health Education (HEDU)

HEDU:520 Community Health (2 Credits)

Study of current public health problems. Organization and administration of various agencies and their roles in the solution of community health problems. (Formerly 5570:520)

HEDU:521 Comprehensive School Health (4 Credits)

Prerequisite: admission to Graduate School. This course explains and presents comprehensive school health curricula for K-12. The three components of a comprehensive school health program are presented; instruction, services, and the environment. (Formerly 5570:521)

HEDU:523 Methods & Materials Teaching Health Education (3 Credits)

Prerequisite: permission of instructor. Planning, organization, use of instructional resources and delivery of health education content and teaching processes (pre K-12).(Formerly 5570:523)

HEDU:560 Practicum in Health Education (2-6 Credits)

Prerequisite: permission of instructor. The practicum in Health Education is an on-site participation in a community health organization, agency, or resource. (Formerly 5570:560)

History (HIST)

HIST:500 Gender and Culture in China (3 Credits)

Prerequisite: graduate standing. This course examines the dynamic between gender and culture from late imperial to post-socialist China, with connections drawn to public policies in different periods. (Formerly 3400:500)

HIST:501 Japan & the Pacific War, 1895-1945 (3 Credits)

The rise of Japanese militarism, Japan's drive to create an empire in East and Southeast Asia, 1895-1945, and its role in the Pacific War, 1937-1945. (Formerly 3400:501)

HIST:504 Studies in Roman History (3 Credits)

Concentrated investigation of selected topics such as imperialism in middle and late Republic, the age of Augustus, or the fall of western Empire. (Formerly 3400:504)

HIST:509 Imperial Spain, 1469-1700 (3 Credits)

Prerequisite: For M.A. and Ph.D. students only. This course examines the rise and fall of Spain as the first world power. It covers Spanish political, cultural, and social history, 1469-1700. (Formerly 3400:509)

HIST:510 History and Film (3 Credits)

Examines films as historical experiences, historical events, and artifacts of history. Themes and foci will vary. Repeatable once with permission. (Formerly 3400:510)

HIST:516 Modern India (3 Credits)

History of the Indian subcontinent from c.1500 with emphasis on Indian society and culture, British imperialism, and the emergence of Indian nationalism. (Formerly 3400:516)

HIST:517 Latin America and the United States (3 Credits)

Prerequisite: graduate standing. Inter-American relations viewed from Latin American and US perspectives; US policy, imperialism; economic and cultural influences. Historiography of US-Latin American relations examined. (Formerly 3400:517)

HIST:518 History of Brazil Since 1500 (3 Credits)

Survey of the economic, political, social and cultural history of Brazil since 1500 to the present; the course also examines historiographical debates in Brazilian history. (Formerly 3400:518)

HIST:524 The Renaissance (3 Credits)

The age of transition from the Middle Ages to modern times (1350-1600). Special emphasis on intellectual trends, the development of humanism, and the fine arts. (Formerly 3400:524)

HIST:525 The Reformation (3 Credits)

Europe in 16th Century; its religious, cultural, political and diplomatic development, with special emphasis on Protestant, Anglican and Catholic reformations. (Formerly 3400:525)

HIST:529 Europe in the French Revolutionary Era, 1789-1815 (3 Credits)

Development of Revolution; Napoleon's regime and satellites. (Formerly 3400:529)

HIST:538 Nazi Germany (3 Credits)

This course covers the social, economic, and political history of Germany from World War I to 1945 with emphasis on the Third Reich. (Formerly 3400:538)

HIST:540 Tudor & Stuart Britain, 1485-1714 (3 Credits)

An examination of the development of, and increasing links between the British kingdoms in the early modern period, with emphasis on culture, politics, and religion. (Formerly 3400:540)

HIST:543 Churchill's England (3 Credits)

An examination of the changes that Britain experienced during the life of Winston Churchill, 1874-1965. Emphasis is on cultural, social, and political developments. (Formerly 3400:543)

HIST:551 Colonial American History (3 Credits)

This course covers the history of colonial America from the first European contact in the Americas in 1492 to the onset of the American Revolution. (Formerly 3400:551)

HIST:552 American Revolutionary Era (3 Credits)

The struggle for the rights of colonists and independence; the impact of war on American society and the creation of republican institutions. (Formerly 3400:552)

HIST:553 The Early American Republic (3 Credits)

Prerequisite: Graduate student status. The evolution of the American republic from its early beginnings after the American Revolution to the antebellum era. Emphasis upon political, social, and cultural developments. (Formerly 3400:553)

HIST:554 The Civil War & Reconstruction, 1850-1877 (4 Credits)

Sectionalism, slavery and the causes of the Civil War; wartime activities of the Union and Confederacy; leading personalities; problems of reconstruction and the new Union. (Formerly 3400:554)

HIST:555 The Origins of Modern America, 1877-1917 (3 Credits)

United States from Reconstruction Era to World War I (1877-1920); emphasis on political responses to rise of an industrialized-urbanized society, the populist and progressive movements. (Formerly 3400:555)

HIST:556 America in World Wars & Depression, 1917-1945 (3 Credits)

World War I and Versailles; the 1920s, the Great Depression and the New Deal; World War II. (Formerly 3400:556)

HIST:557 The United States since 1945 (3 Credits)

Nuclear age, cold war, foreign policy and domestic affairs to present. Social, political, constitutional, diplomatic, cultural and economic changes since 1945. (Formerly 3400:557)

HIST:561 The United States as a World Power (3 Credits)

This course analyzes the emergence and functioning of the United States as a world power, with particular emphasis on the twentieth century. (Formerly 3400:561)

HIST:563 United States Constitutional History (3 Credits)

This course examines the evolution of constitutional government from the drafting of the U.S. Constitution (1787) to present. (Formerly 3400:563)

HIST:565 American Economy Since 1900 (3 Credits)

Survey of economic developments since 1900; topics include agriculture, business and labor. Special emphasis on role of big business and evolution of monetary and fiscal policy. (Formerly 3400:565)

HIST:567 History of American Pop Culture (3 Credits)

Historical analysis of mass cultural phenomena and the social experiences associated with mass technologies that transformed modern American life in the nineteenth and twentieth centuries. (Formerly 3400:567)

HIST:568 African-American Social and Intellectual History (3 Credits)

Examination of black thought and activities reflective of African-American culture, conditions facing black people within America and efforts toward coordinated black activity. (Formerly 3400:568)

HIST:569 African-American Women's History (3 Credits)

Study of black American women's lives from colonial times to the present featuring autobiographical, fictional and secondary works authored by black women. (Formerly 3400:569)

HIST:570 Ohio History (3 Credits)

Political, social, economic and intellectual history of Ohio, with special emphasis on Ohio's relationship to Old Northwest and to the nation. (Formerly 3400:570)

HIST:571 American Environmental History (3 Credits)

Utilization, conservation of natural resources from beginnings of American society to present; combination of economic, technological history of extensive treatment of public policy, environmental issues. (Formerly 3400:571)

HIST:575 Mexico (3 Credits)

History of Mexico from Indian civilizations to present with emphasis on relations with United States; social and political ramifications of the 20th Century Mexican revolution. (Formerly 3400:575)

HIST:576 Central America & the Caribbean (3 Credits)

Selected aspects of the histories of Central American and Caribbean countries with emphasis on populist and peasant movements, political reform, social revolution, economic and underdevelopment, and relations with the United States. (Formerly 3400:576)

HIST:582 War & Western Civilization (3 Credits)

War and society in Europe, America and beyond from ancient world to present with special emphasis on period since 1740. (Formerly 3400:582)

HIST:583 History and Video Games (3 Credits)

Examines the presentation of history in video games analyzing them for accuracy, bias, structural limitations, and utility as teaching tools. (Formerly 3400:583)

HIST:584 Museums and Archives (3 Credits)

This course will focus on the work of history museums, historical societies and historic house museums, and archives. (Formerly 3400:584)

HIST:585 History, Communities, and Memory (3 Credits)

Course examines the interactions between the work of academic historians and the public in areas such as local history, monuments, oral history, film, and the internet. (Formerly 3400:585)

HIST:587 Science and Technology in World History (3 Credits)

This course examines the development and diffusion of science and technology in human history, its impact on society, culture, and daily life. (Formerly 3400:587)

HIST:589 Ottoman State and Society (3 Credits)

Explores political, economic, and social dynamics of one of the world's most enduring and expansive multiethnic empires. (Formerly 3400:589)

HIST:593 Special Studies: North American History (3 Credits)

Prerequisite: Graduate student status. Special studies in the history of North America (Rio Grande to the Arctic). See department office for information on particular offerings. (Formerly 3400:593)

HIST:594 Workshop in History (1-3 Credits)

(May be repeated) Group studies of special subjects pertaining to history. May be used for elective credit only. May not be used to meet undergraduate or graduate major requirements in history. (Formerly 3400:594)

HIST:595 Special Studies: European History (3 Credits)

Prerequisite: Graduate student status. Special studies in European history (from the fall of the Roman Empire to the present). See department office for information on particular offerings. (Formerly 3400:595)

HIST:596 Special Studies in History: Other (3 Credits)

Prerequisite: Graduate status Special studies in the history of Latin America, Asia, Africa, or the Pacific. See department office for information on particular offerings. (Formerly 3400:596)

HIST:598 Race, Nation, and Class in the Middle East (3 Credits)

This course analyzes identity politics and the development of the ideas of race, nation, and class in the Middle East from a historical perspective. (Formerly 3400:598)

HIST:599 Women and Gender in Middle Eastern Societies (3 Credits)

This course explores the multi-layered processes and dimensions, including texts, cultural values and practices, institutions, and events, which have shaped and continue to shape women's experiences in the Middle East. (Formerly 3400:599)

HIST:601 Graduate Research Seminar in History (4 Credits)

Prerequisite: Eight HIST graduate credits or permission of the instructor. Research seminar designed to train students in the skills of researching and writing history, with a particular emphasis on article-length pieces. (Formerly 3400:601)

HIST:602 MA Option Paper Completion (1 Credit)

Prerequisite: Permission of instructor. This course is for students completing the MA research paper option. Students should enroll in this course during the semester the option paper is completed. (Formerly 3400:602)

HIST:610 Graduate Reading Seminar in Comparative Studies of World Civilizations (4 Credits)

Comparative historiography on world civilizations: East Asia, South Asia, the Middle East, Africa, and the Americas. Emphasis on key themes: kingship, empire, colonization, nationalism, resistance, post-colonialism. (Formerly 3400:610)

HIST:612 Reading Seminar: The Middle East (4 Credits)

Study of historical literature, sources of materials, and major interpretations of Middle Eastern history. (Formerly 3400:612)

HIST:622 Reading Seminar in Ancient History (4 Credits)

Study of historical literature, sources of materials and major interpretations of ancient history, especially Greek and Roman periods. (Formerly 3400:622)

HIST:625 Reading Seminar in Medieval History (4 Credits)

Study of historical literature, sources of materials and major interpretations of medieval European history. (Formerly 3400:625)

HIST:631 Reading Seminar in Modern European History to 1815 (4 Credits)

Study of historical literature, sources of materials, major interpretations of early modern Europe history to Napoleonic era. (Formerly 3400:631)

HIST:634 Reading Seminar in Modern European History Since 1815 (4 Credits)

Study of historical literature, sources of materials and major interpretations of modern European history since early 19th Century. (Formerly 3400:634)

HIST:651 Reading Seminar: The Modern British Empire (4 Credits)

Prerequisite: Graduate student status. Study of the historical literature on the modern British Empire, from the end of the American Revolution through decolonization in the 20th century. (Formerly 3400:651)

HIST:666 Reading Seminar in American History to 1877 (4 Credits)

Study of historical literature, sources of materials and major interpretations of American colonial and United States history to Civil War. (Formerly 3400:666)

HIST:669 Reading Seminar in American History Since 1877 (4 Credits)

Study of historical literature, sources of materials and major interpretations of United States history since Civil War. (Formerly 3400:669)

HIST:677 Reading Seminar in Latin American History (4 Credits)

Study of historical literature, primary texts and major interpretations and debates on selected topics in Latin American history. (Formerly 3400:677)

HIST:680 Reading Seminar: China (4 Credits)

Study of Chinese texts, secondary literature, and major interpretations of the history of China. (Formerly 3400:680)

HIST:689 Historiography (3 Credits)

Study of historians, historical writings and interpretations through the ages. Required for master's degree if candidate has not had equivalent undergraduate or graduate course elsewhere. (Formerly 3400:689)

HIST:690 History Teaching Practicum (3 Credits)

Prerequisite: graduate assistantship. Required of all graduate assistants each fall semester. Training and experience in college teaching of history under the supervision of an experienced faculty member. Credits may not be used to meet degree requirements. (Formerly 3400:690)

HIST:694 Thesis Research (1-6 Credits)

Research for Master of Arts degree thesis. (Formerly 3400:694)

HIST:697 Individual Reading for M.A. Students (1-4 Credits)

(May be repeated for a total of 12 credits) Directed reading to fit individual student programs. May be repeated, but no more than six credits may count toward the M.A. degree in history. Written permission of the instructor required. (Formerly 3400:697)

HIST:698 Individual Reading for M.A. Students (1-4 Credits)

(May be repeated for a total of 12 credits) Directed reading to fit individual student programs. May be repeated, but no more than six credits may count toward the M.A. degree in history. Written permission of the instructor required. (Formerly 3400:698)

HIST:699 Master's Thesis (1-6 Credits)

Prerequisite: HIST 694. Writing of Master of Arts degree thesis. (Formerly 3400:699)

HIST:797 Individual Reading for PhD Student (1-6 Credits)

(May be repeated, but no more than 12 credits may apply toward the Ph.D. in history) Directed reading to fit individual student programs. Written permission of the instructor required. (Formerly 3400:797)

HIST:798 Individual Reading: PhD Student (1-6 Credits)

(May be repeated, but no more than 12 credits may apply toward the Ph.D. in history) Directed reading to fit individual student programs. Written permission of the instructor required. (Formerly 3400:798)

HIST:898 Dissertation Research (1-15 Credits)

Research for Doctor of Philosophy degree dissertation. (Formerly 3400:898)

HIST:899 Doctoral Dissertation (1-15 Credits)

Prerequisite: HIST 898. Writing of Doctor of Philosophy degree dissertation. (Formerly 3400:899)

Home Based Intervention Therapy (CHFD)

CHFD:501 American Families in Poverty (3 Credits)

Prerequisite: Permission of instructor. Overview of the issues, trends, and social policies affecting American families living in poverty. Online section available. (Formerly 3760:501)

CHFD:503 Home-Based Intervention Theory (3 Credits)

Prerequisite: Admission to Certificate Program. Overview of home-based intervention to include philosophy and description of this programming as well as assessment of family, their home and community environment. (Formerly 1820:503)

CHFD:504 Middle Childhood and Adolescence (3 Credits)

Prerequisite: Permission of instructor. The influences of middle childhood and adolescent behavior on the family and the influences of the family environment on middle childhood and adolescent development. (Formerly 3760:504)

CHFD:505 Home-Based Intervention Internship (3-5 Credits)

Prerequisite: CHFD 504. Gives students the opportunity to apply knowledge of home-based intervention in actual delivery process working with families in their homes under the direct supervision of trained, experienced home-based intervention therapists. (Formerly 1820:505)

CHFD:506 Family Financial Management (3 Credits)

Analysis of the family as a financial unit including financial problems and their resolution, decision-making patterns and financial practices behavior. Cases, exercises, problems and computer analysis. (Formerly 3760:506)

CHFD:540 Family Crisis (3 Credits)

Study of family stress and crisis including internal and external variables and their influence on degree of disorganization, coping and recovery. Includes theory, research and application dimensions. (Formerly 3760:540)

CHFD:541 Family Relationships in Middle and Later Years (3 Credits)

Study of family patterns and problems during middle and later years of life with emphasis on psychological and biological changes and economic and social adequacy. Research and trends in gerontology. (Formerly 3760:541)

CHFD:542 Human Sexuality (3 Credits)

Prerequisite: permission of instructor. Introduction to problems and values. Emphasis is on the role of values in intimate relationships, the diverse dimensions of sexual responsibility. (Formerly 3760:542)

CHFD:546 Culture, Ethnicity & Family (3 Credits)

Prerequisite: Permission of instructor. Study of the role of culture and ethnicity in adaptation of the family system to environment. Program applications considered. Online section available. (Formerly 3760:546)

CHFD:548 Before & After School Child Care (2 Credits)

Study of the development, implementation and evaluation of school-age child-care programs for before and after school and vacation periods. (Formerly 3760:548)

CHFD:560 Organization & Supervision of Child Care Centers (3 Credits)

Theory, principles and procedures involved in establishing and operating centers for infants, toddlers, preschool and school-age children. (Formerly 3760:560)

CHFD:561 Case Management for Children & Families I (3 Credits)

Provides an overview of Case Management basics in a multi-systems collaborative context. Includes roles, values, principles, state and service systems, and service coordination. (Formerly 3760:561)

CHFD:562 Case Management for Children & Families II (3 Credits)

Prerequisite: CHFD 561 or permission of instructor. Provides in-depth exploration of Case Management principles and practice. Emphasis on process and functions, assessment, cross-system service planning and coordination, advocacy, and cultural diversity. (Formerly 3760:562)

CHFD:564 Home-Based Intervention Techniques & Practice (3 Credits)

Prerequisite: CHFD 503. Provides intervention techniques and skill areas required for home-based intervention and learning opportunities for matching techniques with specific family problems. (Formerly 1820:504)

CHFD:585 Seminar in Child and Family Development (1-3 Credits)

Exploration and evaluation of current developments in selected areas. (Formerly 3760:585)

CHFD:590 Workshop in Family & Consumer Sciences (1-3 Credits)

Investigation of current issues or topic in selected areas of family and consumer sciences. May be an off-campus study tour or an on-campus full-time group meeting. (Formerly 3760:590)

CHFD:594 Practicum in Parent & Family Education (3 Credits)

Prerequisites: CHFD 596 and CHFD 605. Provides on-site opportunities to apply parent and family education skills. Includes a review of strategies, ethical considerations, and supervision by the on-site director. (Formerly 3760:594)

CHFD:596 Parent Education (3 Credits)

Prerequisite: permission of the instructor. Practical application that reviews and analyzes parent education methods with major emphasis on the evaluation of parent education programs. Online section available. (Formerly 3760:596)

CHFD:601 Divorce Mediation (3 Credits)

Prerequisite: Admission to the Graduate Certificate Program on Divorce Mediation. Overview of divorce mediation process includes guidelines for negotiating separation and divorce agreements, division of personal and real property, support, custody, and future plans. (Formerly 1800:601)

CHFD:602 Family in Lifespan Perspective (3 Credits)

Study of individual and family development across life span. Emphasis on adjustment patterns and interpersonal competence. Implications for education theory research and social policy. (Formerly 3760:602)

CHFD:604 Orientation to Graduate Studies in Child and Family Development (1 Credit)

Introduction to the concepts and processes necessary for graduate study in the interdisciplinary field of child and family development. (Formerly 3760:604)

CHFD:605 Developmental Parent-Child Interactions (3 Credits)

Prerequisite: permission of the instructor. Study of reciprocal interactions between parent and child from birth to adulthood. Consideration of cross-culture studies, historical and societal influences and various family characteristics and structures. Online course. (Formerly 3760:605)

CHFD:607 Family Dynamics (3 Credits)

Development of techniques in home economics programs utilizing role theory, exchange theory and systems theory as understood through the study of the family across the life cycle. (Formerly 3760:607)

CHFD:610 Child Development Theories (3 Credits)

Prerequisite: permission of the instructor. A comparative study of developmental theories of the child within the family context. Application of the theories to child rearing in the family will be emphasized. (Formerly 3760:610)

CHFD:665 Development in Infancy & Early Childhood (3 Credits)

Analysis of research and theoretical frameworks regarding infant and child development from conception through age five. Implications for guidance and education. (Formerly 3760:665)

CHFD:680 Grant & Proposal Writing (3 Credits)

An important organizational function is acquiring resources to sustain and grow critical programs and funding through grants is one such avenue. Developing effective grant writing skills are essential to acquire competitive funding from government agencies and private foundations alike. This course will provide students with the background necessary to develop a competitive funding proposal. (Formerly 3760:680)

CHFD:685 Research Methods in Child and Family Development (3 Credits)

Research methods emphasizing the scientific method, data collection techniques, ethical considerations, and statistics as they apply to research with children and families. (Formerly 3760:685)

CHFD:687 Divorce Mediation Practicum (2 Credits)

Prerequisite: CHFD 601. Practical application of divorce mediation procedures. Review of strategies and ethical considerations. (Formerly 1800:602)

CHFD:688 Advanced Internship in Child and Family Development (5 Credits)

Prerequisite: Permission of advisor or instructor. A minimum of 200 hours of supervised experience in an approved community setting to acquire skills related to area of specialization. (Formerly 3760:688)

CHFD:694 Master's Project (5 Credits)

Prerequisite: Permission of advisor. The development, implementation, and evaluation of a community-based, supervised project that makes a significant contribution to the field. (Formerly 3760:694)

CHFD:697 Individual Investigation in Family Development (1-3 Credits)

Prerequisite: permission of graduate advisor only. Individual pursuit and analysis in specific area of student's interest and design under direction of faculty advisor. (Formerly 3760:697)

CHFD:698 Individual Investigation in Child Development (1-3 Credits)

Prerequisite: permission of graduate advisor only. Individual pursuit and analysis in specific area of student's interest and design under direction of faculty advisor. (Formerly 3760:698)

CHFD:699 Masters Thesis in Child & Family Development (5 Credits)

Prerequisite: Placement of advisor. Supervised research in a specialized area of Child & Family Development that contributes to the field and may lead to publication. (Formerly 3760:699)

Human Resource Management (HRM)

HRM:600 Management & Organizational Behavior (3 Credits)

Course examines management principles, concepts, functions and process, as well as human behavior in organizations. (Formerly 6500:600)

HRM:650 Human Resource Systems for Managers (3 Credits)

Prerequisite: HRM 652. A broad survey of the fundamental principles, research findings and practices related to the acquisition, development, maintenance and effective utilization of a business firm's human resources. (Formerly 6500:650)

HRM:651 Organizational Transformation (3 Credits)

A comprehensive study of innovations in organizations designed to increase human satisfaction and productivity through changes in human management. (Formerly 6500:651)

HRM:652 Managing People in Organizations (3 Credits)

Introduction to the employee issues that managers face in organizations. The aspects of organizational behavior that influence performance, and issues related to managing human resources will be examined. (Formerly 6500:652)

HRM:653 Organizational Theory (3 Credits)

Prerequisite: HRM 600. Examines the structure, design and overall effectiveness of a business organization from a macro-perspective. (Formerly 6500:653)

HRM:654 Management of Organizational Conflict (3 Credits)

Prerequisite: HRM 600 or equivalent. Course emphasizes ensuring that the organization benefits from inevitable conflicts that occur, and provides skills in diagnosis, negotiation, and building trust and cooperative working relationships in organizations. (Formerly 6500:654)

HRM:655 Compensation and Performance Management (3 Credits)

Prerequisite: HRM 600 or equivalent. The development and analysis of systems of payments and rewards in business organizations with special attention placed on performance evaluation methods and productivity enhancement. (Formerly 6500:655)

HRM:657 Leadership Role in Organizations (3 Credits)

Prerequisite: HRM 652. Analysis and development of leadership theory and thought. Identification of leaders in both formal and informal organizations. Training and development methods of leaders evaluated. Individual and small group field study assignments. (Formerly 6500:657)

HRM:658 Managing a Global Workforce (3 Credits)

Prerequisites: HRM 652. The formulation, design, and implementation of human resource practices designed to generate competitive cost advantages for business firms operating in domestic and/or international markets. (Formerly 6500:658)

HRM:660 Staffing and Employment Regulation (3 Credits)

Prerequisite: HRM 600 or equivalent. Design and implementation of staffing practices and systems for businesses with an emphasis on the implications of federal regulations on the staffing function. (Formerly 6500:660)

HRM:661 Comparative Systems of Employee & Labor (3 Credits)

Prerequisite: HRM 600. A survey course examining how industrial relations systems and employment practices across national boundaries impact upon the employment relationship of business firms with global operations. (Formerly 6500:661)

Information Systems Management (ISM)

ISM:520 Data Networks & Security (3 Credits)

Prerequisite: MGMT 601. Principles of the design and management of data networks for business communications. (Formerly 6500:520)

ISM:602 Programming for Data Analytics (3 Credits)

Introduction to data preprocessing and programming concepts including controls, functions, and data structures, and applications to modeling, hypothesis testing, data visualization, and simulation and bootstrapping. (Formerly 6500:602)

ISM:605 Object Oriented Programming (3 Credits)

Advanced introduction to computer programming in the context of developing business applications. It consists of two core components: object-oriented programming principles and business applications prototyping. (Formerly 6500:605)

ISM:620 E-Business Foundations (3 Credits)

Provides an understanding of the foundation of Electronic Business focusing on business and application issues. (Formerly 6500:620)

ISM:622 E-Business Technologies (3 Credits)

Prerequisite: ISM 620 or ISM 602. This course provides a foundation in internet related technologies for successfully managing an e-business. Students will be required to design and implement a functional e-business prototype. (Formerly 6500:622)

ISM:640 Data and IS Governance (3 Credits)

Corequisite: ISM 601. Focuses on management of IT and analytics functions, including alignment with business strategy, data architecture, systems and data governance, and cloud analytics processing. (Formerly 6500:640)

ISM:641 Business Database Systems (3 Credits)

Introduction to issues underlying the analysis, design, implementation, and management of business databases. (Formerly 6500:641)

ISM:643 Analysis & Design of Business Systems (3 Credits)

Prerequisite: ISM 605. A hands-on treatment of the methods used to develop different types of business information systems. (Formerly 6500:643)

ISM:644 Business Intelligence (3 Credits)

Corequisite: MGMT 601. Concerns transformation of business data into actionable information through ETL, data warehousing, data modeling and architecture. Particular emphasis on data visualization with end user tools. (Formerly 6500:644)

ISM:645 Software Development and Quality Assurance (3 Credits)

Prerequisite: MGMT 601. Introduction to business software development and quality assurance. Student teams will work on projects with an emphasis on implementation of business systems. (Formerly 6500:645)

ISM:646 Enterprise Systems Implementation (3 Credits)

Prerequisite: ISM 602. The configuration and implementation of Enterprise Systems to support the cross functional integration of business processes. (Formerly 6500:646)

ISM:648 Management of Telecommunication (3 Credits)

Prerequisite: ISM 602 or ACCT 603. An introduction to the use and management of telecommunications resources to support the activities of the organization. (Formerly 6500:648)

ISM:652 Information Systems for Management (2 Credits)

An introduction to current practice in the management of information in the organization from an executive management perspective. (Formerly 6750:652)

ISM:663 Advanced Data Analytics Topics (3 Credits)

Prerequisites: MGMT 601 and ISM 602. Covers advanced topics on data analytics such as Bayesian networks and decision tree learning. Requires a programming language for big data projects. (Formerly 6500:663)

Institute for Life Span Development and Gerontology (ILSD)

ILSD:680 Interdisciplinary Seminar in Life-Span Development & Gerontology (3 Credits)

Prerequisite: Permission. The certificate program student only. Explores interdisciplinary issues in life-span development and gerontology. Guest speakers from various disciplines and services which have life-span development and gerontological components and from government and community facilities and services. (Formerly 3006:680)

ILSD:685 Special Topics: Life-Span Development & Gerontology (1-3 Credits)

Prerequisite: Permission of instructor. Specialized topics and current issues in life-span development, gerontology, or gender. Emphasis is on original source materials, critical analyses and syntheses of empirical, theoretical and applied aspects. (Formerly 3006:685)

ILSD:686 Retirement Specialist (2 Credits)

An investigation of issues related to the design and implementation of pre-retirement planning and examination of life-span planning education as employed by labor, business and education. (Formerly 3006:686)

ILSD:690 Workshop: Life-Span Development & Gerontology (1-3 Credits)

(May be repeated) Group studies of special topics in life-span development and gerontology. May be used as elective credit but not as part of certificate required courses. (Formerly 3006:690)

ILSD:695 Practicum in Life-Span Development & Gerontology (3 Credits)

Prerequisite: Permission. Supervised experience in research or community agency work. (Formerly 3006:695)

International Business (INTB)

INTB:506 International Business with study abroad requirement (3 Credits)

Prerequisites: Admission into a graduate program of study. A basic course in international business which can also provide a platform for more specialized international business courses. Students majoring in IB are required to participate in an approved Study Abroad Program. Foreign students must choose a country other than their home country to satisfy the study abroad requirement. Students will prepare and submit a detailed examination of the business environment visited. (Formerly 6800:506)

INTB:601 Global Immersion (1-3 Credits)

Provides an opportunity for students to participate in faculty led global immersion/study abroad program, which will cover international management and business practices. Unique aspects of local culture are also studied. This study abroad course will focus mainly on a single country/region. (Formerly 6700:601)

INTB:605 International Business Environments (3 Credits)

Prerequisites: all MBA foundation courses. This course is intended to develop an understanding of the global business environment and the integrated functions of the multinational corporation. (Formerly 6800:605)

INTB:630 International Marketing Policy (3 Credits)

Explores the problems of formulating and implementing marketing strategies and tactics within complex and changing multinational organizations and international markets. A planning framework is emphasized. (Formerly 6800:630)

INTB:670 Global Business Market Analysis and Resource Allocation (2 Credits)

The course provides an analysis and understanding of the micro/macro political, economic and cultural forces impacting business decision-making and resource allocation of firms operating in a global market. (Formerly 6750:670)

INTB:685 Multinational Corporations (3 Credits)

A course designed to develop an understanding of global businesses, their functions, structures, and strategic operations. (Formerly 6800:685)

INTB:690 Seminar: International Business (3 Credits)

A course covering major issues in international business. (Formerly 6800:690)

INTB:697 Independent Study: International Business (1-3 Credits)

(May be repeated for a total of six credits) Prerequisites: Graduate standing and permission of instructor. Focus on special topics of study and research in international business on an independent basis. (Formerly 6800:697)

Intervention Specialist (EDIS)

EDIS:540 Developmental Characteristics of Exceptional Individuals (3 Credits)

A survey course covering the identification, developmental characteristics, and intervention strategies for exceptional children and youth across education and community settings. (1 field hour) (Formerly 5610:540)

EDIS:544 Developmental Characteristics of Intellectually Gifted Individuals (3 Credits)

Prerequisite: EDIS 540. Survey of etiology, diagnosis, classification and developmental characteristics of intellectually gifted individuals. (Formerly 5610:544)

EDIS:547 Individuals with Mild/Moderate Educational Needs: Characteristics and Implications (4 Credits)

Survey of the etiology, identification, classification, developmental characteristics of, and intervention strategies for individuals with mild/moderate educational needs. (Formerly 5610:547)

EDIS:548 Individuals with Moderate/Intensive Educational Needs: Characteristics and Implications (3 Credits)

Prerequisites: EDIS 540. Survey of the etiology, identification, classification, and developmental characteristics of individuals with moderate/intensive educational needs. (Formerly 5610:548)

EDIS:550 Special Education Programming: Early Childhood (3 Credits)

Prerequisite: EDIS 540. Developmental patterns of young children with disabilities and developmentally/exceptionally appropriate practices with respect to programming and adaptations. (50 field hours) (Formerly 5610:550)

EDIS:551 Special Education Programming: Mild/Moderate I (3 Credits)

Prerequisites: EDIS 540 or EDIS 547. Educational implications regarding assessment, teaching strategies, and adaptive materials necessary to meet the needs of school age students with mild/moderate educational needs. (20 field hours) (Formerly 5610:551)

EDIS:552 Special Education Programming: Secondary/Transition (3 Credits)

Study of diagnostic prescriptive service delivery systems designed to accommodate developmental patterns of secondary level students with exceptionalities. (20 field hours) (Formerly 5610:552)

EDIS:553 Special Education Programming: Moderate/Intensive I (3 Credits)

Prerequisite: EDIS 548. Development of the programming strategies including assessment, inter/transdisciplinary models, family involvement, IFSP/IEP/IP development, instructional practices based upon legal/ethical principles for individuals with moderate/intensive educational needs. (20 field hours) (Formerly 5610:553)

EDIS:554 Special Education Programming: Moderate/Intensive II (3 Credits)

Prerequisites: EDIS 448/548, EDIS 453/553. Advanced program for providing educational planning and intervention for individuals with moderate to intensive educational needs. Focus is on developing a comprehensive educational program which will facilitate optimum functioning and independence. (20 field hours) (Formerly 5610:554)

EDIS:556 Inclusive Field Experience: Moderate/Intensive (1 Credit)

Corequisite: EDIS 554. In this inclusive field experience, teacher candidates explore the challenges and best practices in providing quality educational services for all learners (Formerly 5610:556)

EDIS:557 Special Education Programming: Mild/Moderate (5 Credits)

Prerequisite: EDIS 540. Corequisite: EDIS 558. Special educational implications regarding assessment, teaching strategies, and adaptive materials necessary to meet the needs of school age students with mild/moderate educational needs. (Formerly 5610:557)

EDIS:559 Collaboration & Consultation in Schools & Community (3 Credits)

Prerequisites: EDIS 540 and EDIS 547 or EDIS 548, or permission of instructor. Provides professional educators/intervention specialists with skills in collaboration and consultation for working with parents of exceptional individuals and other professionals within school/community settings. (Formerly 5610:559)

EDIS:560 Family Dynamics & Communication in the Educational Process (3 Credits)

Prerequisites: EDIS 440/540, EDIS 447/547 or EDIS 448/548. A study of family theory and structure along with beginning techniques for working with families of students with exceptionalities, in educational and community settings. (Formerly 5610:560)

EDIS:561 Special Education Programming: Early Childhood Moderate/Intensive (3 Credits)

Prerequisites: EDIS 440/540, EDIS 448/548. Developmental patterns of young children with moderate/intensive needs (ages 3-8) and developmentally appropriate practices in programming and adaptations. (20 field hours) (Formerly 5610:561)

EDIS:563 Assessment in Special Education (3 Credits)

Prerequisites: EDIS 440/540, EDIS 447/547 or EDIS 448/548. Prepares student to select, administer and interpret formal and informal assessment procedures and use resulting data in planning educational programs for exceptional individuals. (Formerly 5610:563)

EDIS:564 Assessment & Evaluation in Early Childhood Special Education (3 Credits)

Prerequisites: EDIS 440/540, EDIS 448/548. The assessment of children (three to eight) and their environment who are at risk for disabilities or currently in special education. (Formerly 5610:564)

EDIS:567 Management Strategies in Special Education (3 Credits)

Prerequisites: EDIS 440/540 and [EDIS 447/547 or EDIS 448/548]. Content emphasizing the development of application strategies with a variety of behavior management models for mediation of behaviors with exceptional individuals (Formerly 5610:567)

EDIS:568 Advanced Behavior Management (3 Credits)

Prerequisites: EDIS 567. Advanced techniques for remediating problematic behavior, establishing effective repertoires and evaluating research relevant to classroom management will be covered. Behavioral theory will be stressed. (Formerly 5610:568)

EDIS:569 Inclusive Education for English Learners (2 Credits)

This class prepares teachers to use evidence based strategies, accommodations, and instruction to enhance the curriculum for the English Learners with special education needs. (Formerly 5610:569)

EDIS:570 Clinical Practicum in Special Education (3 Credits)

Prerequisite: Departmental Consent Required. Provides a pre-student teaching experience for students in the areas of assessment, program planning, instructional planning and presentation, classroom management, adaptations, and collaboration with parents and other educational professionals. (Formerly 5610:570)

EDIS:579 Seminar: Invitational Studies in Special Education (1-2 Credits)

(May be repeated for a total of four credits) Topical study with a varied array of disciplinary input. Staffing will be invited members of allied and contributing professions active in management of exception children. (Formerly 5610:579)

EDIS:590 Workshop: Special Education (1-3 Credits)

See department for course description. (Formerly 5610:590)

EDIS:591 Workshop: Special Education (1-3 Credits)

See department for course description. (Formerly 5610:591)

EDIS:592 Workshop: Special Education (1-3 Credits)

See department for course description. (Formerly 5610:592)

EDIS:593 Workshop: Special Education (1-3 Credits)

See department for course description. (Formerly 5610:593)

EDIS:601 Seminar: Special Education Curriculum Planning (3 Credits)

Prerequisite: certification in an area of special education. Study of curriculum planning practices unique to special education classes and services. Appropriate curriculum objectives for selected areas of instruction as well as effective organizational programs examined. (Formerly 5610:601)

EDIS:602 Supervision of Instruction (3 Credits)

Study of administration and supervisory practices unique to special education classes and services. (Formerly 5610:602)

EDIS:604 Collaboration & Consultation Skills for Special Educators (3 Credits)

Advanced consideration of the roles and responsibilities of parents, professionals and individuals with disabilities in the development and implementation of educational interventions and related issues. (Formerly 5610:604)

EDIS:605 Inclusion Models & Strategies (3 Credits)

History, theory, philosophy, legislative mandates, models, strategies, curriculum modifications, methods/materials adaptations which support the inclusion of students with disabilities. Emphasis on collaboration and teaming. (3 field hours) (Formerly 5610:605)

EDIS:606 Research Applications in Special Education (3 Credits)

Prerequisites: admission to graduate program in special education and EDFN 640. An examination of quantitative and qualitative research/ methodology and its application to the field of special education. Applied research is an essential component of the course. (Formerly 5610:606)

EDIS:607 Characteristics and Needs of Individual Demonstrating Pervasive Developmental Disorders (3 Credits)

This course provides a survey of the etiology, diagnoses, characteristics and needs of individuals with pervasive developmental disorders. (Formerly 5610:607)

EDIS:608 Sem: Legal, Social and Ethical Issues in Special Education (3 Credits)

A seminar course for graduate students in special education designed to study, examine and reflect upon legal, social and ethical aspects of historical and current trends, issues and practices, and developing skills needed to analyze own practices in the classroom as the relate to legal, social and ethical issues. (Formerly 5610:608)

EDIS:609 Programming Issues for Individuals with Pervasive Developmental Disorders (3 Credits)

This course provides the educator with a comprehensive examination of the educational practices and intervention strategies necessary when providing interventions for individuals demonstrating pervasive developmental disorders. (Formerly 5610:609)

EDIS:610 Characteristics and Needs of Individuals with Behavioral and Emotional Disorders (3 Credits)

This course provides a survey of the etiology, diagnoses, classification, and developmental (birth through adult) characteristics of individuals in need of behavioral support. (Formerly 5610:610)

EDIS:611 Seminar: Legal Issues in Special Education (3 Credits)

Prerequisites: admission to graduate program in special education and EDLP 720 or permission of instructor. A culminating seminar for graduate students in special education designed to study, examine and reflect upon the legal aspects of historical and current trends, issues and practices. (Formerly 5610:611)

EDIS:612 Seminar: Social/Ethical Issues in Special Education (3 Credits)

A culminating seminar for graduate students in special education designed to study, examine and reflect upon the social and ethical aspects of historical and current trends, issues and practices. (Formerly 5610:612)

EDIS:627 ST: Special Education (1-4 Credits)

Prerequisite: permission of advisor or department chair. In-depth examination of current critical research on issues in Special Education. (Formerly 5610:627)

EDIS:690 Student Teaching: Special Education (9 Credits)

Prerequisite: Permission of advisor or department chair. Corequisite: EDIS 570. Directed teaching under supervision of a special teacher and a university supervisor. (Formerly 5610:690)

EDIS:692 School-based Externship: School Audiology (6 Credits)

Directed professional experience under the supervision of a licensed and certified Audiologist and a University supervisor. (Formerly 5610:692)

EDIS:694 Research Project in Special Area (3 Credits)

An in-depth study of an identified topic in a scholarly paper. (Formerly 5610:694)

EDIS:695 Field Experience: Masters (1-4 Credits)

(May be repeated for a total of eight credits) Designed to provide on-the-job experience in a special education program on an individual basis. (Formerly 5610:695)

EDIS:697 Independent Study: Special Education (1-3 Credits)

(May be repeated for a total of nine credits) Specific area of investigation determined in accordance with student's needs. (Formerly 5610:697)

EDIS:698 Masters Problem (2-4 Credits)

In-depth study of a research problem in education. Student must be able to demonstrate critical and analytical skills in dealing with a problem in special education. (Formerly 5610:698)

EDIS:699 Masters Thesis (4-6 Credits)

Thorough study and analysis in depth of an educational problem, field projects in special areas; synthesis of existing knowledge in relationship to a specific topic. (Formerly 5610:699)

Italian (ITAL)

ITAL:597 Individual Reading in Italian (1-4 Credits)

Prerequisite: Graduate status or permission of department. Individual study under guidance of professor who directs and coordinates student's reading and research. (Formerly 3550:597)

Latin (LATN)

LATN:597 Latin Reading & Research (3 Credits)

Prerequisite: graduate status or permission of department. Generally Latin epigraphy, prose composition or philology; numismatics or certain other archaeological topics may be offered. (May be repeated for credit with change of subject) (Formerly 3510:597)

LATN:598 Latin Reading & Research (3 Credits)

Prerequisite: graduate status or permission of department. Generally Latin epigraphy, prose composition or philology; numismatics or certain other archaeological topics may be offered. (May be repeated for credit with change of subject) (Formerly 3510:598)

Management (MGMT)

MGMT:601 Business Analytics and Information Strategy (3 Credits)

Covers information systems foundations, strategic use of core analytical techniques including statistics and data mining to enable firms to better compete. (Formerly 6500:601)

MGMT:650 Managing People in Organizations (2 Credits)

This course covers the management of people, including motivation and rewards, relationships, teams, power and politics, decision making, and organization design. (Formerly 6750:650)

MGMT:651 Data Driven Decision Making for Managers (2 Credits)

Topics include descriptive statistics, estimation, hypothesis testing, simple and multiple regression. Skills provided include familiarity with statistical software, using statistical analysis to support business decisions, and case analyses. (Formerly 6750:651)

MGMT:659 International Human Resource Management (3 Credits)

Prerequisite: HRM 600. A survey course focused on the identification, analysis, and resolutions of human resource problems in business firms with global operations. (Formerly 6500:659)

MGMT:672 Management Project (3 Credits)

Prerequisite: Instructor permission. Students develop skills in real-world problem solving by interacting with organizations on issues important to them. Special emphasis will be transforming actual organizational data into recommendations. (Formerly 6500:672)

MGMT:675 Leadership, Diversity and Responsibility for Executives (2 Credits)

Prerequisite: MGMT 650. Explores the issues of leadership and influencing employees with particular emphasis on dealing with increased diversity in the workplace and making ethical decisions in organizations. (Formerly 6750:675)

MGMT:689 Leading and Influencing (1 Credit)

The main topics of the course are authentic leadership and influence within collaborative structures. The emphasis of the course is on self-awareness and development of leadership and collaborative competencies. (Formerly 6700:689)

MGMT:690 Selected Topics in Management (3 Credits)

(May be repeated for a total of six credits) Prerequisite: HRM 652. Selected topics in historical, contemporary and/or operational and functional areas of management. (Formerly 6500:690)

MGMT:691 Professional Integrity (1 Credit)

This course is designed to examine the issues of integrity, ethics, and business social responsibility facing business professionals in today's world of business globalization. (Formerly 6700:691)

MGMT:693 Negotiations in the Workplace (1 Credit)

This course introduces students to the skills necessary to successfully navigate career and life negotiations. Contexts covered include job interviews, job offers and promotions. This course is taught from a practical perspective, with hands-on experience and interactions. (Formerly 6700:693)

MGMT:694 Global Strategic Management (3 Credits)

Prerequisites: ACCT 623, FIN 646, SCM 655, MKTG 665. This course integrates the core concepts of business and emphasizes strategic management with a global perspective. Provides insights into the nature of strategy and approaches that may be used by organizations to achieve competitive advantage (Formerly 6750:695)

MGMT:695 Organizational Strategy (3 Credits)

Prerequisites: FIN 602, SCM 670, MKTG 620, INTB 605 or permission. A case-oriented course which focuses on integration of theoretical and practical knowledge acquired in core business courses. Students analyze, evaluate, and formulate organization objectives and strategies within domestic and international environmental contexts. (Formerly 6500:695)

MGMT:697 Independent Study: Management (1-3 Credits)

(May be repeated for a total of six credits) Focus on special topics of study and research in management on an independent basis. (Formerly 6500:697)

Marketing (MKTG)

MKTG:575 Business Negotiations (3 Credits)

Examines business negotiation principles and practices and builds skills in the process of negotiating business agreements within a global environment. (Formerly 6600:575)

MKTG:600 Marketing Concepts (3 Credits)

Introductory course examining buyer behavior, environmental influences, target marketing, product development, distribution, promotion, and pricing for business firms and nonprofit organizations within a global context. (Formerly 6600:600)

MKTG:603 Innovation Consulting Project (3 Credits)

Field-based course providing hands-on experience working with organizations on their real-world problems. Student's will research competitors, products, programs to recommend actionable solutions. (Formerly 6700:603)

MKTG:615 Marketing Analytics (3 Credits)

Prerequisite: MKTG 620. Examines the information-driven processes used for predictive analytics, data mining and database technologies for developing, testing, implementing, measuring, and creating marketing programs and strategies. (Formerly 6600:615)

MKTG:620 Strategic Marketing (3 Credits)

Review of Marketing terminology and concepts. Managerial assessments of opportunities, threats are explored as are the development and management of appropriate strategic marketing plans and their tactical implementation. (Formerly 6600:620)

MKTG:623 Advanced Instrument Development and Execution (3 Credits)

Prerequisite: MKTG 620. This course provides a thorough background in the design, administration, and interpretation of a range of survey, in-depth interview and focus group strategies within the broader context of a research or evaluation project. Topics will include formulation of study aims, developing an appropriate research design, protection of human subjects and proper conduct of research, sample size calculations, recruitment strategies, survey administration, and development of an analysis plan. Class topics are designed to convey practical knowledge through topical lectures, group activities, partner feedback and a study design project consisting of two parts: a study instrument and a research plan. (Formerly 6600:623)

MKTG:625 Brand Management (3 Credits)

Prerequisite: MKTG 620. Application of the development, management and evolution of brands in the creation of competitive advantage. Required field project satisfies the requirement for action-based learning. (Formerly 6600:625)

MKTG:635 Digital Marketing (3 Credits)

Prerequisite: MKTG 620. Examines concepts and approaches used in digital marketing, including virtual product experiences, digital distribution, SEM/SEO, social media, consumer privacy, mobile marketing, among others. (Formerly 6600:635)

MKTG:640 Marketing Research (3 Credits)

Prerequisites: MGMT 601 and ISM 602. Covers the scientific methods as well as the gathering and analysis of information to identify opportunities and solve problems within a business organization. (Formerly 6600:640)

MKTG:655 Integrated Marketing Communications (3 Credits)

Prerequisite: MKTG 600. The total range of marketing communication tools are examined individually and in the context of planning, developing, and implementing a systematic and integrated communications program. (Formerly 6600:655)

MKTG:660 Marketing Practices and Customer Satisfaction (2 Credits)

An overview of key marketing practices and processes and their role in developing marketing programs that exceed customer expectations. (Formerly 6750:660)

MKTG:665 Marketing Strategy (3 Credits)

Strategies marketing managers use to create competitive advantage through marketing tactics to consumer behavior, new product strategy, market segmentation, product positioning, promotion, and business to business collaboration. (Formerly 6750:665)

MKTG:670 Competitive Research Strategy (3 Credits)

Investigation of competitive research strategy from an industry perspective, utilizing a semester long consulting project. The course presents a framework which can be used to understand and develop competitive market research strategies. (Formerly 6600:670)

MKTG:697 Independent Study: Marketing (1-3 Credits)

(May be repeated for a total of six credits) Focus on special topics of study and research in marketing on an independent basis. (Formerly 6600:697)

Master of Public Health (PUBH)

PUBH:601 Public Health Concepts (3 Credits)

Prerequisite: Admission to the MPH program. Organizational structure, history, law, ethics, essential services, global problems, and future of public health. (Formerly 8300:601)

PUBH:602 Social & Behavioral Sciences in Public Health (3 Credits)

Prerequisite: Admission to the MPH program. Theories of health education and promotion; interventions (communication, collaboration, and strategies); socio-cultural, diversity, and regional issues as pertains to public health. (Formerly 8300:602)

PUBH:603 Epidemiology in Public Health (3 Credits)

Prerequisite: Admission to the MPH program. Epidemiological concepts, methods, and public health applications. Student presentations to focus on special topics such as infectious diseases, chronic conditions, etc. (Formerly 8300:603)

PUBH:604 Biostatistics in Public Health (3 Credits)

Prerequisite: Admission to the MPH program. Biostatistics basics, statistical inference, central tendency tests, analysis of variance, regression analysis, survival analysis, and applications in public health. Epi Info and JMP statistical packages. (Formerly 8300:604)

PUBH:605 Health Services Administration in Public Health (3 Credits)

Prerequisite: Admission to the MPH program. Management principles, planning and evaluation, grant-writing, economics, policy, data sources, and applications to public health. (Formerly 8300:605)

PUBH:606 Environmental Health Sciences in Public Health (3 Credits)

Prerequisite: Admission to the MPH program. Air/water quality, food hygiene, sanitation, solid waste management, hazardous materials management, vector-borne disease, occupational health, legal issues, environmental hazard identification and response. (Formerly 8300:606)

PUBH:608 Public Health Practice and Issues (3 Credits)

Prerequisite: PUBH 601. Informatics, communication, diversity, cultural proficiency, biology, and ethics are applied in a public health organizational practice setting. This is a required online practice-based course. (Formerly 8300:608)

PUBH:609 Public Health Research and Evaluation (3 Credits)

Pre/Corequisites: PUBH 603 and PUBH 604. This course is a theoretical and applied course on research methods. Students will critically review journal articles, create research questions, conduct a literature review, employ quantitative and qualitative research methods and develop a data analysis plan. Culmination of coursework will be a research proposal and an article review. (Formerly 8300:609)

PUBH:610 Grant Writing in Public Health Practice (3 Credits)

Prerequisite: Admission to the MPH Program. Methods and techniques for writing grant proposals to fund public health programs and operations. (Formerly 8300:610)

PUBH:680 Special Topics in Public Health (1-5 Credits)

Special topic sections will focus on specific topics of current interest in public health. (Formerly 8300:680)

PUBH:681 Special Topics in Public Health (1-5 Credits)

Special topic sections will focus on specific topics of current interest in public health. (Formerly 8300:681)

PUBH:682 Special Topics: Public Health (1-5 Credits)

Special topic sections will focus on specific topics of current interest in public health. (Formerly 8300:682)

PUBH:683 Special Topics in Public Health (1-5 Credits)

Special topic sections will focus on specific topics of current interest in public health. (Formerly 8300:683)

PUBH:684 Special Topics in Public Health (1-5 Credits)

Special topic sections will focus on specific topics of current interest in public health. (Formerly 8300:684)

PUBH:685 Special Topics in Public Health (1-5 Credits)

Special topic sections will focus on specific topics of current interest in public health. (Formerly 8300:685)

PUBH:686 Special Topics in Public Health (1-5 Credits)

Special topic sections will focus on specific topics of current interest in public health. (Formerly 8300:686)

PUBH:687 Special Topics in Public Health (1-5 Credits)

Special topic sections will focus on specific topics of current interest in public health. (Formerly 8300:687)

PUBH:688 Special Topics in Public Health (1-5 Credits)

Special topic sections will focus on specific topics of current interest in public health. (Formerly 8300:688)

PUBH:689 Special Topics in Public Health (1-5 Credits)

Special topic sections will focus on specific topics of current interest in public health. (Formerly 8300:689)

PUBH:695 Independent Study in Public Health (1-3 Credits)

Prerequisite: permission of academic advisor and instructor. Includes research or other individual projects designed jointly by student and instructor. Covers topics not available in electives listing. (May only be taken for a maximum of 3 credits). (Formerly 8300:695)

PUBH:696 Practicum: Masters Public Health (1-3 Credits)

Student is teamed with a faculty advisor and community preceptor(s) to work on a meaningful public health issue. For students who desire additional field experience. Credit/noncredit. (Formerly 8300:696)

PUBH:697 Capstone Project (3-6 Credits)

A required culminating experience for MPH students to be taken after all core courses are completed. In partnership with a community organization/agency. (Formerly 8300:697)

PUBH:698 Capstone Project I (3 Credits)

Prerequisites: PUBH 601, PUBH 602, PUBH 603 and PUBH 604. In depth assessment of public health competencies and preparation for the culminating community experience in Capstone II. (Formerly 8300:698)

PUBH:699 Capstone Project II (3 Credits)

Prerequisites: PUBH 601, PUBH 602, PUBH 603, PUBH 604, PUBH 605, PUBH 606 and PUBH 698. A required culminating experience for MPH students completed in partnership with a community organization/agency. (Formerly 8300:699)

Mathematics (MATH)

MATH:501 History of Mathematics (3 Credits)

Prerequisite: Departmental permission. Origin and development of mathematical ideas. Course does not meet degree requirements in the department. (Formerly 3450:501)

MATH:510 Advanced Linear Algebra (3 Credits)

Prerequisite: Departmental permission. Study of vector spaces, linear transformation, canonical and quadratic forms, inner product spaces. (Formerly 3450:510)

MATH:511 Abstract Algebra I (3 Credits)

Prerequisite: Departmental permission. Study of groups, rings, fields, integral domains, vector spaces, field extensions. Galois theory. May not be used to meet master's degree requirements in mathematics. (Formerly 3450:511)

MATH:512 Abstract Algebra II (3 Credits)

Prerequisite: MATH 511 or departmental permission. Study of groups, rings, fields, integral domains, vector spaces, field extensions, Galois theory. (Formerly 3450:512)

MATH:513 Theory of Numbers (3 Credits)

Prerequisite: Departmental permission. Euclidean algorithm, unique factorization theorem, congruences, primitive roots, indices, quadratic residues, number-theoretic functions, Gaussian integers and continued fractions. (Formerly 3450:513)

MATH:515 Combinatorics & Graph Theory (3 Credits)

Prerequisite: Departmental permission. Introduction to basic ideas and techniques of mathematical counting; properties of structure of systems. (Formerly 3450:515)

MATH:520 Mathematical Technology and Communication (3 Credits)

Prerequisites: Departmental permission. Graphical, numerical, and algebraic computation with applications using a variety of mathematical hardware and software: symbolic manipulators, dynamic geometry software, programs, scripts and web-browsers. (Formerly 3450:520)

MATH:521 Advanced Calculus I (3 Credits)

Sequential. Prerequisite: Departmental permission. Real number system, sequences, series, set theory, continuity, differentiation, integration, partial derivatives, multiple integration, maxima and minima, convergences and uniform convergences, power series, improper integrals, transformations, line and surface integrals. May not be used to meet master's degree requirements for mathematics or applied mathematics. (Formerly 3450:521)

MATH:522 Advanced Calculus II (3 Credits)

Sequential. Prerequisite: Departmental permission. Real number system, sequences, series, set theory, continuity, differentiation, integration, partial derivatives, multiple integration, maxima and minima, convergence and uniform convergence, power series, improper integrals, transformations, line and surface integrals. (Formerly 3450:522)

MATH:525 Complex Variables (3 Credits)

Prerequisite: Departmental permission. Complex variables; elementary functions, differentiation and analytic functions; integration and Cauchy's theorem; power series and Laurent series; residue theorem; applications such as conformal mappings, inversion of integral transform. (Formerly 3450:525)

MATH:527 Applied Numerical Methods I (3 Credits)

Prerequisite: departmental permission. Numerical methods in polynomial interpolation, root finding, numerical integration, and numerical linear algebra. May not be used to meet master's degree requirements for applied mathematics. (Formerly 3450:527)

MATH:528 Applied Numerical Methods II (3 Credits)

Prerequisite: Departmental permission. Numerical methods in the solution of ordinary and partial differential equations. Numerical differentiation, Runge-Kutta methods, and iterative methods for ODEs, finite differences for PDEs. (Formerly 3450:528)

MATH:532 Introduction to Partial Differential Equations (3 Credits)

Prerequisite: Departmental permission. Studies of various aspects of the analysis of Partial Differential Equations, including the construction of solutions, their uniqueness, behavior and qualitative properties. (Formerly 3450:532)

MATH:535 Systems of Ordinary Differential Equations (3 Credits)

Prerequisites: Departmental permission. Analysis, solution of systems of equations, linear, nonlinear. Topics: stability theory, perturbation methods, asymptotic methods, applications from physical, social sciences. (Formerly 3450:535)

MATH:536 Mathematical Models (3 Credits)

Prerequisite: Departmental permission. Formulation and analysis of mathematical models in social and physical sciences. Analysis of deterministic and stochastic models. Topics may include stochastic processes, linear programming, graph theory, theory of measurement. (Formerly 3450:536)

MATH:538 Advanced Engineering Mathematics I (3 Credits)

Prerequisite: Departmental permission. Matrices, eigenvalue problems, systems of ODEs, vector analysis, complex variables. May not be used to meet master's requirements for applied mathematics. (Formerly 3450:538)

MATH:539 Advanced Engineering Mathematics II (3 Credits)

Prerequisite: Departmental permission. Special functions, fourier series and transforms, PDEs. (Formerly 3450:539)

MATH:541 Concepts in Geometry (4 Credits)

Prerequisite: Departmental permission. Axiomatic treatment of both Euclidean and non-Euclidean geometries. Other concepts included are finite geometry, transformations, constructions and inversions. (Formerly 3450:541)

MATH:545 Introduction to Topology (3 Credits)

Prerequisite: Departmental permission. Introduction to topological spaces and topologies, mapping, cardinality, homeomorphisms, connected spaces, metric spaces. (Formerly 3450:545)

MATH:589 Topics in Mathematics (1-4 Credits)

(May be repeated for a total of 12 credits) Prerequisite: Permission of instructor. Selected topics in mathematics and applied mathematics at an advanced level. (Formerly 3450:589)

MATH:591 Workshop in Mathematics (1-4 Credits)

(May be repeated) Group studies of special topics in mathematics and applied mathematics. May not be used to meet undergraduate or graduate credit requirements in mathematics. May be used for elective credit only. (Formerly 3450:591)

MATH:611 Topics in Algebra (3 Credits)

Prerequisite: MATH 512 or departmental permission. Advanced study of selected topics in some of the following areas: semigroups, groups, rings, modules and fields. (Formerly 3450:611)

MATH:621 Real Analysis (3 Credits)

Prerequisite: MATH 522 or departmental permission. In-depth study of real analysis - metric spaces, normed vector spaces, integration theory, Hilbert spaces. (Formerly 3450:621)

MATH:625 Analytic Function Theory (3 Credits)

Prerequisite: MATH 522 or departmental permission. Complex number system, holomorphic functions, continuity, differentiability, power series complex integration, residue theory, singularities, analytic continuation, asymptotic expansion. (Formerly 3450:625)

MATH:627 Advanced Numerical Analysis I (3 Credits)

Prerequisites: MATH 522 (grade C- or better) and knowledge of C++, FORTRAN, or MATLAB or departmental permission. Error propagation; theoretical analysis of numerical methods in interpolation, integration and ordinary differential equations. (Formerly 3450:627)

MATH:628 Advanced Numerical Analysis II (3 Credits)

Prerequisites: MATH 522 (grade C- or better) and knowledge of C++, FORTRAN, or MATLAB or departmental permission. Theoretical analysis of numerical methods in linear algebra. (Formerly 3450:628)

MATH:631 Calculus of Variations (3 Credits)

Prerequisite: Departmental permission. Problems with fixed and movable endpoints, problems with constraints, generalization to several variables, the maximality principle, linear time-optimal problems, the connective between classical theory and the maximality principle. (Formerly 3450:631)

MATH:632 Advanced Partial Differential Equations (3 Credits)

Prerequisite: MATH 532 or departmental permission. Existence, uniqueness and stability of solutions to general classes of partial differential equations. Methods for solving these classes introduced, emphasizing both analytical and numerical techniques. (Formerly 3450:632)

MATH:633 Methods of Applied Mathematics I (3 Credits)

Prerequisite: MATH 539 or departmental permission. Methods of applied mathematics concentrating on techniques for analysis of differential and integral equations - applied complex analysis, integral transforms, partial differential equations, and integral equations. (Formerly 3450:633)

MATH:634 Methods of Applied Mathematics II (3 Credits)

Prerequisite: MATH 539 or departmental permission. Methods of applied mathematics concentrating on techniques for analysis of differential and integral equations - applied complex analysis, integral transforms, partial differential equations, and integral equations. (Formerly 3450:634)

MATH:635 Optimization (3 Credits)

Prerequisite: MATH 522 or departmental permission. Unconstrained and constrained optimization theory and methods in applied problems. (Formerly 3450:635)

MATH:636 Advanced Combinatorics & Graph Theory (3 Credits)

Prerequisite: Departmental permission. Theory and techniques of combinatorics as applied to network problems and graph theoretic problems. (Formerly 3450:636)

MATH:638 Theory & Application of Wavelets (3 Credits)

Prerequisite: Permission of instructor. Theory of wavelets and applications to signal and image analysis. Topics include time-frequency representations, filter bands, discrete and continuous wavelet transforms, wavelet packets, and applications. (Formerly 3450:638)

MATH:689 Advanced Topics in Mathematics (1-3 Credits)

(May be repeated for a total of six credits) Prerequisite: Permission of advisor. Seminar-type discussion on topics in mathematics leading to supervised research project. No more than 2 credits apply to major requirements. (Formerly 3450:689)

MATH:692 Seminar in Mathematics (3 Credits)

Prerequisite: Permission of advisor. Seminar-type discussion on topics in mathematics leading to supervised research project. (Formerly 3450:692)

MATH:695 Practicum in Mathematics (1-3 Credits)

(May be repeated) Prerequisite: Graduate teaching assistant or permission. Training and experience in college teaching of mathematics. May not be used to meet degree requirements. Credit/noncredit. (Formerly 3450:695)

MATH:697 Individual Reading: Mathematics (1-3 Credits)

(May be repeated for a total of four credits) Prerequisites: Graduate standing and permission. Directed studies in mathematics at graduate level under guidance of selected faculty member. (Formerly 3450:697)

MATH:698 Master's Research (1-6 Credits)

(May be repeated) Prerequisite: Permission of advisor. Research in suitable topics in mathematics or applied mathematics culminating in a research paper. May not be used to meet master's degree requirements for mathematics or applied mathematics. (Formerly 3450:698)

MATH:699 Master's Thesis (3 Credits)

Prerequisite: Permission. A properly qualified candidate for the master's degree may obtain three credits for research that culminates in a public oral presentation of the faculty-supervised thesis. (Formerly 3450:699)

MATH:721 Functional Analysis I (3 Credits)

Prerequisites: [MATH 510 and MATH 621] or departmental permission. These courses are sequential. Study of normed linear spaces and transformations between them with an emphasis on the formulation and analysis of differential and integral equations as operator equations on these spaces. (Formerly 3450:721)

MATH:722 Functional Analysis II (3 Credits)

Prerequisites: [MATH 510 and MATH 621] or departmental permission. These courses are sequential. Study of normed linear spaces and transformations between them with an emphasis on the formulation and analysis of differential and integral equations as operator equations on these spaces. (Formerly 3450:722)

MATH:728 Matrix Iterative Analysis (3 Credits)

Prerequisite: Departmental permission. Basic Iterative methods, Matrix Properties and Concepts, Linear and Nonlinear equation solver, Semi-iterative and conjugate-gradient methods. (Formerly 3450:728)

MATH:730 Advanced Numerical Solution of Partial Differential Equations (3 Credits)

Prerequisites: [MATH 522 and MATH 528], or MATH 628, or departmental permission. Derivation, analysis, and implementation of difference and variational-based methods for the solution of partial differential equations and systems of differential equations. (Formerly 3450:730)

MATH:732 Advanced Partial Differential Equations II (3 Credits)

Prerequisites: [MATH 522 and MATH 532] or departmental permission. Well-posedness of elliptic, hyperbolic and parabolic problems. Variational Methods for Elliptic problems, Conservation Laws and numerical methods, potential theory and integral equations. (Formerly 3450:732)

MATH:733 Asymptotic Methods & Nonlinear Analysis I (3 Credits)

Prerequisites: [MATH 633 and MATH 634] or equivalent. Survey of asymptotic and perturbation methods as applied to integrals and differential equations. Topics: bifurcation and stability with applications from the physical sciences and engineering. (Formerly 3450:733)

MATH:734 Asymptotic Methods & Nonlinear Analysis II (3 Credits)

Prerequisites: [MATH 633 and MATH 634] or equivalent. Survey of asymptotic and perturbation methods as applied to integrals and differential equations. Topics: bifurcation and stability with applications from the physical sciences and engineering. (Formerly 3450:734)

MATH:735 Dynamical Systems (3 Credits)

Prerequisite: MATH 522 or departmental permission. The study of mathematical models of systems which evolve over time. An introduction to maps and applications to ordinary differential equations. (Formerly 3450:735)

Mechanical Engineering (MECE)

MECE:500 Thermal System Components (3 Credits)

Performance analysis and design of basic components of thermal energy exchange and conversion systems. Components studied include heat exchangers, pumps, compressors, turbines and expansion engines. (Formerly 4600:500)

MECE:510 Heating & Air Conditioning (3 Credits)

Prerequisite: Permission. Thermodynamics of gas mixtures. Design and selection of air conditioning equipment. Control of gas mixtures, heating, cooling, and humidity. (Formerly 4600:510)

MECE:511 Compressible Fluid Mechanics (3 Credits)

Subsonic and supersonic flow in nozzles, diffusers, and ducts. One-dimensional reactive gas dynamics. Prandtl-Myer theory. Applications to design and analysis of compressors, turbines, and propulsion devices. (Formerly 4600:511)

MECE:512 Fundamentals of Flight (3 Credits)

Introduction to basic aerodynamics, airplane performance, stability and control, astronautics and propulsion. Design considerations are emphasized. (Formerly 4600:512)

MECE:513 Introduction to Aerodynamics (3 Credits)

Introduction of aerodynamic concepts; conformal transformations, theory of thin airfoils, 2-dimensional airfoil theory, wings of finite span, lifting line theories, lumped-vortex, vortex-lattice, and panel methods. (Formerly 4600:513)

MECE:514 Introduction to Aerospace Propulsion (3 Credits)

Introduction to propulsion systems currently used in aerospace fields; propulsion principles for turbojets, chemical rockets, and electrical rocket propulsion. (Formerly 4600:514)

MECE:515 Energy Conversion (3 Credits)

Prerequisite: Permission. Topics from fields of internal combustion engines, cycle analysis, modern conversion devices. (Formerly 4600:515)

MECE:516 Heat Transfer Processes (3 Credits)

Prerequisite: Permission. Analysis, design of extended surfaces. Natural convection and mixed convection, combined modes of heat transfer with phase changes. (Formerly 4600:516)

MECE:522 Experimental Stress Analysis I (3 Credits)

Prerequisite: Permission. Experimental methods of determining stress or strain: brittle lacquer, strain gages, photoelasticity, full field thermal techniques. (Formerly 4600:522)

MECE:530 Machine Dynamics (3 Credits)

Prerequisite: Permission. Static and dynamic forces in machines, products of inertia, dynamic equivalence, flywheels. Balancing of rotating, reciprocating, cyclic plane motion. Computer simulation of transient mechanism dynamics, other topics in advance dynamics. (Formerly 4600:530)

MECE:531 Fundamentals of Mechanical Vibrations (3 Credits)

Prerequisite: Permission. Undamped and forced vibrations of systems having one or two degrees of freedom. (Formerly 4600:531)

MECE:532 Vehicle Dynamics (3 Credits)

Prerequisite: Permission. Application of dynamic systems analysis techniques to road vehicles. Newtonian and Lagrangian methods. Tire/road interface. Ride characteristics, handling and stability. Digital simulation. (Formerly 4600:532)

MECE:540 System Dynamics & Control (4 Credits)

Prerequisite: Permission. Laplace transforms. Mathematical models of physical systems. Transient response and stability. Error analysis and system accuracy. Root locus methods in design. Frequency analysis and design. Compensation techniques. (Formerly 4600:540)

MECE:541 Control Systems Design (3 Credits)

Prerequisite: Permission. Methods of feedback control design such as minimized error, root-locus, frequency domain. Compensation techniques. Multivariable and nonlinear design methods and computer-aided control design. (Formerly 4600:541)

MECE:542 Industrial Automatic Control (3 Credits)

Prerequisite: Permission. Operation of basic control mechanisms. Study of mechanical, hydraulic, pneumatic, fluidic control systems, including application areas. Tuning of control devices for optimum performance of system. Case studies on control applications from industry, e.g. boilers, furnaces, process heaters. (Formerly 4600:542)

MECE:543 Optimization Methods in Mechanical Engineering (3 Credits)

Prerequisite: Permission. Development and method of solution of optimization problems in mechanical engineering. The use of dynamic programming and operational research methods for optimization including computer utilization and applications. (Formerly 4600:543)

MECE:544 Robot Design, Control & Application (3 Credits)

Prerequisite: Permission. Robot design and control. Kinematic transformations, velocities and accelerations, path trajectories and dynamics, control and sensing in robotics. The automated factory with robot applications. (Formerly 4600:544)

MECE:550 Introduction to Computational Fluid Flow & Convection (3 Credits)

Prerequisite: Permission. Numerical modeling of fluid/thermal systems, numerical solution of the momentum and thermal boundary layer equations; flow simulation using advanced heat transfer/fluid/graphics packages. (Formerly 4600:550)

MECE:562 Pressure Vessel Design (3 Credits)

Prerequisite: Permission. Introduction to modern pressure vessel technology. Topics include basic structural considerations, materials and their environment and design-construction features. (Formerly 4600:562)

MECE:563 Computer Aided Design & Manufacturing (3 Credits)

Prerequisite: Permission. The use of computer systems to assist in the creation, modification, analysis, or optimization of engineering designs, and to plan, manage, and control manufacturing plants. (Formerly 4600:563)

MECE:585 3D Printing and Additive Manufacturing (3 Credits)

Understanding principles and theories in additive manufacturing processes; Understanding process models, materials, design for additive manufacturing (DfAM), and applications; Hands-on practice and research project; State of the art of additive manufacturing. (Formerly 4600:585)

MECE:600 Gas Dynamics (3 Credits)

Prerequisite: MECE 511. Derivation of equations for multi-dimensional irrotational flow of a compressible fluid. Method of small perturbations. Method of characteristics. Ideal flow theory. Transonic flow. One dimensional unsteady flow. (Formerly 4600:600)

MECE:608 Thermodynamics (3 Credits)

Extension and generalization of basic laws of thermodynamics with application to a variety of physical and biological systems. Introduction to irreversible thermodynamics, the third law and statistical thermodynamics. (Formerly 4600:608)

MECE:609 Finite Element Analysis I (3 Credits)

Prerequisite: MECE 622. Introductory development of finite element method as applied to various topics from continuum mechanics. Areas covered include plane; axisymmetric and 3-D stress analysis; conduction; fluid mechanics; transient problems and geometric and material nonlinearity. (Formerly 4600:609)

MECE:610 Dynamics of Viscous Flow I (3 Credits)

Derivation and solution of equations governing laminar viscous flow. Applications include unsteady flows, slow viscous flows, parallel flows, lubrication theory and laminar boundary layers. (Formerly 4600:610)

MECE:611 Computational Fluid Dynamics I (3 Credits)

Prerequisite: MECE 610 or permission of instructor. Study of numerical methods in fluids; numerical errors and stability, finite differencing, nonlinear convection terms, Poisson equations, boundary conditions, turbulence, spectral and finite element techniques. (Formerly 4600:611)

MECE:615 Conduction Heat Transfer (3 Credits)

Study of one-, two- and three-dimensional heat conduction. Development of analytical techniques for analysis and design. (Formerly 4600:615)

MECE:616 Convection Heat Transfer (3 Credits)

Heat transfer from laminar, turbulent external, internal flows. Convective heat transfer at high velocities. Heat transfer to liquid metals; high Prandtl number fluids. (Formerly 4600:616)

MECE:617 Radiation Heat Transfer (3 Credits)

Study of governing radiation laws. Black and real systems, geometric factors, gray enclosures, non-gray systems, gaseous radiation, radiation equipment. (Formerly 4600:617)

MECE:618 Boiling Heat Transfer & Two-Phase Flow (3 Credits)

Current techniques to determine heat transfer and pressure drop in components such as boilers, heat exchangers, and steam generators, with boiling. Boiling mechanism, slip ratio, critical heat flux and instabilities in boiling flow systems. (Formerly 4600:618)

MECE:620 Experimental Stress Analysis II (2 Credits)

Prerequisite: MECE 522. Dynamic strain gage methods, transducer design, Moire fringe techniques and topics in photoelasticity. (Formerly 4600:620)

MECE:621 Introduction to Tire Mechanics (3 Credits)

Prerequisite: Permission. Topics include tire as vehicle component, tire traction and wear, laminated structures, tire stress and strains and advanced tire models. (Formerly 4600:621)

MECE:622 Continuum Mechanics (3 Credits)

Prerequisite: Permission. Analysis of stress and deformation at a point. Derivation of fundamental field equations of fluid and solid mechanics by applying basic laws of dynamics, conservation of mass and energy. Development of constitutive laws. (Formerly 4600:622)

MECE:623 Applied Stress Analysis I (3 Credits)

Prerequisite: MECE 622. Continuation of MECE 622 with specific application to solid mechanics. Development of energy theorems due to Reissner, Washizu and generalized Hamilton's principle. Solutions to static and dynamic problems. (Formerly 4600:623)

MECE:624 Fundamental of Fracture Mechanics (3 Credits)

Prerequisite: MECE 622 or permission of instructor. Methods of stress analysis in elastic media containing holes and cracks. Theories of brittle fracture. Dynamic crack propagation. Fatigue fractures. Finite element approaches to fracture mechanics. (Formerly 4600:624)

MECE:625 Analysis of Mechanical Components (3 Credits)

Theories of failure and plastic flow. Fatigue, creep analysis and introduction to fracture mechanics. (Formerly 4600:625)

MECE:626 Fatigue of Engineering Materials (3 Credits)

Prerequisite: MECE 624 or permission. Quasi-static and cyclic behavior; dislocation networks and their interactions; correlation of dislocation-microstructure interactions; crack initiation; crack propagation; short cracks; crack closure; environmental effects. (Formerly 4600:626)

MECE:627 Advanced Materials & Manufacturing Processes (3 Credits)

Manufacturing processes for advanced materials; classification; technological aspects of bulk deformation, casting, joining, forming, machining, molding, powder metallurgy, rapid solidification; economic aspects; technical activity. (Formerly 4600:627)

MECE:628 Mechanical Behavior of Materials (3 Credits)

Prerequisite: Permission. Mechanical behavior of engineering materials; metallurgy of deformation; dislocation effects and deformation; strengthening mechanisms; thermomechanical processing; mechanical testing. (Formerly 4600:628)

MECE:629 Nonlinear Engineering Problems (3 Credits)

Prerequisite: MECE 622. Study of nonlinear ordinary and partial differential equations governing phenomena of mechanics. Analysis of phase space trajectories, singularities and stability. Development of approximate analytical methods. (Formerly 4600:629)

MECE:630 Vibrations of Discrete Systems (3 Credits)

Prerequisite: MECE 531 or equivalent. Study of vibrations of multidegree of freedom systems including free and forced vibrations, damped and transient response, normal mode vibrations and matrix iteration techniques. Application to seismic design and shock design. (Formerly 4600:630)

MECE:631 Kinematic Design (3 Credits)

Prerequisite: Permission of instructor. The geometry of constrained motion. Analysis of relative plane motion using vectors and the digital computer. Curvature theory. Synthesis of linkages and gearing. Introduction to computer-aided design. (Formerly 4600:631)

MECE:632 Reliability in Design (3 Credits)

Prerequisite: STAT 561. The reliability determination of mechanical components and systems and its use in design. Distribution, reliability determination, normal and log-normal theories, Weibull theory, life spectrum analysis, renewal theory and confidence limits. (Formerly 4600:632)

MECE:633 Computerized Modal Analysis of Structures (3 Credits)

Prerequisite: MECE 630 or equivalent. Modal analysis theory and measurement techniques, digital signal processing concepts, structural dynamics theory, modal parameter estimation with "hands-on" experience in the application of modal measurement methods in vibration analysis. (Formerly 4600:633)

MECE:634 Advanced Dynamics of Rotating Machinery (3 Credits)

Prerequisite: MECE 530 or equivalent. Dynamic modeling and simulation of complex rotor-bearing systems. Steady state, transient and stability analysis with inertia, gyroscopic, imbalance, rotor-bow, disk-skew and impeller-rub interaction effects. (Formerly 4600:634)

MECE:635 Stress Waves in Solids & Fluids (3 Credits)

Prerequisite: MECE 531 or equivalent. The wave equation. Propagation of elastic-plastic stress waves through solid media. Transmission, reflection, absorption and diffraction phenomena. Low and high velocity impact. Dynamic fracture. Numerical simulation techniques. (Formerly 4600:635)

MECE:642 System Analysis & Control Design (3 Credits)

Uniform methods of modeling and response analysis, controllability and observability, stability theory and analysis of linear and nonlinear engineering processes. Design of feedback controls for optimum performance for multivariable real-time control application. (Formerly 4600:642)

MECE:645 Process Identification & Computer Control (3 Credits)

Prerequisite: Permission. Obtaining mathematical models of processing from noisy observations. Methods of digital control design. Case studies on computer control of selected processes. (Formerly 4600:645)

MECE:646 Expert Systems in Controls & Manufacturing (3 Credits)

Prerequisite: MECE 540 or equivalent or by permission. Expert system methodologies for process control, computer integrated flexible manufacturing and robotics. (Formerly 4600:646)

MECE:647 Neural & Fuzzy Control Systems (3 Credits)

Prerequisite: MECE 540 or permission of instructor. Analysis and design of intelligent control systems. Neural networks and fuzzy sets for process identification and controller design. Applications and case studies in industry. (Formerly 4600:647)

MECE:650 Tribology (3 Credits)

Fundamentals of friction lubrication and wear treated; includes basic theory, advanced topics, applications to bearings, seals, gears, cams. Specific topics include adhesive and abrasive friction/wear, boundary lubrication, fluid film lubrication and bearings, rolling element bearings, bearing dynamics. (Formerly 4600:650)

MECE:655 Micro- and Nano-Fluid Dynamics (3 Credits)

Prerequisite: MECE 611 or permission of instructor. The course includes fundamentals of the analytical and numerical solutions of the problems pertinent to fluid mechanics on nano- and micro- scales. Applications will include micro-engines, MEMS, micro-filters, and synthesis of nano-materials. (Formerly 4600:655)

MECE:658 Mechanical Behavior of Nanostructured Materials & Composites (3 Credits)

The course is open to students in mechanical engineering, polymer science and polymer engineering, biology and all other engineering disciplines. Some prior consultation with the instructor is encouraged. The course is considered as a graduate elective in ME. An Overview of Lattice Dislocation Theory, Nanostructured Materials: Processing and Properties, Grain Boundaries, Nanoindentation, Electron Microscopy, Atomic Force Microscopy, Carbon Nanotubes, Polymer and Bio-MEMS. (Formerly 4600:658)

MECE:660 Engineering Analysis (3 Credits)

Prerequisite: B.S. in engineering. Study of analysis techniques as applied to specific engineering problems. Applications include beam deflections, acoustics, heat conduction and hydrodynamic stability. (Formerly 4600:660)

MECE:661 Failure Analysis of Mechanical Systems (3 Credits)

Prerequisite: MECE 625 or permission by instructor. This course emphasizes engineering techniques for predicting yielding, buckling, fracture and fatigue of mechanical systems. Students will be taught how to link theory with practice by examining case studies of structural and mechanical failures and will obtain practical experience in modeling real complex systems in an end-of-term project. (Formerly 4600:661)

MECE:662 Microscale Heat and Mass Transfer (3 Credits)

Prerequisites: MECE 608 and MECE 615 or permission. Kinetics theory, classical and quantum statistics, structure of solids, phonons in solids, free electrons in metals, Boltzmann transport theory, hyperbolic heat conduction, thermal conductivity of thin films, laser materials processing. (Formerly 4600:662)

MECE:663 Web-Based Solid Modeling and e-Manufacturing (3 Credits)

Prerequisite: MECE 563 or equivalent or permission. Team-based collaborative design with a web-based solid modeling library, feature-based manufacturing analysis, and process planning using cross-platform interoperable tools including JAVA, VRML for optimized product realization. (Formerly 4600:663)

MECE:664 Fundamentals of Crystallization and Solidification (3 Credits)

Prerequisite: MECE 608 or equivalent or permission. Fundamental theories and modeling of crystalline nucleation and growth, interface stability and morphology, microstructure formation, and microsegregation. Applications in casting, welding, laser processing, and single crystal growth. (Formerly 4600:664)

MECE:666 Analysis of Manufacturing Systems (3 Credits)

This course will examine general problems in the design, planning, and control of manufacturing systems. No prerequisites or corequisites are required. (Formerly 4600:666)

MECE:670 Integrated Flexible Cellular Manufacturing System-Analysis & Design (3 Credits)

Prerequisite: MECE 563 or equivalent or by permission of instructor. The analysis of integrated computer-aided manufacturing systems, design of automated manufacturing components and simulations of flexible cellular manufacturing systems. (Formerly 4600:670)

MECE:671 Fundamentals and Applications of Micro Electro (3 Credits)

Prerequisite: Consent of instructor. Fundamentals of MEMS based sensors and actuators, MEMS materials, bulk and surface micromachining and MEMS device testing. Applications in optics, automotive, and biomedical instrumentation. (Formerly 4600:671)

MECE:672 Design of Microsystems and Nano Devices (3 Credits)

Prerequisite: Consent of instructor. Design principles of various micro and nano sensors and actuators, microfluidic devices, microstructure analysis and simulation, microfabrication process design rule. Applications in MOEMS, Lab-on-a-chip devices, BioMEMS and NEMS. (Formerly 4600:672)

MECE:682 Fundamentals of Composite Processing and Mechanics (3 Credits)

This course covers mainly composite processing, manufacturing and mechanics. The emphasis is on discontinuous fiber composites. (Formerly 4600:682)

MECE:693 Measurements Methods & Experimental Error in Thermofluid Sciences (3 Credits)

Viscous flow, conduction heat transfer convection heat transfer. The course will incorporate elements of experimental error analysis, optics, and optical ray tracing, principles of testing, methods and devices for fluid flow quantization and temperature measurements. Laboratory work with hands-on experience. (Formerly 4600:693)

MECE:694 Deformation and Failure of Polymers and Soft Materials (3 Credits)

This course introduces the concepts of deformation, fracture and failure analyses of engineering polymers, soft and biological materials. (Formerly 4600:694)

MECE:696 Special Topics in Mechanical Engineering (1-4 Credits)

Prerequisite: Permission. For qualified candidate for graduate degree. Supervised research in the student's major field of training or experience. Credit depends upon nature and extent of project as determined by advisor and department chair. (Formerly 4600:696)

MECE:697 Engineering Report (2 Credits)

Prerequisite: Permission of advisor. A relevant problem in mechanical engineering for students electing the non-thesis option. The final engineering report must be approved by the advisor and the advisory committee. (Formerly 4600:697)

MECE:698 Master's Research: Mechanical Engineering (1-6 Credits)

Prerequisite: Permission of advisor. (May be repeated.) Research on a suitable topic in mechanical engineering culminating in a master's thesis. (Formerly 4600:698)

MECE:699 Master's Thesis (1-6 Credits)

Prerequisite: Permission of advisor. (May be repeated). Supervised research in a specific area of mechanical engineering. (Formerly 4600:699)

MECE:704 Finite Element Analysis II (3 Credits)

Prerequisites: MECE 609 and CIVE 702. Curved, plate, shell, brick elements; quasi-analytical elements. Quadrature formulas. Substructuring for static and dynamic analysis. Solution algorithms for linear and nonlinear static and dynamic analysis. Computer program formulation. Review of large-scale production programs. (Formerly 4600:704)

MECE:705 Finite Element Analysis III (3 Credits)

Prerequisite: MECE 704. Static and dynamic contact problems. Tire mechanics. Fracture mechanics. Plasticity problems involving small and large deflections. Shake down analysis. General constitutive models for composite media, thermoviscoelasticity, fluid turbulence. Fluid-solid interaction analysis. (Formerly 4600:705)

MECE:710 Dynamics of Viscous Flow II (3 Credits)

Prerequisite: MECE 610. Introduction to turbulence. Turbulence modeling and turbulent boundary layers. Practical methods of solution of boundary layer problems. Transition process. (Formerly 4600:710)

MECE:711 Computational Fluid Dynamics II (3 Credits)

Prerequisite: MECE 611 or permission of instructor. Development of advanced computational techniques for convection-dominated flows. Higher order explicit and implicit schemes including nonoscillatory front-capturing methods applied to benchmark problems. (Formerly 4600:711)

MECE:715 Hydrodynamic Stability (3 Credits)

Prerequisites: MECE 660 and MECE 620 or permission. Stability concepts, Stability of Benard convection, Rayleigh-Taylor flow, parallel shear layers, boundary layers, asymptotic solution of Orr-Sommerfeld equation, nonparallel stability. (Formerly 4600:715)

MECE:719 Advanced Heat Transfer (3 Credits)

Prerequisites: MECE 615 and MECE 616. Topics include nonhomogeneous or nonlinear boundary value problems of heat conduction, heat transfer with melting, solidification and ablation, heat transfer in porous systems and hydrodynamically and thermally unsteady convection. (Formerly 4600:719)

MECE:723 Applied Stress Analysis II (3 Credits)

Prerequisite: MECE 623. Continuation of MECE 623. Development of approximate solution techniques including finite elements, method of weighted residuals (Rayleigh-Ritz, Galerkin, Trefftz, collocation, least squares, etc.) and finite differences. (Formerly 4600:723)

MECE:726 Non-Linear Continuum Mechanics (3 Credits)

Prerequisite: MECE 622. Finite deformation and strain, stress, constitutive equations, strain energy functions. Solution of finite deformation problems in hypoelasticity, coupled thermoviscoelasticity and plasticity, electroelasticity and micropolar theories. (Formerly 4600:726)

MECE:730 Vibrations of Continuous Systems (3 Credits)

Prerequisite: MECE 630. Continuation of MECE 630. Analysis of continuous vibrating systems, using separation of variables, energy, variational, Rayleigh-Ritz and other approximate techniques. Concepts and solutions of integral equations as applied to continuous systems. (Formerly 4600:730)

MECE:732 Advanced Modal Analysis of Structures (3 Credits)

Prerequisite: MECE 633 or equivalent. Structural excitation techniques. Modal parameter estimation. System modification; mass/stiffness/dumping matrices substructuring. Prediction and evaluation of structural modified dynamic characteristic. (Formerly 4600:732)

MECE:741 Optimization Theory & Applications (3 Credits)

Prerequisite: Permission. Theory of optimization in engineering systems, development and method of solution optimization problems for physical processes, large systems. Use of dynamic programming, operational research methods of system optimization, control. (Formerly 4600:741)

MECE:763 Advanced Methods in Engineering Analysis (3 Credits)

Applications of finite difference and finite element methods, variational methods, integral methods and similarity transforms to engineering problems in heat transfers, fluid mechanics and vibrations. (Formerly 4600:763)

MECE:790 Advanced Seminar in Mechanical Engineering (1-4 Credits)

(May be repeated for a total of nine credits) Prerequisite: permission of department chair. Advanced projects and studies in various areas of mechanical engineering. Intended for student seeking Ph.D in engineering degree. (Formerly 4600:790)

MECE:898 Preliminary Research (1-15 Credits)

Prerequisite: Approval of dissertation director. Preliminary investigations prior to the submission of a dissertation proposal to the Interdisciplinary Doctoral Committee. (Formerly 4600:898)

MECE:899 Doctoral Dissertation (1-15 Credits)

(May be taken more than once.) Prerequisite: Acceptance of research proposal by the Interdisciplinary Doctoral Committee and approval by the dissertation director. Original research by the doctoral student. (Formerly 4600:899)

Modern Languages (MODL)

MODL:522 Modern Languages: Special Topics in Advanced Language Skills or Culture, or Literature (1-4 Credits)

See department for course description. (Formerly 3500:522)

MODL:590 Workshop in Modern Language (1-4 Credits)

Prerequisite: graduate status or permission of department. (May be repeated for a maximum of eight credits) Group studies of special topics in modern languages. (Formerly 3500:590)

MODL:597 Individual Reading in Modern Languages (1-4 Credits)

Prerequisite: Graduate status and permission of the instructor and department chair. Individual study under the guidance of professor who directs and coordinates student's reading and research. The general designation of MODL is used for languages that do not have a specific department number (i.e., Arabic, Chinese, Portuguese, etc.). May be repeated with departmental permission. (Formerly 3500:597)

Music - School of (MUSIC)

MUSIC:500 Internship in Music (2-4 Credits)

Prerequisite: Permission. Faculty supervised work experience in which student rehearses/conducts/teaches a performance ensemble with a selected cultural or educational organization. (Formerly 7500:500)

MUSIC:525 Music Teaching Methodologies for Graduate Students (2 Credits)

Basic pedagogic techniques related to the teaching of undergraduate music courses, including preparation of syllabi, methods of evaluation, and instruction on class preparation and presentation. (Formerly 7500:525)

MUSIC:526 Graduate Music Theory Review (2 Credits)

Prerequisite: Undergraduate music theory equivalent to four semesters. Review of basic music theory concepts. Coverage includes the chromatic harmony vocabulary of the 18th, 19th, and 20th centuries. (Formerly 7500:526)

MUSIC:527 Graduate Music History Review (2 Credits)

Prerequisite: Undergraduate music history equivalent to four semesters of music history or literature study. Review of basic music history for graduate students. Coverage extends from antiquity to the present. Both reading and listening assignments will be required. (Formerly 7500:527)

MUSIC:551 Introduction to Musicology (2 Credits)

Prerequisite: MUSIC 352. Comparative musicology; acoustics; psychology and physiology of music; aesthetics; theory of music theory; historical musicology. (Formerly 7500:551)

MUSIC:553 Music Software Survey and Use (2 Credits)

Prerequisite: MUSIC 122. A survey and evaluation of available software in the various forms of musical instruction. Students will design a course suitable for submission to a programmer. (Formerly 7500:553)

MUSIC:555 Advanced Conducting: Instrumental (2 Credits)

Prerequisites: MUSIC 361 and MUSIC 442. Baton techniques and problems relating to practice, reading and preparation of scores; organization of ensembles; programming; conducting large instrumental ensembles. One hour lab required. (Formerly 7500:555)

MUSIC:556 Advanced Conducting: Choral (2 Credits)

Prerequisite: MUSIC 361 or equivalent. Conduction techniques to the choral ensemble, including leadership, error detection, tonal development, stylistic accuracy and analysis. One hour lab required. (Formerly 7500:556)

MUSIC:563 Repertoire & Pedagogy: String Instruments (3 Credits)

Prerequisite: permission of instructor. Study in depth of the four bowed string instruments, their teaching and close relationship. Despite obvious difference in physical application of cello and bass from violin and viola, methods of bowing, sound production and coloring are closely related. Application of the instruments to solo, chamber and orchestral playing. (Formerly 7500:563)

MUSIC:567 Guitar Pedagogy (2 Credits)

Prerequisite: permission of instructor. A systematic analysis of prevailing schools of guitar pedagogy. Sound production psychology, method books and special problems in teaching addressed. (Formerly 7500:567)

MUSIC:568 Guitar Arranging (2 Credits)

Prerequisite: permission of instructor. After comparative analyses of selected examples, student make original solo guitar arrangements of works written for other solo instruments ensembles. (Formerly 7500:568)

MUSIC:569 History & Literature: Guitar & Lute (2 Credits)

Prerequisite: permission of instructor. Study of plucked, fretted, string instruments from the 14th Century to the present; construction, notation, literature and performance practices. Modern editions and recordings evaluated. (Formerly 7500:569)

MUSIC:570 Studies Choral Literature I: Medieval/Renaissance (2 Credits)

A survey of choral repertoire in terms of general structure, character, voicing, notation, pitch, ornamentation, improvisation, and interpretation of dynamics, rhythm, articulation, and tempo. (Formerly 7500:570)

MUSIC:571 Studies Choral Literature II: Baroque (2 Credits)

A study of the repertoire in terms of general structure, character, voicing, notation, pitch, ornamentation, improvisation, and interpretation of dynamics, rhythm, articulation, and tempo. (Formerly 7500:571)

MUSIC:572 Studies Choral Literature III: Classic/Romantic (2 Credits)

A study of the repertoire in terms of general structure, character, voicing, notation, pitch, ornamentation, improvisation, and interpretation of dynamics, rhythm, articulation, and tempo. (Formerly 7500:572)

MUSIC:573 Studies Choral Literature IV: 20th Century (2 Credits)

A study of the repertoire in terms of general structure, character, voicing, notation, pitch, ornamentation, improvisation, and interpretation of dynamics, rhythm, articulation, and tempo. (Formerly 7500:573)

MUSIC:574 Integrative Conducting Workshop (2 Credits)

A study of how to prepare and execute effective rehearsal which responds to the needs of the singers while maintaining stylistic integrity in executing the music. (Formerly 7500:574)

MUSIC:589 Music Education Jury (0 Credits)

Prerequisites: Successful completion of undergraduate keyboard and music theory sequence, and minimum 500 jury level. Barrier exam for all music education majors. (Formerly 7500:589)

MUSIC:590 Workshop in Music (1-3 Credits)

Prerequisite: permission of instructor. Investigation of topics not offered in regular curriculum. Graduate student must fulfill additional requirements. (Formerly 7500:590)

MUSIC:601 Choral Literature (2 Credits)

Prerequisite: permission of instructor. Study in depth of style, structure, technical demands, manner of setting text, and special performance problems found in masterworks by great choral composers of nine centuries. (Formerly 7500:601)

MUSIC:604 Development of Opera (2 Credits)

Prerequisite: permission of instructor. Growth and development of opera from 1600 to present. Includes detailed examination of stylistic and structural changes as well as performance practices. (Formerly 7500:604)

MUSIC:609 Pedagogy of Jazz Improvisation (3 Credits)

A detailed study of the methods and materials as they relate to the teaching of jazz improvisation. (Formerly 7500:609)

MUSIC:611 Foundations & Principles of Music Education (3 Credits)

A study of basic historical, philosophical, sociological, and psychological concepts in the context of music education. (Formerly 7500:611)

MUSIC:612 Practices & Trends in Music Education (3 Credits)

A study of the history of practices and trends in American music education. (Formerly 7500:612)

MUSIC:613 Measurement & Evaluation in Music (3 Credits)

A study of measurement and evaluation techniques and their application in music education. (Formerly 7500:614)

MUSIC:616 Musical Styles & Analysis I: Music Before 1750 (2 Credits)

Prerequisite: Score of 70% or higher in the Graduate Diagnostic Examination. Detailed study of compositional techniques and stylistic traits observed in Western music of the Middle Ages, Renaissance, and Baroque periods. (Formerly 7500:616)

MUSIC:617 Musical Styles & Analysis II: Music Between 1750 and 1900 (2 Credits)

Prerequisite: Score of 70% or higher in the Graduate Diagnostic Examination. Detailed study of compositional techniques and stylistic traits observed in Western music of the Classical and Romantic periods. (Formerly 7500:617)

MUSIC:618 Musical Styles & Analysis III: Music Since 1900 (2 Credits)

Prerequisite: Graduate standing as a music major. Detailed study of compositional techniques and stylistic traits observed in Western music in the Twentieth and Twenty-First Centuries. (Formerly 7500:618)

MUSIC:622 Music History Survey I: Music Before 1750 (2 Credits)

Prerequisite: Score of 70% or higher in the Graduate Diagnostic Examination. Historical and stylistic analysis of music from the Middle Ages, Renaissance, and Baroque; study in depth of specific examples, from recordings, scores and live performances; continuation and synthesis of approaches normal to study of music history; selected readings related to each student's particular fields of interest; project papers. (Formerly 7500:622)

MUSIC:623 Music History Survey II: Music Between 1750 and 1900 (2 Credits)

Prerequisite: Score of 70% or higher in the Graduate Diagnostic Examination. Historical and stylistic analysis of classic and romantic music; study in depth of specific examples, through recordings, scores and live performances; discontinuation and synthesis of approacher normal to study of music history; selected readings related to each student's particular fields of interest; project papers. (Formerly 7500:623)

MUSIC:624 Music History Survey III: Music Since 1900 (2 Credits)

Historical and stylistic analysis of music since 1900; study in depth of specific examples through recordings and live performances, continuation and synthesis of approaches normal to study of music history; selected readings and project papers. (Formerly 7500:624)

MUSIC:625 Graduate Bibliography & Research (2 Credits)

Prerequisite: undergraduate music degree or equivalent. Examination of all types of published music materials; research methods for thesis preparation and professional publishing; field trips to music libraries, computerized music research. (Formerly 7500:625)

MUSIC:627 Computer Studio Design (2 Credits)

The design and maintenance of a computer lab. Emphasis on hardware and software setup to maximize function and minimize maintenance. (Formerly 7500:627)

MUSIC:628 Instructional Programming in Music for Microcomputer (3 Credits)

Prerequisite: MUSIC 553. Introduction to programming languages for the microcomputer including BASIC, Pascal and Assembler. Programming will be directed towards music educational concepts. (Formerly 7500:613)

MUSIC:630 Teaching & Literature: Brass Instruments (2 Credits)

Prerequisite: permission of instructor. Research in current trends and issues in brass teaching techniques and appropriate literature. (Formerly 7500:630)

MUSIC:631 Teaching & Literature: Woodwind Instruments (2 Credits)

Prerequisite: permission of instructor. To delineate and clarify contemporary techniques of woodwind pedagogy and to develop a comprehensive understanding of woodwind literature. (Formerly 7500:631)

MUSIC:632 Teaching & Literature: Percussion Instruments (2 Credits)

To train undergraduate and graduate percussion students in techniques of percussion education. Emphasis on research, literature, performance, and techniques from elementary through secondary levels. (Formerly 7500:532)

MUSIC:633 Teaching & Literature: Piano & Harpsichord (2 Credits)

Prerequisite: permission of instructor. The examination of piano and harpsichord literature in historically chronological order with special attention to its pedagogical value and stylistic differences. (Formerly 7500:633)

MUSIC:634 Teaching & Literature: String Instruments (2 Credits)

Prerequisite: permission of instructor. Research in current trends and issues in string teaching techniques and appropriate literature. (Formerly 7500:634)

MUSIC:640 Advanced Accompanying I (1 Credit)

Prerequisite: Graduate standing in keyboard performance and/or accompanying or the permission of the instructor. An in-depth study of principles of accompanying, sight reading, standard repertoire, and transposition. (Formerly 7500:640)

MUSIC:641 Advanced Accompanying II (1 Credit)

Prerequisite: Graduate standing in keyboard performance and/or accompanying or the permission of the instructor. An in-depth study of principles of accompanying, sight reading, standard repertoire, and transposition. (Formerly 7500:641)

MUSIC:642 Advanced Accompanying III (1 Credit)

Prerequisite: Graduate standing in keyboard performance and/or accompanying or the permission of the instructor. An in-depth study of principles of accompanying, sight reading, standard repertoire, and transposition. (Formerly 7500:642)

MUSIC:643 Advanced Accompanying IV (1 Credit)

Prerequisite: Graduate standing in keyboard performance and/or accompanying or the permission of the instructor. An in-depth study of principles of accompanying, sight reading, standard repertoire, and transposition. (Formerly 7500:643)

MUSIC:647 Masters Chamber Recital (1 Credit)

Prerequisite: permission of instructor. Composition student will present a recital of chamber music compositions (at least one-half hour in length) written while in residence at the University. Student will actively organize and coordinate the recital and will also participate either as performer or conductor. (Formerly 7500:647)

MUSIC:653 Electronic Music (3 Credits)

The theory and practice of electronic music composition. Developing a practical understanding of sound synthesis and MIDI in a digital/analog multi-track recording studio. (Formerly 7500:653)

MUSIC:657 School of Music Performance Seminar (0 Credits)

Each performance area provides a forum for student and faculty members for lectures, recitals and opportunity to practice the various skills necessary for successful music performance. (Formerly 7500:657)

MUSIC:665 Vocal Pedagogy (2 Credits)

Prerequisite: permission of instructor. In-depth study of subjects dealing with teaching of voice: physiology of vocal instrument, principles governing vocal production and application of vocal pedagogy. (Formerly 7500:665)

MUSIC:666 Advanced Song Literature I (2 Credits)

Prerequisite: permission of instructor. Systematic study of song literature presented chronologically according to national schools of composition. Stylistic compositional characteristics and representative works of all major composers of solo song literature. (Formerly 7500:666)

MUSIC:667 Advanced Song Literature II (2 Credits)

Prerequisite: permission of instructor. Systematic study of American, British and Italian song literature presented chronologically. Includes study of stylistic compositional characteristics and repertoire of major composers of song literature. (Formerly 7500:667)

MUSIC:674 Seminar in Music (1-3 Credits)

(May be repeated for a total of 9 credits.) Intensive examination of special topics in the field of music. (Formerly 7500:674)

MUSIC:675 Seminar in Music Education (1-3 Credits)

(May be repeated for a total of 6 credits) Intensive examination of special topics in the field of music education. (Formerly 7500:675)

MUSIC:692 Student Teaching Colloquium (1 Credit)

Corequisite: EDCI 694. For music education majors; certification, contracts, benefits, job market prospects and student teaching experience sharing. Restricted to students enrolled in Student Teaching in Music. (Formerly 7500:692)

MUSIC:697 Advanced Problems in Music (1-3 Credits)

(May be repeated for a total of eight credits) Prerequisite: permission of graduate advisor. Studies or research projects related to problems in music. (Formerly 7500:697)

MUSIC:698 Graduate Recital (2 Credits)

Prerequisite: permission of graduate advisor. Recital prepared and presented as a requirement for any appropriate degree option. If recital document is to be written in conjunction with the recital, add 699 for the additional credit. Once passed, may not be repeated for credit. (Formerly 7500:698)

MUSIC:699 Masters Thesis/Project (4-6 Credits)

Prerequisite: permission of graduate advisor. Research related to the completion of the master's thesis, project, or recital document written in conjunction with the graduate recital, depending on the student's degree option. (Formerly 7500:699)

Music Organizations (MUSEN)

MUSEN:521 Guitar Chamber Music (1 Credit)

Prerequisite: Open to all upper class instrumentalists and vocalists. Guitarists must have taken Guitar Ensemble, MUSEN 116. Study, coaching, and performance of major works for guitar with other instruments or voice. Major conducted ensemble for guitar majors. (Formerly 7510:521)

MUSEN:602 Akron Symphony Chorus (1 Credit)

Open to University and community members by audition. Prospective members should contact School of Music two weeks before semester begins. Performs with Akron Symphony Orchestra. (Formerly 7510:602)

MUSEN:603 University Symphony Orchestra (1 Credit)

Membership by audition. Organization devoted to study of orchestral literature. Full-length concerts as well as special University appearances. Major conducted ensemble. (Formerly 7510:603)

MUSEN:604 Wind Symphony (1 Credit)

Membership by audition. The Wind Symphony is the most select ensemble at the University and performs the most demanding and contemporary repertoire. Major conducted ensemble. (Formerly 7510:604)

MUSEN:605 Vocal Chamber Ensemble (1 Credit)

Membership open to those enrolled in applied voice study. Coaching and rehearsal of solo and ensemble literature for voices from operatic, oratorio and lieder repertoires. (Formerly 7510:605)

MUSEN:606 Brass Ensemble (1 Credit)

Membership by audition. Study and performance of literature for brass ensemble from all periods of music history. Frequent public concerts. For advanced brass players. (Formerly 7510:606)

MUSEN:607 String Ensemble (1 Credit)

Membership by auditing. In-depth study and performance of chamber music literature with special emphasis on string quartet and piano trio. (Formerly 7510:607)

MUSEN:608 Opera/Lyric Theater Workshop (1 Credit)

Membership by audition. Musical and dramatic group study of excerpts from operatic repertoire. Includes annual production of standard opera and/or contemporary chamber work with staging, costumes and scenery. (Formerly 7510:608)

MUSEN:609 Percussion Ensemble (1 Credit)

Membership by auditing. Study and performance of literature for various percussion groups; develops skill in ensemble performance. (Formerly 7510:609)

MUSEN:610 Woodwind Ensemble (1 Credit)

Membership by audition. Study and performance of woodwind literature from all periods for various combinations of woodwinds. Develops performance skills and knowledge of woodwind literature. (Formerly 7510:610)

MUSEN:614 Keyboard Ensemble (1 Credit)

In-depth study of ensemble playing. Required for keyboard assistantship recipients. (Formerly 7510:614)

MUSEN:615 Jazz Ensemble (1 Credit)

Membership by audition. Provides experience in jazz ensemble performance. A student is assumed to have knowledge of rudiments of music and some experience in jazz ensemble performance. (Formerly 7510:615)

MUSEN:616 Guitar Ensemble (1 Credit)

See department for course description. (Formerly 7510:616)

MUSEN:618 Small Ensemble-Mixed (1 Credit)

Chamber Ensemble, Baroque Ensemble and Contemporary Music Ensemble. Each is a group of diverse instruments which rehearses and performs a selected body of music. (Formerly 7510:618)

MUSEN:620 Concert Choir (1 Credit)

Membership by audition. Highly select mixed choir. Performs classical literature from all periods. Campus, regional, and tour performances. "Major conducted ensemble" for vocal majors. (Formerly 7510:620)

MUSEN:621 University Singers (1 Credit)

Membership by audition. Mixed ensemble devoted to performance of a wide variety of choral literature from classical to popular. "Major conducted ensemble" for vocal majors. (Formerly 7510:621)

MUSEN:624 Opera Chorus (1 Credit)

Open to students and members of University community by audition. Rehearsal and production of opera and musical theatre literature with staging, costumes, and scenery. (Formerly 7510:624)

MUSEN:625 Symphony Band (1 Credit)

Membership by audition. The Symphony Band is a select ensemble at the University and performs standard and contemporary repertoire for wind bands. Major conducted ensemble. (Formerly 7510:625)

MUSEN:626 Marching Band (1 Credit)

This organization is noted for its high energy performances a University football games. Enrollment is open to all members of the University student body. (Formerly 7510:626)

MUSEN:627 Blue & Gold Brass (1 Credit)

The official band for Akron home basketball games. Membership is by audition. (Formerly 7510:627)

MUSEN:628 Concert Band (1 Credit)

Membership by audition. Open to all students regardless of academic major. The Concert Band performs standard and contemporary repertoire for wind bands. Major conducted ensemble. (Formerly 7510:628)

MUSEN:629 Blue and Gold Brass II (1 Credit)

The official band for Akron home ladies basketball games. Membership is by audition. (Formerly 7510:629)

MUSEN:630 Summer Symphonic Band (1 Credit)

Membership open to UA students and community musicians. Enrollment in course required. Summer Symphonic Band performs standard repertoire for wind band. (Formerly 7510:630)

MUSEN:650 Chamber Choir (1 Credit)

Membership by audition. Premiere and flagship choral ensemble. Highest level of musicianship, vocal technique, and professionalism required. Performs classical literature of all periods and genres. (Formerly 7510:650)

Nursing (NURS)

NURS:509 International Health (2-3 Credits)

Prerequisite: Admission to MSN program. A comparison of nursing roles and responsibilities in an international environment. The influence of education ethics, government, demography and geography on health care will be considered. (Formerly 8200:509)

NURS:512 Global Perspectives of Health and Health Care (0 Credits)

Prerequisite: Senior or graduate status. (May be repeated for a maximum of 6 credits.) Cultural, political, educational, and economical perspectives of different regions of the world and the impact of these factors on health will be compared and examined. (Formerly 8200:512)

NURS:540 Episodic Primary Care of the Family (4 Credits)

Prerequisites: NURS 608 and NURS 610. Pre/Corequisite: NURS 612. Corequisite: NURS 541. Episodic Primary Care focuses on care of the family throughout the lifespan and treatment of episodic care, wellness, primary, secondary and tertiary care. (Formerly 8200:540)

NURS:541 Episodic Primary Care of the Family Practicum (2 Credits)

Prerequisites: NURS 608 and NURS 610. Pre/Corequisite: NURS 612. Corequisite: NURS 540. Wellness, primary secondary and tertiary care will be the emphasis including health appraisal/risk reduction and common uncomplicated acute illness states of the adult/older adult and family Concepts. Case studies, clinical reasoning and verbal presentations will be incorporated during the practicum experience. (Formerly 8200:541)

NURS:542 Pediatric Primary Care of the Family (4 Credits)

Prerequisites: NURS 608 and NURS 610. Pre/Corequisite: NURS 612. Corequisite: NURS 543. Pediatric Primary Care of the Family focuses on the care of the pediatric patient in the management of medical problems and treatment with emphasis on assessment, diagnosis and pharmacotherapy. (Formerly 8200:542)

NURS:543 Pediatric Primary Care of the Family Practicum (2 Credits)

Prerequisites: NURS 608 and NURS 610. Pre/Corequisite: NURS 612. Corequisite: NURS 542. Care of the pediatric patient in the management of medical problems and treatment with emphasis on assessment, diagnosis and pharmacotherapy incorporating case studies, clinical reasoning papers, and verbal presentations during the practicum experience. (Formerly 8200:543)

NURS:544 Chronic Primary Care of the Family (4 Credits)

Prerequisites: NURS 608 and NURS 610. Pre/Corequisite: NURS 612. Corequisite: NURS 545. Chronic Primary Care of the Family focuses on the management and treatment of chronic medical problems of the family using differential diagnosis and clinical reasoning with emphasis on assessment, diagnosis and pharmacotherapy (Formerly 8200:544)

NURS:545 Chronic Primary Care of the Family Practicum (2 Credits)

Prerequisites: NURS 608 and NURS 610. Pre/Corequisite: NURS 612. Corequisite: NURS 544. Chronic Primary Care of the Family Practicum focuses on the concepts introduced in Chronic Primary Care of the Family. Care of the family in the management of chronic medical problems with emphasis on assessment, diagnosis and pharmacotherapy. Chronic case studies and clinical reasoning papers as well as verbal presentations will be incorporated during the practicum experience. (Formerly 8200:545)

NURS:546 Complex Primary Care of the Family (4 Credits)

Prerequisites: NURS 608 and NURS 610. Pre/Corequisite: NURS 612. Corequisite: NURS 547. Complex Primary Care of the Family focuses on the management and treatment complex chronic and acute health problems of the family with emphasis on assessment, diagnosis, and pharmacotherapy. (Formerly 8200:546)

NURS:547 Complex Primary Care of the Family Practicum (2 Credits)

Prerequisites: NURS 608 and NURS 610. Pre/Corequisite: NURS 612. Corequisite: NURS 546. Care of the family in the management of complex chronic and acute health problems with emphasis on concepts related to assessment, diagnosis and pharmacotherapy. Complex case studies and complex clinical reasoning papers as well as verbal presentations will be incorporated during the practicum experience. (Formerly 8200:547)

NURS:553 School Nurse Practicum I (5 Credits)

Prerequisites: HEDU 521 and HEDU 523. Prerequisite or corequisite: NURS 650. Emphasis on clinical primary health care nursing to enhance positive health behavior outcomes of well children and adolescents with minor conditions in family, community, school contexts. (Formerly 8200:553)

NURS:554 School Nurse Practicum II (5 Credits)

Prerequisite: HEDU 521, HEDU 523, NURS 650, and NURS 553. Emphasis on primary health care nursing to enhance positive health behavior outcomes of children/adolescents with minor common health or behavioral problems and chronic illnesses. (Formerly 8200:554)

NURS:561 Advanced Physiological Concepts in Health Care I (3 Credits)

Prerequisite: Admission to MSN Program. This course presents an in-depth study of physiological processes in the areas of neurological, neuromuscular and cardiovascular physiology and their interrelationship with therapeutic agents. (Formerly 8200:561)

NURS:562 Advanced Physiological Concepts in Health Care II (3 Credits)

Prerequisite: NURS 561. This course presents an in-depth study of physiological processes in the areas of respiratory, renal and endocrine physiology and their interrelationship with therapeutic agents. (Formerly 8200:562)

NURS:589 Special Topics: Nursing (1-4 Credits)

(May be repeated as new topics are presented) Group studies of special topics in nursing. May not be used to meet requirements for the major in nursing. May be used for elective credit. (Formerly 8200:589)

NURS:593 Workshop (1-4 Credits)

(May be repeated as new topics are presented) Selected topics in nursing. May be used to meet undergraduate/graduate requirements at the discretion of the department. (Formerly 8200:593)

NURS:600 Episodic Primary Care of the Family (4 Credits)

Prerequisites: NURS 608, NURS 610, and NURS 612 with grades of B- or better. Episodic Primary Care focuses on care of the patient throughout the lifespan and treatment of episodic care, wellness, primary, secondary and tertiary care. (Formerly 8200:600)

NURS:602 Advanced Adult/Gero Assessment/FNP (2 Credits)

Prerequisites: NURS 608 and admission into the Post MSN FNP Certificate Program for the Pediatric Nurse Practitioner. Advanced adult/gerontological assessment and clinical reasoning for primary health care nursing of adults, with introduction to differential diagnosis and clinical management. (Formerly 8200:602)

NURS:603 Theoretical Basis for Nursing (3 Credits)

Prerequisite: admission to MSN program. Overview of extant nursing science. Evaluation and critique of nursing conceptual models. Analysis of the relationships of theory, research, and practice. (Formerly 8200:603)

NURS:604 Family Assessment Process in Nursing (2 Credits)

Prerequisite: Admission in Graduate Program. Provides advanced practice nurses with information regarding Nursing assessment and interventions techniques that can be used with families in a variety of health care settings. (Formerly 8200:604)

NURS:605 Child & Family Interventions for Psychiatric Nurse Practitioners (3 Credits)

Prerequisites: NURS 610, NURS 611, NURS 650, NURS 661, NURS 665. Introduction to family and child focused interventions related to psychiatric problems. Theories, strategies and evidence-based method with an emphasis upon cognitive-behavioral approaches will be included. (Formerly 8200:605)

NURS:606 Information Management in Advanced Nursing Practice (3 Credits)

Prerequisites: Admission to the MSN Program and STAT 661 or equivalent graduate level statistics course. Pre/Corequisite: NURS 619. This course is focused on nursing informatics to support clinical-decision making in advanced practice and administration. (Formerly 8200:606)

NURS:607 Policy Issues in Nursing (2 Credits)

Prerequisite: Admission to MSN program. Analysis of policy issues that impact on nursing and health care delivery to diverse population(s). Examine methods to shape policy, distribution, and allocation of resources. (Formerly 8200:607)

NURS:608 Pathophysiological Concepts of Nursing Care (3 Credits)

Prerequisite: Admission to MSN program. In-depth study of pathological conditions and related treatment modalities. The course focuses on specific nursing interventions related to these pathophysiological abnormalities. (Formerly 8200:608)

NURS:609 Advanced Pathophysiology for Nurse Anesthetist (3 Credits)

Prerequisite: admission to the MSN program. In-depth study of pathological conditions and related treatment modalities. The course focuses on specific nursing interventions related to these pathophysiological abnormalities. (Formerly 8200:609)

NURS:610 Advanced Health Assessment (3 Credits)

Prerequisites: Admission to one of the Advanced Practice Nursing tracks or permission of instructor and NURS 608. Advanced assessment and clinical reasoning for primary health care nursing of individuals across lifespan, with introduction to differential diagnosis and clinical management. (Formerly 8200:610)

NURS:611 Advanced Mental Health Assessment Across the Lifespan (3 Credits)

Prerequisite: NURS 608 or permission of instructor. Concepts related to psychoneuroimmunology will be examined with application to differential diagnosis of behavioral health disorders commonly used by advanced practice behavioral health nurses. (Formerly 8200:611)

NURS:612 Advanced Clinical Pharmacology (3 Credits)

Prerequisites: Admission to MSN program and NURS 608. Examines principles of pharmacology and therapeutics for major pharmacological agents used by advanced practice nurses to manage common health problems in primary care settings. (Formerly 8200:612)

NURS:613 Nursing Inquiry I: Promoting a Spirit of Inquiry (3 Credits)

Prerequisites: admission to MSN program. Concepts and ethical issues relating to scientific inquiry are examined, emphasizing the phases of the research process. Students participate in critical analysis of nursing research. (Formerly 8200:613)

NURS:614 Advanced Concepts for Family Psychiatric-Mental Health Nurse (3 Credits)

Prerequisites: NURS 610 and NURS 611 (may be taken concurrently) and Acceptance into the Psychiatric Family Nurse Practitioner track or permission of the course faculty. Examination and application of theories for individual, groups and families with complex psychiatric-mental health needs. Emphasis upon development of advanced competencies in conceptualizing and planning interventions. Phenomena from case studies will be used. (Formerly 8200:614)

NURS:615 Family Psychiatric Mental Health Nurse Practitioner: Child/Family (3 Credits)

Prerequisites: NURS 662, NURS 697, and NURS 698. Corequisite: NURS 689. Family/Child focused interventions for psychiatric problems including examination and application of theories for children, adolescents, and families with complex psychiatric-mental health needs. (Formerly 8200:615)

NURS:616 Advanced Pediatric/Adolescent Assessment/FNP (2 Credits)

Prerequisites: NURS 608. Ohio Certificate of Authority as an Adult Nurse Practitioner. Advanced pediatric/adolescent assessment and clinical reasoning for primary health care nursing with introduction to differential diagnosis and clinical management for FNP practice. (Formerly 8200:616)

NURS:617 Advanced Pharmacology:Child/Adolescent Health Nursing/FNP (2 Credits)

Prerequisites: NURS 608 or equivalent course. Certified Adult or Gerontological Nurse Practitioner with Certificate of Authority to practice in Ohio. Emphasis on major categories of pharmacological agents, class of agents, influencing developmental outcomes of children/adolescents in ambulatory, acute and chronic care environments for FNPs. (Formerly 8200:617)

NURS:618 Nursing Inquiry II (3 Credits)

Prerequisite: NURS 613. Emphasis on development of competencies in scientific inquiry. Research practicum will involve a) a pilot study; or b) participation in faculty research. (Formerly 8200:618)

NURS:619 Principles of Evidence Based Practice (3 Credits)

Prerequisite: Admission to the graduate program. Exploration of the role of nursing research on the profession, how evidence-based practice is guided by research to improve nursing practice. (Formerly 8200:619)

NURS:620 Adult/Gerontological Health Nursing NP I (2 Credits)

Prerequisite: Admission to the Adult/Gerontological Nurse Practitioner track or Post-MSN certificate program; prerequisite or corequisite: NURS 610. Research and theory integral to advanced nursing practice of adults/older adults/families with selected common health problems. Emphasis on comprehensive assessment, health promotion, and risk reduction. (Formerly 8200:620)

NURS:621 Adult/Gerontological Health Nursing NP II (2 Credits)

Prerequisites: NURS 610, NURS 620 or its equivalent for the Post-MSN, and NURS 627. Prerequisite or corequisite: NURS 612. Corequisites: NURS 628 and NURS 690. Focuses on problems common to acute illness in adults, older adults in acute, episodic care settings. Multidisciplinary care planning and coordination are emphasized, including transition to community-based care. (Formerly 8200:621)

NURS:622 Adult/Gerontological Health Nursing NP III (2 Credits)

Prerequisites: NURS 621 or the equivalent for the Post-MSN, NURS 628, and NURS 690. Corequisites: NURS 629 and NURS 692. Focuses on nursing care of middle aged/older adults and their families experiencing chronic illness. Emphasizes management of problems common to chronic care and rehabilitation. (Formerly 8200:622)

NURS:624 Adult/Gerontological Health Nursing NP IV (1 Credit)

Prerequisites: NURS 622, NURS 629, and NURS 692. Corequisites: 8200:623 and NURS 694. Integration of knowledge and skills for a population of adults/older adults with emphasis on problems of increasing complexity. Issues integral to APN practice are addressed. (Formerly 8200:624)

NURS:625 Primary Care of the OB Patient/FNP (1 Credit)

Prerequisites: COUN 648, NURS 602, and NURS 612. Application of evidence-based knowledge in the promotion of health and wellness of women during normal pregnancy. Emphasis is on assessment and clinical management of pregnancy. (Formerly 8200:625)

NURS:626 Adult/Gero NP Residency (1-4 Credits)

Prerequisites: NURS 602 and NURS 612 or its equivalent. Corequisites: NURS 620 and NURS 622. Intensive clinical residency to enhance competencies in primary care of adults/elders. Emphasis on positive health behavior outcomes and complex primary health care problems. (Formerly 8200:626)

NURS:627 Adult/Gerontological Health Nursing NP I Practicum (2 Credits)

Prerequisite: admission to the Adult/Gerontological Nurse Practitioner Program or Post-MSN certificate program; prerequisite or corequisite: NURS 610; corequisite: NURS 620 or its equivalent for Post MSN. Practicum with emphasis on comprehensive assessment, health promotion, and risk reduction of the adult/older adult. (Formerly 8200:627)

NURS:628 Adult/Gerontological NP II Practicum (2 Credits)

Prerequisites: admission to Adult/Gerontological NP track or Post-MSN certificate program, NURS 620 or its equivalent to Post-MSN, and NURS 627. Corequisites: NURS 621 or its equivalent for the Post-MSN and NURS 690. Practicum with emphasis on health appraisal/risk reduction and common, uncomplicated acute or chronic illness states of the adult/older adult/families. (Formerly 8200:628)

NURS:629 Adult Gerontological Health Nursing NP III Practicum (2 Credits)

Prerequisites: 8200:628 and NURS 690. Corequisite: NURS 692. Practicum with emphasis on complex chronic illness states and Comorbidities of the adult/older adult. (Formerly 8200:629)

NURS:630 Resource Management in Nursing Settings (3 Credits)

Prerequisite: Admission to Graduate Program or permission of instructor. Examines management of fiscal and human resources in nursing service settings; analyzes impact of economics and labor relations on health and nursing care. (Formerly 8200:630)

NURS:631 Adult/Gero Health Nursing NP IV Practicum (2 Credits)

Prerequisites: Admission to the Adult/Gerontological Nurse Practitioner track or Post-Master's certificate program, NURS 622, NURS 629, and NURS 692. Corequisites: NURS 624 and NURS 694. Synthesis of Adult/Gerontological Nurse Practitioner content. Emphasis on implementation and evaluation of program interventions. Practicum emphasizes severe acute and chronic illness states. (Formerly 8200:631)

NURS:632 Fiscal Management for Nursing Administration (3 Credits)

Prerequisite: Admission to Graduate Program or permission of instructor. Examines management of fiscal resources in nursing service settings. (Formerly 8200:632)

NURS:633 Leadership in Nursing Organizations I (3 Credits)

Prerequisites or corequisites: NURS 630, NURS 632, and NURS 635. Leadership and management theories are utilized to guide practice in the role of nurse administrator. (Formerly 8200:633)

NURS:634 Leadership in Nursing Organizations II (3 Credits)

Prerequisites: NURS 633 and NURS 638. Leadership and management theories are utilized to guide study of the role of nurse administrator. (Formerly 8200:634)

NURS:635 Organizational Behavior in Nursing Settings (3 Credits)

Prerequisites: Admission to Graduate Program or permission of instructor. Examines organizational behavior theories/principles related to systems analysis and assessment of organizational structure in nursing settings. (Formerly 8200:635)

NURS:636 Adult/Gerontological Health Nursing CNS Residency (2-4 Credits)

Prerequisites: 8200:673 and 8200:679. This clinical residency focuses on components of influencing change, systems thinking, leadership within a multidisciplinary collaborative environment using outcome measurement and evaluation. (Formerly 8200:636)

NURS:637 Nurse Anesthesia Residency I (4 Credits)

Prerequisites: NURS 644 and NURS 645. This course introduces the second year student to the art and science of both obstetrical and pediatric anesthesia related theory, research, and practice. (Formerly 8200:637)

NURS:638 Practicum: Nursing Administration I (2 Credits)

Prerequisites: Admission to Graduate Program or permission of instructor. Corequisite: NURS 633. Leadership and management theories are utilized to guide practice in the role of nurse administrator. (Formerly 8200:638)

NURS:639 Practicum: Nursing Administration II (2 Credits)

Prerequisites: NURS 633 and NURS 638. Corequisite: NURS 634. Leadership and management theories are utilized to guide study of the role of nurse administrator. (Formerly 8200:639)

NURS:640 Scientific Components of Nurse Anesthesia (3 Credits)

Prerequisite: admission into the Nurse Anesthesia program. The course presents content dealing with the chemical and physical components of anesthesia agents. (Formerly 8200:640)

NURS:641 Advanced Pharmacology for Nurse Anesthesia I (3 Credits)

Prerequisite: NURS 640. The study of intravenous induction agents, injectable analgesics and inhaled anesthetics commonly used in the administration of general anesthesia. Includes use of muscle relaxants. (Formerly 8200:641)

NURS:642 Anesthesia Techniques, Procedures, and Simulation Lab (4 Credits)

Prerequisite: Admission into the Nurse Anesthesia program. This course provides a general overview of anesthetic concepts and prepares students for their in-hospital residency. The course includes a lecture component and selected laboratory experiences. (Formerly 8200:642)

NURS:643 Advanced Health Assessment and Principles of Nurse Anesthesia I (4 Credits)

Prerequisite: NURS 640. This course focuses on the acquisition of basic skills related to nursing anesthesia care and administration of anesthesia agents, with a focus on equipment. (Formerly 8200:643)

NURS:644 Advanced Pharmacology for Nurse Anesthesia II (3 Credits)

Prerequisite: NURS 641. Focuses on mechanisms of drug transport within the human body for inhaled and injected medications. The effects of accessory drugs are also discussed. (Formerly 8200:644)

NURS:645 Advanced Health Assessment and Principles of Anesthesia II (4 Credits)

Prerequisite: NURS 643. Emphasis on pre-operative anesthesia care including induction techniques. Discusses airway management, fluid therapy, and ventilator use. (Formerly 8200:645)

NURS:646 Nurse Anesthesia Residency II (4 Credits)

Prerequisite: NURS 637. Concentration on the theoretical basis for specific nursing interventions and the rationale for their use in thoracic anesthesia, cardiac anesthesia, vascular anesthesia, and neurosurgical anesthesia management. (Formerly 8200:646)

NURS:647 Professional Roles for Nurse Anesthesia (2 Credits)

Prerequisites: NURS 644 and NURS 645. Discusses issues, concepts and theories related to the professional role of nurse anesthetists. Focuses on leadership/management content as well as professional ethical issues. (Formerly 8200:647)

NURS:648 Nurse Anesthesia Residency III (4 Credits)

Prerequisite: NURS 646. Focuses on the understanding of physiologic and pathophysiologic principles of particular organ systems and the relevant implication that govern anesthetic management. (Formerly 8200:648)

NURS:649 Nurse Anesthesia Residency IV (4 Credits)

Prerequisite: NURS 648. Comprehensive review of basic and advanced anesthetic concepts important to the entry-level nurse anesthetist. (Formerly 8200:649)

NURS:650 Advanced Pediatric/Adolescent Assessment (3 Credits)

Prerequisites: acceptance to Child and Adolescent Health Nursing track or permission of faculty and NURS 608. Corequisite: NURS 651. Advanced pediatric/adolescent assessment and clinical reasoning for primary health care nursing with introduction to differential diagnosis and clinical management. (Formerly 8200:650)

NURS:651 Child & Adolescent Health Nursing I (3 Credits)

Primary health care nursing to enhance positive health behavior outcomes of well children/adolescents and those with minor health disruptions and problems in family/community contexts. (Formerly 8200:651)

NURS:652 Child and Adolescent Health Nursing I Practicum (2 Credits)

Prerequisite: Admission into Child and Adolescent Health Nursing NP track or Post-MSN Child and Adolescent Health NP program. Clinical practicum course emphasizing primary health care nursing to enhance positive health behavior outcomes of well children/adolescents and those with minor health disruption/problems in family/community contexts. (Formerly 8200:652)

NURS:653 Child and Adolescent Health Nursing II Practicum (2 Credits)

Prerequisite: NURS 651. Clinical practicum course emphasizing primary health care nursing to enhance positive health behavior outcomes of children, adolescents with acute and/or chronic health disruption in family/community contexts. (Formerly 8200:653)

NURS:654 Child and Adolescent Health Nursing III Practicum (2 Credits)

Prerequisite: NURS 655. Clinical practicum course emphasis on advanced practice in primary health care using consultation and program development, marketing related to development and health behavior outcomes of children, adolescents and families. (Formerly 8200:654)

NURS:655 Child & Adolescent Health Nursing II (3 Credits)

Emphasis on primary health care nursing to enhance positive health behavior outcomes of children/adolescents with acute and/or chronic health disruptions in family/community contexts. (Formerly 8200:655)

NURS:656 Pharmacology for Child & Adolescent Health Nursing (3 Credits)

Prerequisite: Admission to Graduate Program. Emphasis on major categories of pharmacological agents, that influence developmental outcomes of children/adolescents in ambulatory, acute and chronic care environments. (Formerly 8200:656)

NURS:657 Child & Adolescent Health Nursing III (3 Credits)

Emphasis on advanced practice in primary health care using consultation and program development/marketing related to developmental and health behavior outcomes of children/adolescents and families. (Formerly 8200:657)

NURS:658 Child & Adolescent Health NP Residency (1-4 Credits)

Prerequisites/corequisites: Post-MSN CAH certification program students–NURS 651 and NURS 655 or MSN CAH students: NURS 655 and NURS 657. Opportunity for the advanced graduate nursing practitioner in Child and Adolescent Health. (Formerly 8200:658)

NURS:659 Child and Adolescent Health Nursing IV Practicum (2 Credits)

Prerequisite: NURS 657. Clinical practicum emphasizing integration of knowledge and skills with specific populations of vulnerable children/adolescents and their families. Emphasis on implementation of programmatic interventions and evaluation. (Formerly 8200:659)

NURS:660 Family Psychiatric Mental Health Nurse Practitioner I (2 Credits)

Prerequisites: NURS 608, NURS 610, and NURS 650. Corequisites: NURS 611 and NURS 661. Development of clinical competencies and therapeutic techniques in the delivery of behavioral health care to individuals. Includes 150 hours of clinical practice with a Psychiatric Advanced Practice Nurse Preceptor. (Formerly 8200:660)

NURS:661 Psychiatric Mental Health, APN I (3 Credits)

Prerequisites: Admission to Behavioral Health track, NURS 608, NURS 610, and NURS 650. Corequisites: NURS 611 and NURS 660. Concepts and theories of mental health promotion and disease prevention for individuals and families will be explored with emphasis upon interviewing and integrated treatment. (Formerly 8200:661)

NURS:662 Clinical Psychopharmacology (3 Credits)

Prerequisites: NURS 608, NURS 611, or instructor permission. Examines principles of neuroscience, pharmacology and therapeutics for psychopharmacologic agents used to manage adult mental health problems in variety of treatment settings. (Formerly 8200:662)

NURS:663 Psychiatric Mental Health APN Internship (1-4 Credits)

Prerequisites: NURS 661 and NURS 665. Focuses on behavioral health interventions with families and groups. Theoretical frameworks for direct intervention are examined. (Formerly 8200:663)

NURS:664 Psychiatric Mental Health-Acute, APN II Practicum (2 Credits)

Prerequisites: NURS 610, NURS 660, and NURS 661. Corequisite: NURS 665. Development of clinical competencies in direct intervention therapies with families/groups experiencing the stress of actual or potential health problems. (Formerly 8200:664)

NURS:665 Psychiatric Mental Health-Acute, APN II (3 Credits)

Prerequisites: NURS 610, NURS 660, and NURS 661. Corequisite: NURS 664. Focuses on advanced practice behavioral health nursing with families/groups experiencing the stress of actual or potential health problems. Theoretical frameworks for direct intervention are examined. (Formerly 8200:665)

NURS:666 Psychiatric Mental Health Post MSN Residency (1-4 Credits)

Prerequisites: NURS 662 and NURS 665. Corequisites: NURS 665 and NURS 667. This clinical residency focuses on influencing leadership within a multidisciplinary collaborative environment in complex health systems providing individuals/clients, families and groups with psychiatric mental health care. (Formerly 8200:666)

NURS:667 Psychiatric Mental Health-Chronic, APN III (3 Credits)

Prerequisites: NURS 664 and NURS 665. Corequisite: NURS 668. Focuses on consultation, collaboration, and program development in behavioral health nursing. Frameworks for practice in psychiatric and non-psychiatric settings are discussed. (Formerly 8200:667)

NURS:668 Psychiatric Mental Health-Chronic, APN III Practicum (2 Credits)

Prerequisites: NURS 664 and NURS 665. Corequisite: NURS 667. Development of clinical competencies in consultation, collaboration, and program development in behavioral health nursing practice. Practice is in psychiatric and non-psychiatric settings. (Formerly 8200:668)

NURS:669 Family Psychiatric Mental Health NP: Role Synthesis Practicum (2 Credits)

Prerequisites: NURS 615 and NURS 689. Corequisite: NURS 670. Integration of knowledge and skill related to behavioral health nursing: emphasizes integration of advanced practice nursing roles and implementation and evaluation of a programmatic intervention. (Formerly 8200:669)

NURS:670 Family Psychiatric Mental Health NP: Role Synthesis (3 Credits)

Prerequisites: NURS 615 and NURS 689. Corequisite: NURS 669. Integration of knowledge and skill related to behavioral health nursing: emphasizes integration of advanced practice nursing roles and implementation and evaluation of a programmatic intervention. (Formerly 8200:670)

NURS:672 Independent Study: Nursing (1-4 Credits)

Opportunity for advanced graduate nursing practice in a selected area of specialization. (Formerly 8200:672)

NURS:680 Child and Adolescent Health Nursing IV (3 Credits)

Prerequisite: NURS 657. Integration of evidenced based knowledge and skills related to programmatic interventions and evaluation in primary health care nursing with a specified population of vulnerable children/adolescents and their families. (Formerly 8200:680)

NURS:685 Child and Adolescent Health Nursing - Acute Care III (3 Credits)

Prerequisites: NURS 653 and NURS 655. Advanced practice in acute/critical intensive care areas with children with complex acute/critical/chronic conditions, responding to rapidly changing clinical conditions, recognizing/ managing emerging crises, organ dysfunction and failure. (Formerly 8200:685)

NURS:686 Child and Adolescent Health Nursing - Acute Care III Practicum (2 Credits)

Prerequisites: NURS 653 and NURS 655. Clinical practicum emphasizing advanced practice in acute/critical intensive areas with children with complex acute/critical/chronic conditions, responding to rapidly changing conditions, recognizing/managing emerging crises, organ dysfunction and failure. (Formerly 8200:686)

NURS:687 Child/Adolescent Health Nursing-Acute Care IV (3 Credits)

Prerequisites: NURS 685 and NURS 686. Integration of knowledge/skills in acute care with children with complex, acute/critical/chronic conditions. Emphasis on stabilization, minimizing complications, providing physical/psychological care to restore maximal health potential and reduce health risks. (Formerly 8200:687)

NURS:688 Child and Adolescent Health Nursing-Acute Care IV Practicum (2 Credits)

Clinical practicum to integrate knowledge/skills in acute care with children with complex/acute/critical/chronic conditions. Emphasis on stabilization strategies to minimize complications, providing physical/psychological care, restoring maximal health to reduce health risks. (Formerly 8200:688)

NURS:689 Family Psychiatric Mental Health Nurse Practitioner: Child/Family Practicum (2 Credits)

Prerequisites: NURS 697 and NURS 698. Corequisite: NURS 615. Focuses on behavioral health interventions with children, adolescents, and families. Clinical practicum in behavioral health interventions with children, adolescents, and families. 150 hours of clinical practice. (Formerly 8200:689)

NURS:690 Clinical Management I (3 Credits)

Prerequisites: admission to the Adult/Gerontological Nursing Practitioner track or the Post-MSN Adult/Gerontological NP certificate program, NURS 620 or its equivalent for the Post-MSN, and NURS 627. Corequisites: NURS 621 and NURS 628. Clinical Management of common chronic and acute problems of adults in primary health care settings. Focus on episodic management using differential diagnosis and clinical reasoning. (Formerly 8200:690)

NURS:691 Acute Care Nurse Practitioner I (4 Credits)

Prerequisites: NURS 608, NURS 610, and NURS 612. Focuses on common chronic and acute problems of adults in primary/tertiary health care settings. Emphasis on health promotion and risk assessment. (Formerly 8200:691)

NURS:692 Clinical Management II (3 Credits)

Prerequisites: NURS 621 or its equivalent for the Post-MSN, and NURS 628. Corequisites: NURS 622 and NURS 629. Clinical Management of complex, chronic health problems of adults in primary health care settings. Focus on long term management using differential diagnosis and clinical reasoning. (Formerly 8200:692)

NURS:693 Acute Care Nurse Practitioner II (4 Credits)

Prerequisite: NURS 691. Corequisite: NURS 692. Focus is on advanced nursing interventions related to system specific health care problems of adults in tertiary care settings. (Formerly 8200:693)

NURS:694 Clinical Management III (3 Credits)

Prerequisites: NURS 622 or its equivalent for Post-MSN, and NURS 629. Corequisites: 8200:623 and NURS 624. Clinical Management of complex health problems of adults/older adults using consultation, collaboration, and referral in selected primary health care settings. (Formerly 8200:694)

NURS:695 Acute Care Nurse Practitioner III (4 Credits)

Prerequisite: NURS 693. Corequisite: NURS 696. Focus of the course is on nursing management of patients with complex health care problems. (Formerly 8200:695)

NURS:696 Clinical Reasoning (1 Credit)

Prerequisite: NURS 693. Corequisite: NURS 695. Focus is on integration of abnormal laboratory, radiologic and morphologic findings as they relate to advanced nursing care of the acutely ill individual. (Formerly 8200:696)

NURS:697 Psychiatric Disorders Across Lifespan and Group Modalities Practicum (2 Credits)

Prerequisites: NURS 611, NURS 660, and NURS 661. Corequisites: NURS 662 and NURS 698. Development of clinical competencies in consultation, collaboration, and program development with groups in behavioral health nursing practice. 150 hours of clinical practice in psychiatric and non-psychiatric settings. (Formerly 8200:697)

NURS:698 Psychiatric Disorders Across the Lifespan and Group Modalities (3 Credits)

Prerequisites: NURS 611, NURS 660, and NURS 661. Corequisites: NURS 662 and NURS 697. Explore concepts related to the management of psychiatric disorders with an emphasis on combining psychotherapy, pharmacology, and complementary/alternative approaches with group modalities. (Formerly 8200:698)

NURS:699 Masters Thesis (1-6 Credits)

Prerequisite: NURS 613. Supervised research in a specific area of advanced nursing. (Formerly 8200:699)

NURS:700 Information Management in Health Care (3 Credits)

Prerequisites: Doctoral standing or special approval from the department. This course focuses on nursing informatics to support clinical decision making in advanced nursing practice. (Formerly 8200:700)

NURS:701 Advanced Seminar in Clinical Genomics and Health (3 Credits)

Prerequisites: Admission to the DNP program or permission of the Department of Nursing graduate program. A focus on genetics and genomics analyzing the essentials of advanced practice care and genetic diagnostics, therapies, and counseling in area of interest. (Formerly 8200:701)

NURS:703 Classroom Teaching (4 Credits)

Prerequisite: Admission to the Nursing Education Certificate program, Post-Baccalaureate. You should also possess the basic technical skills necessary to participate in an online course. (Formerly 8200:703)

NURS:704 Clinical Teaching & Evaluation (4 Credits)

Prerequisite: Admission to the Nursing Education Certificate Program, Post Baccalaureate. This course focuses on teaching in clinical and learning resource center (LRC) settings and basic principle of online education. Application of principles will be demonstrated in a practicum based clinical and learning resource center setting. Student evaluations in the clinical setting will be addressed. (Formerly 8200:704)

NURS:705 Clinical Nurse Scholar I (3 Credits)

Prerequisites: NURS 603 and doctoral standing or approval from the Department of Nursing graduate program. Transition to clinical scholar leader role with emphasis on epistemology guiding advanced practice. Integration of theory and evidenced-based practice principles to achieve health outcomes. (Formerly 8200:705)

NURS:706 Clinical Nurse Scholar II (4 Credits)

Prerequisites: NURS 700 and NURS 705. Translation and integration of theory and scientific evidence guiding clinical practice using culturally sensitive approaches to design innovative interventions. (Formerly 8200:706)

NURS:707 Clinical Scholar Residency (3 Credits)

Prerequisite: NURS 706. Synthesis of components of clinical scholar leader role comprises residency. Advanced leadership and clinical scholarship skills used to develop and evaluate approaches to healthcare problems. (Formerly 8200:707)

NURS:708 DNP Project I (3 Credits)

Prerequisite: NURS 705. Corequisite: NURS 706. Faculty-preceptor-directed project that will contribute to nursing practice knowledge. Includes oral defense and publishable manuscript. May register for 2 to 6 hours. (Formerly 8200:708)

NURS:709 DNP Project II (3 Credits)

Prerequisite: NURS 708. This course guides the completion of a faculty and preceptor-directed clinical project that contributes to nursing practice knowledge. Culminates in an oral defense of the project and a publishable manuscript. (Formerly 8200:709)

NURS:710 Advanced Healthcare Statistics (3 Credits)

Prerequisite: Admission to DNP program. The course focuses on an in depth examination of descriptive statistics, correlation, regression, multiple regression sets, scaling, nonlinear transformation, missing data, and interactive effects; including manipulation of data, integrating understanding of inference and probability. (Formerly 8200:710)

NURS:711 Nursing Curriculum Development (2 Credits)

Prerequisite: Admission to the Nursing Education Certificate, post-baccalaureate. Students should also possess the basic technical skills necessary to participate in an online course. (Formerly 8200:711)

NURS:712 Fiscal Management in Healthcare (3 Credits)

This course examines the role and the required skills for the Doctor of Nursing Practice (DNP) graduate as a nurse leader in the understanding of the business acumen and the financials of health care. (Formerly 8200:712)

NURS:713 Advanced Leadership in Health Care (3 Credits)

Prerequisite: Doctoral standing or special approval from department. This course focuses on leadership competencies of doctoral-prepared advanced practice nurses. (Formerly 8200:713)

NURS:714 Synthesis and Application of Evidence for Advanced Practice Nurses (3 Credits)

Prerequisite: Doctoral standing or special approval from department/admission to the program. This course focuses on concepts, models and methods for implementation of evidence-based nursing practice at both individual clinician and system levels. (Formerly 8200:714)

NURS:715 Fundamentals of Public Health Epidemiology (3 Credits)

This course introduces principles, methods, and application of epidemiology. The course covers the history of epidemiology, concepts of disease causation and prevention, measures of disease frequency and excessive risk, epidemiologic study designs, causal inference, and epidemiological methods to identify and estimate public health problems and to work out effective solutions for these problems. (Formerly 8200:715)

NURS:800 Doctoral Dissertation II (1 Credit)

Prerequisite: NURS 899 and permission of the dissertation chairperson. Continuing enrollment to complete the doctoral dissertation research. (Formerly 8200:800)

NURS:810 History & Philosophy of Nursing Science (3 Credits)

Prerequisite: Admission to the Ph.D. Program or permission of the professor. Examines the nature of metaphysics and epistemology and the influence of contemporary Eastern and Western philosophies on the developing epistemology of disciplinary nursing knowledge. (KSU 70710) (Formerly 8200:810)

NURS:815 Theory Construction & Development in Nursing (3 Credits)

Prerequisites: Admission to the Ph.D. Program and NURS 810. Examines strategies for theory development including logical-empirical-deductive and inductive approaches. Emphasis will be on elements and strategies used in theory building. (KSU 70715) (Formerly 8200:815)

NURS:820 Introduction to Nursing Knowledge Domains (3 Credits)

Prerequisites: NURS 815, NURS 825 and NURS 830. Introductory seminar analyzing selected theoretical and methodological approaches to knowledge development in nursing. Emphasis on critical analysis of knowledge in areas of special interest. (Formerly 8200:820)

NURS:824 Foundations of Scholarly Inquiry in Nursing (3 Credits)

Prerequisites: Admission to the Doctoral Program, Permission of Instructor. Corequisite: NURS 810. This course examines diverse paradigms and research methods as the foundation for scholarly inquiry in nursing knowledge development. Students begin building a foundation for focused intellectual inquiry in a substantive area of nursing. (Formerly 8200:824)

NURS:825 Quantitative Research Methods (3 Credits)

Prerequisite: Admission to the Ph.D. Program or permission of the professor. Extends students' knowledge of the theory and practice of quantitative research in nursing. Focus is on the major types of quantitative design in nursing science. Theoretical and procedural issues related to design, measurement and data management with a substantive area of nursing inquiry are emphasized. (Formerly 8200:825)

NURS:827 Advanced Healthcare Statistics I (3 Credits)

Prerequisite: Admission to the Ph.D. Program or permission of the professor. Prerequisite or corequisite: NURS 825. Comprehension of bivariate and multivariate descriptive and inferential statistics designed for nurse researchers. Applications to research problems in nursing. (Formerly 8200:827)

NURS:830 Qualitative Research Methods (3 Credits)

Prerequisite: Admission to the Ph.D. Program or permission from the instructor. Selected qualitative research methods used to study nursing phenomena. Philosophical bases; design, data collection and analysis; evaluation of rigor; and ethical issues for major qualitative methods will be analyzed with regard to nursing phenomena. (KSU 70730) (Formerly 8200:830)

NURS:835 Nursing & Health Care Policy (3 Credits)

Prerequisite: Admission to the Ph.D. Program or permission of the professor. Critical examination of theories and processes of formulating state/national health care policy. Focus on health issues, the political and legislative process, and contemporary policy dilemmas. (KSU 70735) (Formerly 8200:835)

NURS:836 Advanced Interdisciplinary Leadership for the Health Science (4 Credits)

Prerequisite: Admission to the PhD program or permission of instructor. Seminar on advanced leadership in healthcare and the health sciences to assist students to become leaders within practice, academe, and the community. (Formerly 8200:836)

NURS:837 Advanced Healthcare Statistics II (3 Credits)

Prerequisite: NURS 827 and admission to the Ph.D. Program or permission of instructor. Application of bivariate and multivariate descriptive and inferential statistics to research problems in nursing. (Formerly 8200:837)

NURS:840 Nursing Science Seminar I (3 Credits)

Prerequisite: NURS 820. Seminar on critical analysis and synthesis of theoretical models and empirical research that form the foundation for the student's research. Funding sources are examined. (KSU 86091, 86191, 86291, 86391) (Formerly 8200:840)

NURS:845 Advanced Methods for Research (3 Credits)

Prerequisites: NURS 825, NURS 827, and admission to the PhD program. Prerequisite or Corequisite: NURS 837. Focuses on integration and application of components of quantitative research design in nursing through application of multivariate design principles to existing data sets. Advanced topics in methods, statistics, and measurements are addressed. (Formerly 8200:845)

NURS:846 AMNR: Measurement in Nursing Research (3 Credits)

Prerequisite: NURS 820. Theories and concepts related to measurement and nursing research including techniques for construction, testing, and refining of instruments with assessment of reliability and validity. (Formerly 8200:846)

NURS:847 AMNR: Application of Qualitative Methods (3 Credits)

Prerequisite: NURS 820. Theory, data collection and analysis used in qualitative nursing research with a focus on phenomenology, grounded theory and ethnography. (Formerly 8200:847)

NURS:848 AMNR: Program Evaluation in Nursing (3 Credits)

Prerequisite: NURS 820. Seminar and lecture: analysis of theories and models of program evaluation and their relationships to designs, processes, techniques, and outcomes in nursing-related evaluations. (Formerly 8200:848)

NURS:849 AMNR: Grant Development and Funding (3 Credits)

Prerequisite: NURS 820. Advanced seminar on critical analysis of proposal and grant development, funding, peer review, and advocacy process with emphasis on the development of a grant proposal. (Formerly 8200:849)

NURS:850 Nursing Science Seminar II (3 Credits)

Prerequisite: NURS 820 and NURS 840. Seminar on advancement and development of scholarship through critical evaluation of scientific work. (Formerly 8200:850)

NURS:883 Evaluation of Nursing Education (3 Credits)

Application of evaluation and measurement principles to nursing education. Emphasis on evaluation as both process and outcome. Includes evaluation of program, curriculum, course, and learner. (Formerly 8200:883)

NURS:884 Practicum: Academic Role of the Nurse Educator (3 Credits)

Prerequisites: NURS 883. Precepted study and practice in classroom and clinical teaching. Presentation of a researchable topic. Course may be waived based on submission of an approved portfolio. (Formerly 8200:884)

NURS:892 Field Experience in Nursing (1-12 Credits)

Prerequisite: Admission to the Ph.D. program or permission of instructor. Individual enrollment in field experience, practicum, or internship settings related to nursing. (Formerly 8200:892)

NURS:895 Special Topics in Nursing (2-6 Credits)

Study of important topics in nursing practice, research, or the profession. Offering in response to existing interests and opportunities. Topics will be announced when scheduled. (Formerly 8200:895)

NURS:896 Individual Investigation in Nursing (1-3 Credits)

Prerequisite: Admission to the Ph.D. program or permission of instructor. Individual enrollment for independent study in nursing carried out by student under supervision of a doctoral faculty council member. (Formerly 8200:896)

NURS:898 Research in Nursing (1-15 Credits)

Prerequisite: Admission to the Ph.D. program or permission of instructor. Research carried out by a student under faculty supervision. In-depth inquiry should result in a paper or appropriate product. (Formerly 8200:898)

NURS:899 Doctoral Dissertation (1-15 Credits)

Prerequisite: Advancement to candidacy. (May be repeated.) Independent dissertation research under the guidance of a faculty chairperson and a dissertation committee. (KSU 80199) (Formerly 8200:899)

Nutrition and Dietetics (NUTR)

NUTR:500 Nutrition Communication & Education Skills (4 Credits)

Prerequisite: permission of instructor. Theory and development of communication and education skills essential to dietetics practice; interpersonal communication; interviewing; nutrition counseling, education techniques, media and current technology. (Formerly 7760:500)

NUTR:503 Advanced Food Preparation (3 Credits)

Prerequisite: permission. Study of advanced techniques of food preparation. Introduction to and interpretation of classical and foreign cuisines. Emphasis on individualized experience, skill development and evaluation of procedures and results. (Formerly 7760:503)

NUTR:513 Food Systems Management II (3 Credits)

Prerequisites: Acceptance into the graduate program or permission of the instructor. Advanced concepts in management of dietetic service systems relating to achievement of nutritional care goals. (Formerly 7760:513)

NUTR:524 Nutrition in Life Cycle (3 Credits)

Prerequisite: permission of the instructor. Study of the physiological basis for nutritional requirements; interrelating factors which affect growth, development, maturation and nutritional status from conception through the elderly years. (Formerly 7760:524)

NUTR:526 Human Nutrition (3 Credits)

Prerequisites: Acceptance into the graduate program or permission from the instructor. Corequisites: NUTR 543. Application of principles of nutrition, metabolism and assessment. Analysis and interpretation of current literature. (Formerly 7760:526)

NUTR:528 Nutrition in Medical Science II (5 Credits)

Prerequisites: Acceptance into the graduate program or permission of instructor. Emphasizing nutritional implications of more complex metabolic and pathological conditions as well as nutrition support strategies. (Formerly 7760:528)

NUTR:529 Nutrition in Medical Sciences II Clinical (3 Credits)

Prerequisite: Admission to CP Program. Corequisite: NUTR 528. Clinical experience in hospitals; application of principles of nutritional care. (Formerly 7760:529)

NUTR:543 Nutrition Assessment (3 Credits)

Corequisites: NUTR 526. Application of principles of nutrition and assessment. Analysis and interpretation of current literature. Open to dietetics majors only. (Formerly 7760:543)

NUTR:544 Nutrition in Medical Science Long Term Care ? Clinical (2 Credits)

Prerequisites: CP Graduate students only. Clinical experiences in long term care facilities for application of principles of nutritional care. (Formerly 7760:544)

NUTR:570 Food Industry: Analysis & Field Study (3 Credits)

Prerequisite: permission. Role of technology in extending the food supply. Chemical, physical and biological effects of processing and storage, on-site tours of processing plants. (Formerly 7760:570)

NUTR:574 Cultural Dimensions of Food (3 Credits)

An examination of cultural, geographical and historical influences on development of food habits. Emphasis on evolution of diets; effects of religion, education, gender roles, media. (Formerly 7760:574)

NUTR:576 Developments in Food Science (3 Credits)

Prerequisite: Permission. Advanced study of the chemistry and physics of food components affecting characteristics of foods. Critical evaluation of current basic and applied research emphasized. (Formerly 7760:576)

NUTR:580 Community Nutrition I (3 Credits)

Prerequisite: Permission of instructor. Corequisite: NUTR 581. Socio-cultural aspects of community assessment, program implementation and evaluation, and rationales for nutrition services. (Formerly 7760:580)

NUTR:581 Community Nutrition I-Clinical (1 Credit)

Corequisite: NUTR 580. Field placement in area agencies offering nutrition services. Study of the agency's goals, organization, and philosophy of nutritional care. Credit/noncredit. (Formerly 7760:581)

NUTR:582 Community Nutrition II (3 Credits)

Prerequisites: NUTR 580 (NUTR 581 for CP student only). Corequisite: NUTR 583 for CP student only. This course will focus on managing nutrition services for productivity (economic, community and labor resources, and evaluation), and educating the dietitians' "various publics" about nutrition. (Formerly 7760:582)

NUTR:583 Community Nutrition II-Clinical (1 Credit)

Prerequisite: (CP students only) NUTR 581. Corequisite: NUTR 582. Field placement in area agencies offering nutrition services. Study of the agency's goals, organization, and philosophy of nutritional care. Credit/noncredit. (Formerly 7760:583)

NUTR:585 Seminar in Health Professions (1-3 Credits)

Prerequisite: Permission of instructor. Exploration and evaluation of current developments in selected areas. (Formerly 7760:585)

NUTR:587 Sports Nutrition (3 Credits)

Prerequisite: Permission of instructor. In-depth study of energy metabolism and utilization before, during and after exercise. Factors affecting nutrient needs and peak performance of different athletic populations are emphasized. (Formerly 7760:587)

NUTR:588 Practicum in Dietetics (1-3 Credits)

Prerequisite: Approval of advisor/instructor. Practical experience in application of the principals of nutrition. (Formerly 7760:588)

NUTR:589 Professional Preparation for Dietetics (1 Credit)

Prerequisite: Open to those dietetics students in the Didactic Program or Graduate program who plan to apply for a Dietetic Internship. Historical aspects of dietetics and where the profession is going. Specialty areas of dietetic practice are explored. Students prepare the application for dietetic internship. (Formerly 7760:589)

NUTR:593 Nutrition for Athletes (3 Credits)

Study of metabolism before, during, and after exercise. Factors affecting nutrient needs and peak performance of different athletic populations are emphasized. (Formerly 7760:593)

NUTR:604 Orientation to Graduate Studies in Health Professions (1 Credit)

Introduction to the concepts and processes necessary for graduate study in health professions. (Formerly 7760:604)

NUTR:610 Food Systems Management (3 Credits)

Theoretical concepts in the management of dietetic food service systems, and application of principles and procedures to achieve nutritional goals. (Formerly 7760:610)

NUTR:616 Clinical Nutrition (3 Credits)

Study of Medical Nutrition Therapy (MNT) and its relationship to metabolic and pathological conditions, as well as nutrition support strategies. (Formerly 7760:616)

NUTR:624 Advanced Human Nutrition I (3 Credits)

Prerequisites: Undergraduate or graduate-level courses in nutrition and biochemistry. In-depth study of human nutrition emphasizing metabolism physiological functions, and interrelationships of carbohydrate, protein and lipids and the determinants of human energy requirements. (Formerly 7760:624)

NUTR:625 Advanced Human Nutrition II (3 Credits)

Prerequisite: NUTR 624 or equivalent. In-depth study of human nutrition with and emphasis in the utilization, physiological functions and interrelationships of vitamins and minerals. (Formerly 7760:625)

NUTR:680 Current Issues in Nutrition (3 Credits)

Study of current issues in the field of nutrition science. Each semester that it is offered, this course will explore a specific issue relevant to current research and practice in the field of nutrition as it relates to biology, immunology, applied nutrition, and epidemiology. (Formerly 7760:680)

NUTR:685 Research Methods in Health Professions (3 Credits)

A study of health sciences research methods emphasizing concept and theory development, quantitative and qualitative methodologies. (Formerly 7760:685)

NUTR:688 Practicum in Nutrition and Dietetics (3 Credits)

Prerequisite: Permission of advisor/instructor. A minimum of 150 hours of supervised experience in an approved community setting to acquire skills related to area of specialization. (Formerly 7760:688)

NUTR:690 Thesis Research/Reading (3 Credits)

Prerequisite: Permission of thesis advisor. Supervised reading and research related to approved thesis topic. May be repeated once. (Formerly 7760:690)

NUTR:694 Masters Project (5 Credits)

Prerequisite: Permission of advisor. The development, implementation and evaluation of a community-based supervised project which makes a significant contribution to the field and may lead to publication. (Formerly 7760:694)

NUTR:696 Individual Investigation in Nutrition and Dietetics (1-3 Credits)

Prerequisite: Permission of advisor. Individual Investigation and analysis of a specific topic in student's area of specialization of interest under direction of a faculty advisor. (Formerly 7760:696)

NUTR:699 Masters Thesis in Health Professions (5 Credits)

Prerequisite: permission of advisor. Supervised research in a specialized area of the health profession which makes a contribution to the field and may lead to publication. (Formerly 7760:699)

Outdoor Education (ODED)

ODED:550 Application of Outdoor Education to the School Curriculum (4 Credits)

Provides knowledge, skills and techniques useful in application of outdoor education to school curriculum. (Formerly 5560:550)

ODED:552 Resources & Resource Management for the Teaching of Outdoor Education (4 Credits)

Resources and instructional techniques which are applicable to outdoor education; and in-depth study of methods and designs, unique to the process of teaching. (Formerly 5560:552)

ODED:554 Resident Outdoor Education (2 Credits)

Focus on helping physical education teachers use critical thinking to review programming/organizational techniques relevant to outdoor education programs. Extended experience in outdoor settings required. (Formerly 5560:554)

ODED:556 Outdoor Pursuits (4 Credits)

Investigation and participation in practical experiences in outdoor pursuits. (Formerly 5560:556)

ODED:600 Outdoor Education: Rural Influences (3 Credits)

Prerequisite: ODED 550 or ODED 552. Utilization of resources of rural area as a learning/teaching environment. Content and methodology appropriate for teaching school-age children in rural setting. (Formerly 5560:600)

ODED:605 Special Topics: Outdoor Education (2-4 Credits)

(May be repeated with change in topic) Prerequisite: permission of instructor. Group and individual study of special topics of contemporary concern in outdoor education. (Formerly 5560:605)

ODED:652 Resources Teaching Outdoor Education (4 Credits)

See department for course description. (Formerly 5560:652)

ODED:690 Practicum in Outdoor Education (2-4 Credits)

Prerequisites: ODED 550, ODED 552 and permission of advisor. Supervised practical experience with existing outdoor education programs. In conjunction with practical work student meets regularly with advisor. (Formerly 5560:690)

ODED:695 Practicum in Outdoor Education (3 Credits)

Prerequisite: permission of advisor. Participation and documentation of practical professional experience related to outdoor education. (Formerly 5560:695)

ODED:697 Independent Study (1-3 Credits)

Prerequisite: permission of advisor. In-depth analysis of current practices or problems related to outdoor education. Documentation of study required. (Formerly 5560:697)

ODED:698 Masters Problem (2-4 Credits)

Prerequisite: permission of advisor. Intensive research study related to a problem in outdoor education or related discipline. (Formerly 5560:698)

ODED:699 Masters Thesis (4-6 Credits)

An original composition demonstrating independent scholarship in a discipline related to outdoor education. (Formerly 5560:699)

Philosophy (PHIL)

PHIL:511 Plato (3 Credits)

Prerequisite: Permission of instructor. Detailed study of the origin and development of Plato's Theory of Forms and the related theories of knowledge, ethics, and politics. (Formerly 3600:511)

PHIL:514 Aquinas (3 Credits)

Prerequisite: Permission of instructor. An in depth examination of the philosophy of St. Thomas Aquinas covering his contributions in metaphysics, epistemology, ethics, political theory, and philosophical theology. (Formerly 3600:514)

PHIL:515 Augustine (3 Credits)

Prerequisite: Permission of instructor. An in depth examination of the philosophy of St. Augustine covering his contributions in metaphysics, epistemology, ethics, political theory, and philosophical theology. (Formerly 3600:515)

PHIL:518 20th Century Analytic Philosophy (3 Credits)

Prerequisite: Permission of instructor. Study of ideal and ordinary language movements in 20th century British and American philosophy. Deals with such figures as Russell, Carnap, Ayer, Moore, Wittgenstein, Ryle and Austen. (Formerly 3600:518)

PHIL:521 Philosophy of Law (3 Credits)

Prerequisite: Permission of instructor. Identification and critical evaluation of classic and contemporary theories and assumptions of law, including legal reasoning, justice, natural law, punishment, etc. (Formerly 3600:521)

PHIL:524 Existentialism (3 Credits)

Prerequisite: Permission of instructor. In-depth inquiry into the thought of Kierkegaard, Jaspers, Heidegger, Sartre, Tillich and other existentialists with their concern for the human condition. (Formerly 3600:524)

PHIL:526 Phenomenology (3 Credits)

Prerequisite: Permission of instructor. In-depth inquiry into methodology of Husserl and Heidegger and their influence upon Western European and American thought. (Formerly 3600:526)

PHIL:532 Aristotle (3 Credits)

Prerequisite: Permission of instructor. Detailed study of Aristotle's metaphysics, philosophy of nature, philosophy of mankind and ethics. (Formerly 3600:532)

PHIL:534 Kant (3 Credits)

Prerequisite: Permission of instructor. Study of Kantian system of thought and its relation to history of philosophy. Includes thorough investigation of one or more of Kant's philosophical works. (Formerly 3600:534)

PHIL:555 Philosophy of Feminism (3 Credits)

Prerequisite: Permission of instructor. Study of feminist critiques of, and alternatives to, traditional western philosophy, including topics in ethics, metaphysics, epistemology, and religion. (Formerly 3600:555)

PHIL:561 Neuroethics (3 Credits)

Prerequisites: Permission of instructor. Discussion and evaluation of contemporary theories of moral agency arising from developments in neuroscience. (Formerly 3600:561)

PHIL:562 Theory of Knowledge (3 Credits)

Prerequisite: Permission of instructor. Examination of nature of knowledge; theories of perception, conception and truth, problem of induction and relation of language to knowledge. (Formerly 3600:562)

PHIL:564 Philosophy of Science (3 Credits)

Prerequisite: Permission of instructor. Nature of scientific inquiry, types of explanation, laws and causality, theoretical concepts and reality. Also considers critics of hypothetical-deductive view of science, e.g., Hanson and Kuhn. (Formerly 3600:564)

PHIL:571 Metaphysics (3 Credits)

Prerequisite: Permission of instructor. Theories about ultimate nature and ultimate explanation of reality. Uses readings from classical and contemporary sources. (Formerly 3600:571)

PHIL:580 Seminar in Philosophy (3 Credits)

(May be repeated, for additional credit, with change of topic). Prerequisite: Permission of instructor. Varying philosophical topics not covered in regular course offerings. (Formerly 3600:580)

PHIL:581 Philosophy of Language (3 Credits)

Prerequisite: Permission of instructor. Contemporary philosophies about nature of language and its relation to reality and human thinking. Includes discussion of views of linguists such as Chomsky. (Formerly 3600:581)

PHIL:597 Individual Study: Philosophy (1-3 Credits)

(May be repeated for a total of six credits) Prerequisites: Completion of required course of philosophy major or permission of instructor and department chair. Directed independent study of philosopher, philosophy or philosophical problem under guidance of selected faculty member. Subject matter determined by selected faculty member in consultation with student. Graduate credit requires significant additional work which may include additional research paper. (Formerly 3600:597)

PHIL:665 Ethics of Science (3 Credits)

Examination of the foundational issues surrounding ethics and science as well as consideration of applied ethical issues of scientists, science, new technologies and society. (Formerly 3600:665)

Physical Education (PHED)

PHED:528 Nutrition for Teachers and Coaches (3 Credits)

Covers nutritional basics and current topics related to teaching physical education/health and coaching athletes. (Formerly 5550:528)

PHED:536 Foundations & Elements of Adapted Physical Education (3 Credits)

Principles, components, and strategies necessary in providing motor activities for handicapped students via application of a neuro-developmental model and alternative methods. Three hour lecture. (Formerly 5550:536)

PHED:546 Instructional Techniques in Secondary Physical Education (3 Credits)

Instructional strategies for secondary physical education. The course content is to improve the teaching skills of students who will be teaching physical education at the secondary level. It is a required course for the physical education licensure. (Formerly 5550:546)

PHED:547 Instructional Techniques for Children in Physical Education (3 Credits)

Instructional strategies for elementary physical education. The course content is to improve the teaching skills of students who will be teaching physical education for children. It is a required course for the physical education licensure. (Formerly 5550:547)

PHED:550 Organization & Administration of Physical Education, Intramurals and Athletics (3 Credits)

General concepts of administration and organization in physical/health education, intramural, and athletic programs. (Formerly 5550:550)

PHED:552 Foundations of Sport Science, Physical and Health Education (3 Credits)

Overview of the emergence of sport science, physical and health education as a profession and the supporting role of underlying scholarly and scientific disciplines. (Formerly 5550:552)

PHED:562 Legal Aspects of Physical Activity (2 Credits)

Overview legal and ethical elements of greatest concern to specialists in sport and physical activity. Cases used to illustrate specific points. Topics vary. (Formerly 5550:562)

PHED:590 Workshop: Physical Education (1-3 Credits)

Practical, intensive, and concentrated involvement with current curricular practices in areas related to physical education. (Formerly 5550:590)

PHED:592 Workshop: Physical Education (1-3 Credits)

Practical, intensive, and concentrated involvement with current curricular practices in areas related to physical education. (Formerly 5550:592)

PHED:594 Student Teaching Colloquium (for Master's Plus Initial Lic.) (2 Credits)

Prerequisites: required physiological foundations courses, required historical/philosophical foundations courses, required program studies courses. Corequisite: PAUS 595. Students who have a bachelor's degree but no teaching licensure and who are completing the master's plus initial licensure program will meet while completing student teaching to discuss concerns about the student teaching experience, to analyze previous learning as it relates to this and future teaching. (Formerly 5550:594)

PHED:595 Practicum: Student Teaching (8 Credits)

Prerequisites: Core courses and program studies courses, each with a 2.5 grade point average. Corequisite: PAUS 594. Student teaching for 16 weeks in primary and secondary school settings. (Formerly 5550:595)

PHED:610 Mastering Teaching and Coaching (3 Credits)

To learn about becoming master teachers and coaches, students will apply effective teaching skills, focus on context, and reflect on the teaching/coaching process. Additional 10 clinical/field hours required. (Formerly 5550:610)

PHED:611 Research & Analysis of Effective Teaching in P.E. (3 Credits)

For the new professional, this course concentrates on research and analysis of skills and professional competencies needed to become an effective teacher of physical education. (Formerly 5550:611)

Physics (PHYS)

PHYS:501 Everyday Physics (4 Credits)

Prerequisite: Permission of instructor. College-level physics content for future teachers. Inquiry, discovery, activities, discussion, and experiential learning take place in a laboratory/embedded-lecture environment. (Formerly 3650:501)

PHYS:506 Elements of Optics (3 Credits)

Prerequisite: Permission of instructor. Selected topics in optics such as geometrical, wave (diffraction and interference, polarization, scattering etc.), and quantum optics (lasers); design of optical systems based on optical design platforms. (Formerly 3650:506)

PHYS:531 Mechanics (3 Credits)

Prerequisite: Permission of instructor. Mechanics at an intermediate level. Newtonian mechanics, motion of a point particle, momentum and energy, oscillations, Lagrange's equations, central force problems, non-inertial frames, rotation of rigid bodies, coupled oscillators and normal modes. (Formerly 3650:531)

PHYS:532 Mechanics II (3 Credits)

Prerequisite: Admission to Physics Master's program or permission. Advanced mechanics at the senior or beginning graduate level, moving coordinate systems, mechanics of continuous media. Lagrange's equations, tensor algebra and stress analysis, rotation or rigid bodies, vibration theory. (Formerly 3650:532)

PHYS:536 Electromagnetism (3 Credits)

Prerequisite: Permission of instructor. Electricity and magnetism using vector calculus. Electrostatics and magnetostatics, electric and magnetic fields, dielectric and magnetic materials, electromagnetic induction, Maxwell's field equations in differential form, wave solutions. (Formerly 3650:536)

PHYS:537 Electromagnetism II (3 Credits)

Prerequisite: Admission to Physics Master's program or permission. Special relativity, four vectors, Maxwell's equations in covariant form; propagation, reflection and refraction of electromagnetic waves; multipole radiation. (Formerly 3650:537)

PHYS:541 Quantum Physics (3 Credits)

Prerequisite: Permission of instructor. Introduction to quantum theory, Schrödinger equation, observables, angular momentum, perturbation theory, variational principle, bound states, scattering theory, radiative interactions, spin, Pauli Exclusion Principle, applications of quantum mechanics to atomic, nuclear and solid state physics. (Formerly 3650:541)

PHYS:542 Quantum Physics II (3 Credits)

Prerequisite: Admission to Physics Master's program or permission. Applications of quantum mechanics to atomic, nuclear and solid state physics. Tunneling and alpha decay, periodic potential, Hydrogen and Helium atoms, interatomic forces, quantum statistics. (Formerly 3650:542)

PHYS:551 Advanced Laboratory (3 Credits)

Prerequisite: Permission of instructor. Experimental techniques, applicable to research-type projects in contemporary physics. Advanced scanning probe techniques including atomic force microscopy, electrostatic nanolithography, radioactive spectroscopy, and lasers. (Formerly 3650:551)

PHYS:552 Advanced Laboratory II (3 Credits)

Prerequisite: Admission to Physics Master's program or permission. Experimental projects applicable to contemporary physics. Diode and dye lasers, laser feedback, chaos, NMR, electron tunneling, and fiber optics. (Formerly 3650:552)

PHYS:556 Techniques of Physics Instruction (1.00 Credits)

Teaching assistants are introduced to current research in learning physics, shown applications for their labroom, and trained in skills needed as a laboratory teaching assistant. (Formerly 3650:556)

PHYS:570 Introduction to Solid-State Physics (3 Credits)

Prerequisite: Admission to Physics Master's program or permission. Account of basic physical processes occurring in solids, with emphasis on fundamental relation between these processes and periodicity of crystalline lattice. (Formerly 3650:570)

PHYS:581 Methods of Mathematical Physics (3 Credits)

Prerequisite: Permission of instructor. Survey of mathematical techniques useful in physics. Matrices, eigenvalues, vector analysis, ordinary and partial differential equations, Green's functions, complex variable theory, Fourier series, integral transforms. (Formerly 3650:581)

PHYS:582 Methods of Mathematical Physics II (3 Credits)

Prerequisite: admission to Physics Master's program or permission. Vectors, generalized coordinates, tensors, calculus of variations, vector spaces, linear transformations, matrices, eigenvalues, Hilbert space, boundary value problems, transcendental functions, complex variables, analytic functions, Green's functions, integral equations. (Formerly 3650:582)

PHYS:588 Selected Topics: Physics (1-4 Credits)

(May be repeated) Prerequisite: Permission. Consideration of selected topics, procedures, techniques, materials or apparatus of current interest in physics. (Formerly 3650:588)

PHYS:590 Workshop: Physics (1-4 Credits)

(May be repeated.) Prerequisite: Permission. Further investigations of various selected topics in physics, under guidance of faculty member. (Formerly 3650:590)

PHYS:597 Independent Study: Physics (1-4 Credits)

(May be repeated.) Prerequisite: Permission. Further investigations of various selected topics in physics, under guidance of faculty member. (Formerly 3650:597)

PHYS:598 Physics Colloquium (1 Credit)

Lectures on current research topics in physics by invited speakers. May be repeated, but only one credit counts toward M.S. degree. Credit/Noncredit. (Formerly 3650:598)

PHYS:605 Computer Physics: Numerical Solutions to Physics Problems I (3 Credits)

Prerequisite: Permission. Review of FORTRAN and basic topics in computer science. Numerical solutions to physics problems, including Newton's and Schrodinger's equations. Treatment and reduction of experimental data, plotting, simulation. (Formerly 3650:605)

PHYS:606 Computer Physics: Numerical Solutions to Physics Problems II (3 Credits)

Prerequisite: Admission to Physics Master's program or permission. Data reduction, Calcomp plotting, comparison of theoretical models with data, linear and non-linear least squares curve-fitting. May accommodate scientific problems of individual interest. (Formerly 3650:606)

PHYS:615 Electromagnetic Theory I (3 Credits)

Prerequisite: Admission to Physics Master's program or permission. Electrostatics and magnetostatics at advanced level for graduate students, boundary value problems, dielectrics, multipole expansions, time-varying fields, Maxwell's equations and electromagnetic waves, reflection, refraction, wave guides and cavities. (Formerly 3650:615)

PHYS:616 Electromagnetic Theory II (3 Credits)

Prerequisite: Admission to Physics Master's program or permission. Scattering and diffraction, plasma physics, special theory of relativity, dynamics of relativistic particles in fields, collisions of charged particles, radiation from moving charges, bremsstrahlung, multipole fields. (Formerly 3650:616)

PHYS:625 Quantum Mechanics I (3 Credits)

Prerequisite: Admission to Physics Master's program or permission. Basic concepts of quantum mechanics, representation theory, particle in a central field, addition of angular momenta and spins, Clebsch-Gordon coefficients, perturbation theory, scattering, transition probabilities. (Formerly 3650:625)

PHYS:626 Quantum Mechanics II (3 Credits)

Prerequisite: Admission to Physics Master's program or permission. Foundations of relativistic quantum mechanics. Klein-Gordon and Dirac equations, spin-zero and spin-1/2 particles in electromagnetic field, second quantization of bosons and fermions, superfluidity and super conductivity. (Formerly 3650:626)

PHYS:630 Advanced Laboratory Techniques of Materials Characterization (3 Credits)

Prerequisite: Admission to the physics master's program or permission. This course focuses on the characterization of thin films and surfaces of materials. Techniques include Atomic Force Microscopy, UV-visible, FTIR, Photoluminescence, and Electron Tunneling spectroscopies. (Formerly 3650:630)

PHYS:631 Quantum Mechanics of Molecules and Materials (3 Credits)

Prerequisite: Admission to the physics master's program or permission. An applied quantum mechanics course that is also relevant for engineers, materials scientist, and applied physicists. (Formerly 3650:631)

PHYS:632 Thermodynamics and Statistical Mechanics of Materials (3 Credits)

Prerequisite: Admission to the physics master's program or permission. Fundamental laws of thermodynamics and their applications to material systems; criteria for equilibrium; the statistical mechanics of solids. (Formerly 3650:632)

PHYS:641 Lagrangian Mechanics (3 Credits)

Prerequisite: Admission to Physics Master's program or permission. Principle of least action and Lagrangian equation of motion, conservation laws, integration of equation of motion, collisions, small oscillations, Hamilton's equations, canonical transformations. (Formerly 3650:641)

PHYS:661 Statistical Mechanics (3 Credits)

Prerequisite: Admission to Physics Master's program or permission. Fundamental principles of statistical mechanics, Gibbs, Fermi and Bose Statistics, solids, liquids, gases, phase equilibrium, chemical reactions. (Formerly 3650:661)

PHYS:662 Thermodynamics & Statistical Mechanics II (3 Credits)

See department for course description. (Formerly 3650:662)

PHYS:670 Biological Physics (3 Credits)

Prerequisite: Admission to the physics master's program or permission. Explores the physics of biological systems, especially on the molecular scale: structural properties and transport processes, self-assembly, and molecular motors. (Formerly 3650:670)

PHYS:671 Computational Materials Physics (3 Credits)

Prerequisites: Admission to the physics master's program or permission. Introduces current computational techniques including computer simulations to investigate structural and transport properties of condensed matter systems. (Formerly 3650:671)

PHYS:672 Nanomaterials (3 Credits)

Prerequisites: Admission to the physics master's program or permission. Structures and characterizations of nanomaterials. Physical properties of nanomaterials. Carbon based nanomaterials. Nanoscale device applications. (Formerly 3650:672)

PHYS:673 Advanced Condensed Matter Physics (3 Credits)

Prerequisite: Admission to the physics master's program or permission. Response of materials to external perturbations (e.g. electromagnetic radiation); elementary excitations; semiconductors; magnetism; superconductivity. (Formerly 3650:673)

PHYS:674 Physics of Photonics (3 Credits)

Prerequisites: Admission to the physics master's program or permission. This theoretical course focuses on understanding the physics of photonics and light-matter interactions, with potential applications to many interdisciplinary areas of science and technology. (Formerly 3650:674)

PHYS:685 Solid-State Physics I (3 Credits)

Prerequisite: Admission to Physics Master's program or permission. Theory of physics of crystalline solids. Properties of reciprocal lattice and Bloch's theorem. Lattice dynamics and specific heat. Electron states; cellular method, tight-binding method, Green's function method. (Formerly 3650:685)

PHYS:686 Solid-State Physics II (3 Credits)

Prerequisite: Admission to Physics Master's program or permission. Orthogonalized plane and pseudo potentials. Electron-electron interaction; screening by impurities. Friedel sum rule and plasma oscillations. Dynamics of electrons, transport properties and Fermi surface. (Formerly 3650:686)

PHYS:689 Special Problems in Theoretical Physics (1-4 Credits)

(May be repeated.) Prerequisite: Permission. Intended to facilitate expansion of particular areas of interest in theoretical physics, by consultation with faculty member and independent study beyond available course work. (Formerly 3650:689)

PHYS:691 Seminar in Theoretical Physics (1-3 Credits)

(May be repeated.) Prerequisite: Permission. (Formerly 3650:691)

PHYS:697 Graduate Research in Physics (1-5 Credits)

Prerequisite: Permission. Candidates for M.S. degree may obtain up to five credits for faculty supervised research projects. Grades and credit received at completion of such projects. (Formerly 3650:697)

PHYS:698 Special Topics in Physics (1-4 Credits)

Prerequisite: Permission. Enables student who needs information in special areas, in which no formal course is offered, to acquire knowledge in these areas. (Formerly 3650:698)

PHYS:699 Master's Thesis (1 Credit)

Prerequisite: Permission. With approval of department, one credit may be earned by candidate for M.S. degree upon satisfactory completion of a master's thesis. (Formerly 3650:699)

PHYS:710 Surface Physics (3 Credits)

Prerequisite: PHYS 470. An interdisciplinary course stressing the fundamentals and applications of physics at surfaces, including corrosion, catalysis, adhesion, and tribology. (Formerly 3650:710)

PHYS:769 Critical Phenomena & Phase Transitions (3 Credits)

Prerequisites: PHYS 625, PHYS 641, and PHYS 661. Modern theory of critical phenomena. Landau theory. Spin systems, binary mixtures, polymers and liquid crystals. Multicomponent systems. Multicritical points. Renormalization. Epsilon-expansions of critical exponents. (Formerly 3650:769)

PHYS:879 Doctoral Research (1-15 Credits)

(May be repeated.) Prerequisite: Approval of the Student Advisory Committee for Ph.D. research in physics, physical chemistry, polymer science, applied mathematics or electrical engineering. Original research by a Ph.D. candidate in various disciplines under the guidance of physics faculty. (Formerly 3650:879)

Political Science (POLIT)

POLIT:500 Political Extremism & Violence (3 Credits)

This course examines the causes and consequences of political extremism & political violence in democracies and failed democracies. (Formerly 3700:500)

POLIT:502 Politics and the Media (3 Credits)

Examination of relationships between the press, the news media and political decision makers. (Formerly 3700:502)

POLIT:503 Media, Crime and Public Opinion (3 Credits)

Examines the social construction of crime in mass media and how it impacts public, including fear of crime, beliefs about crime causation, and crime policy. (Formerly 3700:503)

POLIT:510 International Security Policy (3 Credits)

Introduction to political uses of military forces. Major focus on methodological, conceptual, and ethical dilemmas confronted in developing and implementing defense policy. (Formerly 3700:510)

POLIT:513 Global Public Health Threats (3 Credits)

An introduction to comparative global biological and public health security policy. Topics include: infectious disease outbreaks, bioterrorism, and potential "nano-terrorism." (Formerly 3700:513)

POLIT:514 Wealth and Power Among Nations (3 Credits)

Studies relationship between politics and economy; mesh theoretical perspectives with exploration of the key empirical issues. Topics include: trade, relations, unions, finance, development, aid, sanctions. (Formerly 3700:514)

POLIT:517 Environmental Security and Climate Politics (3 Credits)

The course examines the relationship between the politics of climate change and environmental security. Students will examine a wide range of environmental security issues and will assess the effectiveness of efforts to resolve these issues. (Formerly 3700:517)

POLIT:518 Weapons of Mass Destruction (3 Credits)

An exploration of the development and proliferation of weapons of mass destruction and their use and potential use by nation states, extremist groups, and/or wayward individuals. Weapons categories explored include: biological, chemical, nuclear, radiological, cyber, and future threats. (Formerly 3700:518)

POLIT:519 Homeland Security Policy and Process (3 Credits)

The course will explore the concept of homeland security, the complexity of homeland security and disaster policy in a federal system, threats to homeland security, and the challenges to effective homeland security and disaster policy in the United States. (Formerly 3700:519)

POLIT:522 Understanding Racial & Gender Conflicts (3 Credits)

This is the core course the Certificates in Racial and Gender Conflict, providing students with an opportunity to intensively examine racial and gender conflict. (Formerly 3700:522)

POLIT:527 Campaign Battleground (3 Credits)

This course will provide a general framework with which to understand presidential, congressional, state, and local elections from the perspective of campaign professional and political observers. The course will follow campaigns in real time, investigating the strategy, tactics, and conduct of major party candidates and campaigns. It will also examine coverage of national, state, and local races by the media as well as analyze current polling. The course will include guest speakers including academics, campaign professionals, public officials, and journalists. (Formerly 3700:527)

POLIT:528 Ohio Politics (3 Credits)

This course focuses on factors that make Ohio economically competitive. Material focuses on recent election results, public opinion polling and influence of socioeconomic factors. (Formerly 3700:528)

POLIT:537 Government Versus Organized Crime (3 Credits)

The course gives a history of organized crime and the government's responses to fight it. Newly emerging international crime groups are also discussed. (Formerly 3700:537)

POLIT:540 Survey Research Methods (3 Credits)

Study of the survey research methods as applied to the analysis of public opinion, political behavior and public policy formation. (Formerly 3700:540)

POLIT:541 The Policy Process (3 Credits)

Intensive study of policy-making process, emphasizing roles of various participants in executive and legislative branches as well as private individuals and groups. (Formerly 3700:541)

POLIT:542 Methods of Policy Analysis (3 Credits)

Examines variety of methods available for analyzing public policies. Techniques of cost benefit analysis, evaluation research quasi-experimentation are covered as well as consideration of ethical questions in policy analysis, the practical problems facing policy analysts. (Formerly 3700:542)

POLIT:543 Political Scandals & Corruption (3 Credits)

This course will provide information on major political scandals, including media coverage, public opinion, the role of special prosecutors, and the impacts of scandals. (Formerly 3700:543)

POLIT:545 Al Qaeda and ISIS (3 Credits)

This course explores the causes and consequences of Al Qaeda's and ISIS' ideologies and tactics around the world. (Formerly 3700:545)

POLIT:546 National Security Intelligence (3 Credits)

The aim of this course is to familiarize students with the politics and policy of national security intelligence in the US. (Formerly 3700:546)

POLIT:547 Counterterrorism (3 Credits)

This course introduces students to the national security agencies, policies, politics and methods of defeating terrorism from abroad and in the United States. (Formerly 3700:547)

POLIT:548 Intelligence Analysis (3 Credits)

This course is intended to for students who seek a career in the field of government or private sector intelligence or who just have an interest in how intelligence analysis is done. (Formerly 3700:548)

POLIT:550 Administering Prisons, Probation, and Parole (3 Credits)

Analysis of the administrative, electoral, and community conflicts central to understanding, resolving, and preventing these conflicts in a correctional environment. (Formerly 3700:550)

POLIT:561 The Supreme Court & Constitutional Law (3 Credits)

Interpretation of the Constitution by the Supreme Court with emphasis on federal judicial, legislative and executive power; separation of powers; and federalism. (Formerly 3700:561)

POLIT:562 The Supreme Court & Civil Liberties (3 Credits)

Interpretation of the Constitution by the Supreme Court with emphasis on freedom of speech and press, freedom of religion, criminal rights and right to privacy. (Formerly 3700:562)

POLIT:563 Human Rights in World Politics (3 Credits)

An introduction to human rights from a comparative perspective; topics include: definition and development of human rights with attention paid to government interaction and wartime. (Formerly 3700:563)

POLIT:570 Fundamentals of Political Strategy (3 Credits)

Explore theoretical concepts, practical applications, roles, and best practices as it relates to political campaign management. Develop critical thinking skills to assess, analyze, act and communicate in situations throughout the election cycle, including message development and delivery, target audiences and voter contact and engagement. Consider real-life and rhetorical situations and hear from campaign professionals equipped to share first-hand perspectives on the operations and infrastructure of political campaigns. (Formerly 3700:570)

POLIT:571 Fundamentals of Electoral Messaging (3 Credits)

Explore theoretical concepts, practical applications, roles, and best practices as it relates to political campaign and electoral communication. Develop skills to plan, produce and execute strategic political messages including campaign addresses, press releases and media advisories, constituent, volunteer, and donor communications, and video releases while considering candidate and opposition research, fact sheets, time and budgetary constraints, polling and targeting data, and candidate preferences. (Formerly 3700:571)

POLIT:572 Campaign Finance, Fundraising, and Budgeting (3 Credits)

This course examines the most controversial aspect of applied politics: the role and influence of money. Topics include: the sources of political money, how it is raised and spent, the impact of money on the political process, the rules that govern political finance, and proposals for campaign finance reform. (Formerly 3700:572)

POLIT:573 Voter Contact & Elections (3 Credits)

Theoretical and practical approaches to gaining votes in all types of political campaigns. (Formerly 3700:573)

POLIT:574 Political Opinion, Behavior & Electoral Politics (3 Credits)

Advanced analysis of psychological, cultural and group processes of opinion formation and change. Attention given to the effect of opinion change on electoral outcomes. (Formerly 3700:574)

POLIT:575 American Interest Groups (3 Credits)

Reading and research on the development, structure and function of interest groups in the United States. (Formerly 3700:575)

POLIT:576 American Political Parties (3 Credits)

Reading and research on the development, structure and function of parties in the United States. (Formerly 3700:576)

POLIT:577 Government Relations and Lobbying (3 Credits)

This course examines government relations, lobbying, and advocacy through participating in hands-on applied projects, meeting with elected officials and government relations professionals, and preparing students for the wide range of career options available to government relations professionals. (Formerly 3700:577)

POLIT:578 Fundamentals of the Digital Campaign (3 Credits)

This course will examine the evolution of digital campaigning, explore the pillars of effective digital strategy, and analyze the role digital strategy plays from communications to fundraising to field and everything in between. It will look at the rise of digital platforms, strengths and weaknesses of them, how to best leverage them in a well-rounded digital program, along with security and disinformation tactics to navigate. Students will learn how to effectively research, craft, deploy, and execute an effective digital plan that can serve as the connective tissue of any winning campaign. (Formerly 3700:578)

POLIT:580 Policy Problems in Political Science (3 Credits)

Intensive study of selected problems in public policy. (Formerly 3700:580)

POLIT:581 The Challenges of Police Work (3 Credits)

Analysis of various political dimensions underlying the study of politics and policing in the context of police reform, crime, and the community. (Formerly 3700:581)

POLIT:582 Current Issues (CJ Topic) (3 Credits)

Study and critical analysis of current issues, programs, and policies relating to political science and criminal justice at the federal or state level. (Formerly 3700:582)

POLIT:583 Constitutional Problems in Criminal Justice (3 Credits)

Analyzes Supreme Court policy-making regarding problems of criminal justice, including search and seizure, self-incrimination, right to counsel, jury selection, and post-appeal prisoner rights. (Formerly 3700:583)

POLIT:590 Workshop in Political Science (1-3 Credits)

(May be repeated for a total of nine credits). Timely workshops on varying subjects to meet the changing needs of our students in response to new and emerging political issues and controversies. (Formerly 3700:590)

POLIT:592 Selected Topics in Political Science (3 Credits)

May be repeated for a total of six credits. Topics of substantial current importance or specialized topics with political science. (Formerly 3700:592)

POLIT:600 Scope & Theories of Political Science (3 Credits)

Prerequisite: Admission to political science graduate program or permission. Emphasis on the nature, scope and content of political theory; theory construction and validation in political science. (Formerly 3700:600)

POLIT:601 Research Methods in Political Science (3 Credits)

Prerequisite: POLIT 600. Techniques of quantitative research methodology in political science; utility and limitations of quantitative analysis. (Formerly 3700:601)

POLIT:603 Scholarly Writing & Professional Development in Political Science (3 Credits)

Prerequisite: Admission to a Political Science graduate program or permission. Course will assist in the development of Essay / Capstone projects: Organization, format presentation, editing, committee review. Will help polish student writing and presentation skills. (Formerly 3700:603)

POLIT:610 Seminar in International Politics (3 Credits)

Prerequisite: Admission to political science graduate program or permission. Analysis of current problems in theory and practice of politics and organization. (Formerly 3700:610)

POLIT:611 Seminar in War and Insurgency (3 Credits)

This course examines the issue of international conflict, war, and insurgency in international and domestic politics. (Formerly 3700:611)

POLIT:612 Seminar in Security Studies (3 Credits)

The aim of the course is to introduce graduate students to the study of national security politics and policy. (Formerly 3700:612)

POLIT:620 Seminar in Comparative Politics (3 Credits)

Prerequisite: Admission to political science graduate program or permission. Research selected topics in comparative politics. Comparative method. (Formerly 3700:620)

POLIT:622 Seminar in Alternatives to Violence at Home and Abroad (3 Credits)

Prerequisite: Admission to political science graduate program or permission. An interdisciplinary analysis of the nature of violence—from interpersonal to international—to enhance our capacity to reduce violence and other threats to liberty. (Formerly 3700:622)

POLIT:630 Seminar in National Politics (3 Credits)

Prerequisite: Admission to political science graduate program or permission. Reading and research on formulation, development and implementation of national policy in one or more areas of contemporary significance. (Formerly 3700:630)

POLIT:650 Seminar on Law, Punishment, & Politics: US & the World (3 Credits)

Prerequisite: Admission to political science graduate program or permission. Reading and research on the multiple and contingent interconnections between law, punishment, politics, and power. (Formerly 3700:650)

POLIT:655 Campaign and Election Law (3 Credits)

Prerequisite: Admission to political science graduate program or permission. Examines the legal environment for political campaigns. Topics include historical background, legal foundation, voting rights, filing requirements, campaign finance and political advertising (Formerly 3700:655)

POLIT:668 Seminar in Public Policy Agendas & Decisions (3 Credits)

Prerequisite: Admission to political science graduate program or permission. Reading and research on the development of public policy issues and modes of decision making used by policy makers. (Formerly 3700:668)

POLIT:672 Seminar: Political Influence & Organizations (3 Credits)

Prerequisite: Admission to political science graduate program or permission. Examination of how public concerns and demands are resolved or diffused. A theoretical and applied look at parties, interest groups, public opinion, media, and protest. (Formerly 3700:672)

POLIT:690 Special Topics in Political Science (1-3 Credits)

Prerequisite: Admission to political science graduate program or permission. Graduate-level examination of selected topics in American politics, comparative politics, international politics, international politics or political theory. (Formerly 3700:690)

POLIT:695 Internship in Government & Politics (3-6 Credits)

(May be repeated for a total of six credits.) Prerequisite: Admission to political science graduate program or permission. Supervised individual placement with political office holders, party groups, governmental agencies, law firms and other organizations providing professional-level work. (Formerly 3700:695)

POLIT:697 Independent Research & Readings (1-4 Credits)

(May be repeated, but no more than six credits toward the master's degree in political science) Prerequisite: Admission to political science graduate program or permission. (Formerly 3700:697)

POLIT:699 Master's Thesis (2-6 Credits)

Prerequisite: Admission to political science graduate program or permission. Master's Thesis. (Formerly 3700:699)

Polymer Engineering (PLYE)

PLYE:525 Introduction to Blending and Compounding of Polymers (3 Credits)

Prerequisite: Permission of instructor. Nature of polymer blends and compounds and their applications. Preparation and technology using batch and continuous mixers. Mixing Mechanisms. (Formerly 9841:525)

PLYE:527 Mold Design (3 Credits)

Prerequisite: Permission of instructor. Molding methods to manufacture polymeric products. Machinery, materials, molds, equipment, computer-aided design. (Formerly 9841:527)

PLYE:550 Engineering Properties of Polymers (3 Credits)

Prerequisite: Permission of instructor. Introduction to engineering properties and polymer processing. Analyzing mechanical polymer tests in glassy, rubbery, and fluid states. Product design, rheology, rheometry, and polymer processing concepts. (Formerly 9841:550)

PLYE:551 Polymer Engineering Laboratory (3 Credits)

Prerequisite: Permission of instructor. Laboratory experiments on the rheological characterization of polymer melts, fabrication of engineering products, structural investigation of polymeric parts. (Formerly 9841:551)

PLYE:600 Interfacial Phenomena in Soft Matter (3 Credits)

This course covers intermolecular Interactions, (de)wetting, adsorption, adhesion and friction, colloidal stability, nucleation, and assembly process. (Formerly 9841:600)

PLYE:601 Seminar in Polymer Engineering (1 Credit)

Presentations of recent research on topics in polymer engineering by internal and external speakers. (Formerly 9841:601)

PLYE:610 Polymer Engineering Analysis (3 Credits)

Quantitative analysis methods central to Polymer Engineering, with applications including materials flow, deformation, and characterization. (Formerly 9841:610)

PLYE:611 Fundamentals of Polymer Structure Characterization (3 Credits)

Characterization of orientation, morphology, superstructure in polymers using x-ray, light scattering, birefringence, dichroism. Crystallography, unit cell determination. (Formerly 9841:611)

PLYE:621 Rheology of Polymer Fluids (3 Credits)

Experimental methods of determination of rheological properties of polymer melts, solutions, elastomers. Structure-flow behavior relationships, viscoelastic fluid theory, application to extrusion, fiber, film processing molding. Structure development in processing. (Formerly 9841:621)

PLYE:622 Analysis & Design of Polymer Processing Operations I (3 Credits)

Prerequisite: PLYE 621. Mathematical modeling and engineering design analysis of polymer processing operations including extruder screws, injection molds, dies, fibers, film formation. (Formerly 9841:622)

PLYE:623 Analysis & Design of Polymer Processing Operations II (3 Credits)

Prerequisite: Permission of instructor. Basic studies on non-isothermal phenomena in polymer engineering emphasizing crystallization, vitrification, frozen-in orientation and residual stresses, applications, including fiber spinning and film extrusion. (Formerly 9841:623)

PLYE:631 Engineering Properties of Solid Polymers (2 Credits)

Transitions as a function of polymer structure, optical characteristics, mechanical including ultimate properties, viscoelastic behavior of elastomers and plastics, large strain behavior E emphasis on experimental methods. (Formerly 9841:631)

PLYE:641 Polymer Chem & Thermodynamics (3 Credits)

Physico-chemical properties of amorphous and crystalline polymers. Glass transitions, crystallization, molecular orientation and morphology of important commercial polymers, fabricated products and composite materials. (Formerly 9841:641)

PLYE:650 Introduction to Polymer Engineering (3 Credits)

Basic concepts of polymer engineering taught in lecture-laboratory format intended for orientation of new graduate students. (Formerly 9841:650)

PLYE:651 Polymer Engineering Laboratory (3 Credits)

Prerequisite: PLYE 622. Rheological characterization of polymer melts, rubber and plastic extrusion, extrudate swell, injection and compression molding, crystallization behavior, x-ray diffraction, film blowing, impact and tensile testing. (Formerly 9841:651)

PLYE:661 Polymerization Reactor Engineering (3 Credits)

Polymerization kinetics, classical reactor design, comparison of polymerization in batch and continuous stirred tank reactors, flow patterns around agitators, tubular reactors, reactor stability. (Formerly 9841:661)

PLYE:666 Research Methods (3 Credits)

This course will focus on providing guidance to beginning graduate students on general concepts that are typically encountered in research including: 1. Scientific method; 2. Ethics in research; 3. Scientific paper writing; 4 Scientific presentations. (Formerly 9841:666)

PLYE:675 Carbon-Polymer Nanotechnology (3 Credits)

Prerequisite: Permission of instructor. This course focuses on the fundamental aspects of nanotechnology in general and basic knowledge of polymer/carbon nanoscience and nanotechnology in particular. (Formerly 9841:675)

PLYE:680 Polymer Coatings (3 Credits)

Prerequisite: Permission of instructor. This course is an introduction to coating science. The synthesis of polymeric binders and pigments used in commodity coatings will be the focus of the first part of the course. The second part of the course will focus on coatings formulation and end-use applications for commodity coatings. (Formerly 9841:680)

PLYE:699 Masters Thesis (1-6 Credits)

(May be repeated) Supervised original research in specific area of polymer engineering. (Formerly 9841:699)

PLYE:712 Rheo-Optics of Polymers (2 Credits)

Applications of rheo-optical methods as means of determining stress fields in polymeric glasses and fluids during deformation, rheo-optical properties of polymers in glassy, rubbery and fluid states. Theory of dynamic birefringence and its application to mechanical relaxations of amorphous and semi-crystalline polymers, and recent experimental results. (Formerly 9841:712)

PLYE:715 Advanced Characterization of Functional Polymers (3 Credits)

Prerequisites: PLYE 611 and PLYE 623 or equivalent (with permission of instructor). This course will focus on the advanced structural and functional property characterization techniques including optical, electrical, magnetic and others. A particular focus will be the influence of the history of polymer processing on these properties. (Formerly 9841:715)

PLYE:720 Molecular Aspects of Polymer Rheology (2 Credits)

Prerequisite: PLYE 621. Molecular theory for concentrated solutions and melts of flexible homopolymers, molecular rheology of miscible polymer blends, block copolymers, and liquid crystalline polymers. (Formerly 9841:720)

PLYE:721 Rheology & Processing Two-Phase Polymer Systems (2 Credits)

Prerequisite: PLYE 622 or equivalent. Particle-particle interactions, mixing devices and design, theoretical hydrodynamics of suspensions of rigid particles, experimental studies of rheological behavior, phenomenological theories representing suspension behavior, dispersion of droplets to form an emulsion, phase morphology development and rheological properties of blends. (Formerly 9841:721)

PLYE:722 Advanced Modelling of Polymer Processing (2 Credits)

Prerequisite: Permission of instructor. Modeling of processing operations including extrusion molding, fiber and film processing, computer-aided design. (Formerly 9841:722)

PLYE:723 Rheology & Processing of Elastomers (2 Credits)

Interpretation of rheological properties and critical study and analysis of processing operations including behavior in internal mixers, screw extruders, die systems and vulcanization molding. (Formerly 9841:723)

PLYE:724 Advanced Extrusion & Compounding (2 Credits)

Principles of operation and flow in single and twin screw extruders, screw design, characteristics of internal mixers, analysis and simulation of flow. (Formerly 9841:724)

PLYE:725 Chemorheology & Processing of Thermosets (2 Credits)

Prerequisite: PLYE 621 or PLYE 622. Rheological behavior of thermosets, vulcanization of rubbers, time-temperature-transition relationships in thermosets, reaction injection molding, compression/transfer molding, pultrusion. (Formerly 9841:725)

PLYE:727 Advanced Polymer Rheology (2 Credits)

Prerequisite: PLYE 621 or equivalent. Second level course in non-linear constitutive equation for viscoelastic, viscoplastic, viscoelastic-plastic polymeric materials. Utility and applicability to polymer processing problems. (Formerly 9841:727)

PLYE:728 Numerical Methods in Polymer Engineering (3 Credits)

Prerequisites: PLYE 621, PLYE 622, PLYE 623, and PLYE 631. Basics of generally accepted numerical methods. Numerical problems in polymer solid mechanics and technological applications. Numerical problems in polymer fluid mechanics and polymer processing. Commercial softwares. (Formerly 9841:728)

PLYE:731 Stress Analysis of Polymers & Composites (2 Credits)

Prerequisite: PLYE 631. The design of rubber mounts, bearings and sandwich components with demonstration of finite element methods. Classical plates and shells theories with applications to composite structures. (Formerly 9841:731)

PLYE:745 Liquid Crystals (2 Credits)

Prerequisite: Permission of instructor. Structure of low molecular weight and polymeric liquid crystals, characterization, physical properties including optical properties, phase transitions, structure-property relationships, processing of polymeric species. (Formerly 9841:745)

PLYE:747 Polymer Colloids (3 Credits)

Prerequisite: Permission of instructor. Colloidal dispersions, phase stability, aggregation structures, thermodynamics, kinetics of phase transitions in polymer colloids. Emulsion and solution polymerization, organic/inorganic hybrid materials, coating technology. Rheology of colloidal polymers. (Formerly 9841:747)

PLYE:749 Phase Transitions in Polymer Blends and Alloys (3 Credits)

Prerequisite: Permission of instructor. Elucidating thermodynamics of polymer blends, block copolymers, crystalline/liquid crystalline polymers, and kinetics of phase transitions. Structure development and modeling of reactive polymer blends. (Formerly 9841:749)

PLYE:761 Injection and Compression Molding Fundamentals (2 Credits)

Prerequisite: Permission of instructor. This course provides fundamental knowledge in physical, thermal and rheological properties required for injection and compression molding including theoretical and experimental aspects of various molding processes. (Formerly 9841:761)

PLYE:770 Polymer Nanocomposites (3 Credits)

Prerequisite: Permission of instructor. Develops understanding on synthesis, characterization, processing and properties of polymer nanocomposite materials involving nanoscale fillers in conjunction with thermosetting, thermoplastic, and elastomeric polymer matrices. (Formerly 9841:770)

PLYE:773 Advanced Polymer Coating Technology (2 Credits)

Prerequisite: PLYE 641 or equivalent. The polymeric binders used in radiation-curable coatings for electronic packaging and waterborne coatings will be stressed. The chemistry of dyes and the coatings science of pigments will be presented. The chemistry of polymer degradation will also be covered. (Formerly 9841:773)

PLYE:777 Modeling of Nanoscale Materials (3 Credits)

Prerequisite: Permission of instructor. Introduces molecular simulation methods (Monte Carlo, molecular dynamics) and their application to polymer-related materials at the molecular and coarse-grain levels. (Formerly 9841:777)

PLYE:778 Advanced Functional Polymers (2 Credits)

Prerequisites: PLYE 611 and PLYE 641. This course focuses on the recent development of functional polymers for applications as advanced materials and smart devices, which requires the attendant to possess some prior knowledge of polymer science and polymer engineering from such 600 level course(s) as mentioned above. (Formerly 9841:778)

PLYE:797 Advanced Topics in Polymer Engineering (2-3 Credits)

(May be repeated) Prerequisite: Permission of instructor. Advanced special topics intended for Ph.D. students in polymer engineering. (Formerly 9841:797)

PLYE:898 Preliminary Research (1-15 Credits)

(May be repeated) Prerequisites: Completion of qualifying examination, approval of Student Advisory Committee. Preliminary investigation of Ph.D. dissertation subject. (Formerly 9841:898)

PLYE:899 Doctoral Dissertation (1-15 Credits)

(May be repeated) Prerequisite: Completion of candidacy examination of Student Advisory Committee. Original research by a Ph.D. candidate. (Formerly 9841:899)

Polymer Science & Polymer Engineering (PSPE)

PSPE:605 Polymer Physical Chemistry (4 Credits)

Fundamentals of polymer chain characteristics, common polymerization types, and overview of polymer physical chemical behavior. (Formerly 9801:605)

PSPE:615 Polymer Characterization (4 Credits)

Prerequisite: PSPE 605. Introduction to widely used polymer characterization techniques (3cr) with accompanying experiments (1cr). (Formerly 9801:615)

PSPE:635 Rheology, Processing and Evaluation of Polymeric Materials (4 Credits)

Prerequisite: PSPE 605. Introduction to several types of polymer processing and several tests of properties (3cr) with accompanying lab environments (1cr). (Formerly 9801:635)

PSPE:645 Research, Problem Solving and Communication of Technical Information (3 Credits)

Prerequisite: PSPE 605. Introduction to the research and development enterprise, problem solving, and the communication of technical information to various audiences. (Formerly 9801:645)

PSPE:665 Emerging Markets & Technologies (3 Credits)

Prerequisites: PSPE 605, PSPE 615, and PSPE 635. Overview of emerging markets and technologies involving polymers as well as analyses of these technologies with respect to life cycle, carbon footprint, and sustainability. (Formerly 9801:665)

Polymer Science (PLYS)

PLYS:601 Polymer Chemistry (4 Credits)

Prerequisite: CHEM 264 and CHEM 314 or equivalent course or permission of instructor. Introduction to fundamentals and practical aspects of (co)polymer synthesis and reactions of polymers; use of polymerization kinetics and thermodynamics to understand polymerization mechanisms; structure-reactivity relationships. (Formerly 9871:601)

PLYS:604 Special Projects in Polymer Science (1-3 Credits)

Prerequisite: permission. Research projects of limited nature assigned to student entering polymer science program. Intended to familiarize student with typical problems and techniques in this field. (Formerly 9871:604)

PLYS:607 Seminar in Polymer Science I (1 Credit)

Prerequisite: limited to first-and second-year resident graduate students. Participants are to present a 25-minute lecture on some aspect of polymer science and to participate in discussions of lectures presented by other seminar participants. (Formerly 9871:607)

PLYS:608 Seminar in Polymer Science II (1 Credit)

Prerequisite: limited to first-and second-year resident graduate students. Participants are to present a 25-minute lecture on some aspect of polymer science and to participate in discussions of lectures presented by other seminar participants. (Formerly 9871:608)

PLYS:613 Polymer Science Laboratory (3 Credits)

Pre/Corequisite: PLYS 601 or PLYS 631 or PLYS 674. Laboratory experiments focused on common techniques for polymer molecular characterization and characterization of polymer morphology, with a few polymer synthesis experiments. (Formerly 9871:613)

PLYS:615 Laboratory Computer Applications in Polymer Science (3 Credits)

Prerequisites: Basic knowledge of computer programming and permission of instructor. Laboratory use of computers in polymer science research for data acquisition, data analysis, graphing, and preparation of reports and thesis. (Formerly 9871:615)

PLYS:631 Polymer Physics I (4 Credits)

Prerequisites: 2 semester of undergraduate physics or permission of instructor. First half of an overview of polymer physics including the deal chain, chain in dilute solution, solution thermodynamics, polymer blends, and gels and networks. (Formerly 9871:631)

PLYS:632 Polymer Physics II (4 Credits)

Prerequisite: PLYS 631 or permission of instructor. Phenomenological description of viscolasticity in polymers; molecular models for chain dynamics of solutions and melts; mechanical properties of polymers; polymer crystallization; electrical properties. (Formerly 9871:632)

PLYS:674 Polymer Characterization (2 Credits)

Prerequisites: 2 semesters of undergraduate chemistry and 2 semesters of undergraduate physics and PLYS 631 or permission of instructor. Principles of operation, strategies for experimentation design and concepts of data interpretation for most important characterization techniques applied in polymer science and engineering. (Formerly 9871:674)

PLYS:685 Introduction to Biomacromolecules (2 Credits)

Prerequisites: 2 semesters of undergraduate chemistry or permission of instructor. Develops understanding of biomacromolecular structure and function, hierarchical self-assembly, functions of biological materials (e.g. silk, collagen) and principles for bio-inspired materials design. (Formerly 9871:685)

PLYS:699 Master's Thesis (1-6 Credits)

Prerequisite: permission. For properly qualified candidate for master's degree. Supervised original research in polymer science, under direction of faculty member, followed by submission of thesis. (Formerly 9871:699)

PLYS:701 Polymer Technology I (2 Credits)

Principles of compounding and testing, processing principles and types of operation, design principles. (Formerly 9871:701)

PLYS:702 Polymer Technology II (2 Credits)

Prerequisite: PLYS 701. Rubber industry, rubber compounding and processing, vulcanization methods, physical testing, plastics preparation and compounding, manufacturing processes. Lecture/laboratory. (Formerly 9871:702)

PLYS:703 Polymer Technology III (2 Credits)

Prerequisite: PLYS 702. Flow properties, extrusion, calendaring and milling, molding, mixing, bond operations, engineering properties, rubber springs, viscoelastic analysis design consideration. Lecture/laboratory. (Formerly 9871:703)

PLYS:704 Condensation Polymerization (2 Credits)

Prerequisite: CHEM 463. Survey of the theory and practice of condensation polymerization. Numerous commercial examples are presented with special emphasis being placed on the properties and applications of polymers prepared by this technique. Structure-property relationships are highlighted for each major polymer class. (Formerly 9871:704)

PLYS:705 Free Radical Reactions in Polymer Science (2 Credits)

Prerequisite: CHEM 463. Covers the kinetics and mechanisms of free radical initiated reactions encountered in polymer science, including polymerization methods, detailed considerations of the initiation, propagation and termination steps in vinyl polymerizations and copolymerization, preparation of block and graft copolymers by free radical initiated reactions and the mechanisms of free radical induced polymer degradation reactions. (Formerly 9871:705)

PLYS:706 Ionic & Monomer Insertion Reactions (2 Credits)

Prerequisite: CHEM 463 or permission of instructor. Covers the scope, kinetics and mechanisms of polymerizations initiation by anions, carbenium ions and onium ions as well as polymerizations induced by coordination catalysts. Living polymerizations, molecular weights, molecular weight distributions, stereo-chemistry, solvent effects, counterion effects, temperature effects, Ziegler-Natta catalysis, olefin metathesis, functionalization of polymers, graft and block copolymer synthesis. (Formerly 9871:706)

PLYS:711 Special Topics: Polymer Science (1-3 Credits)

Prerequisite: permission. Topics of current interest in polymer science, encompassing chemistry, physics or technological aspects of macromolecular substances, including laboratory work where applicable. (Formerly 9871:711)

PLYS:712 Special Topics: Polymer Science (2 Credits)

Prerequisite: permission. Topics of current interest in polymer science, encompassing chemistry, physics or engineering aspects of macromolecular science. (Formerly 9871:712)

PLYS:720 Elastomers (2 Credits)

Pre/Corequisites: PLYS 601 and PLYS 631 or equivalent as determined by instructor. The course will provide a comprehensive coverage of the fundamental aspects of elastic soft materials, their chemical, physical and mechanical properties as related to their current technological applications. (Formerly 9871:720)

PLYS:899 Doctoral Dissertation (1-16 Credits)

Open to properly qualified students accepted as candidates for Doctor of Philosophy in Polymer Science depending on the availability of staff and facilities. (Formerly 9871:899)

Professional Studies (BUSN)

BUSN:600 Graduate Business Cooperative Education (0 Credits)

Cooperative Education (experiential learning) is designed to provide eligible students with the opportunity to apply their classroom theory (academic education) with work experience (practical experience). Comprehensive performance evaluation and written report required. This course may be repeated. (Formerly 6000:600)

BUSN:695 Internship in Business (1-3 Credits)

Prerequisite: permission of instructor. On-the-job experience with cooperating private and public sector organizations. Individual assignments made by supervising faculty member. Periodic reports and research papers required. Credit/noncredit. (Formerly 6700:695)

BUSN:696 Special Topics: Professional Development (1-3 Credits)

Special topics and current issues in the MBA program Professional Courses. May be repeated with a change in subject, not to exceed 3 credits. (Formerly 6700:696)

BUSN:698 Colloquium in Business (1-3 Credits)

Prerequisite: permission of graduate director. Study of business administration through a seminar of several lectures in business research and practice. A broad range of topics in business research and issues will be discussed by guests, faculty and graduate students. May be repeated, but will not satisfy degree requirements (Credit/non-credit.) (Formerly 6700:698)

Psychology (PSYC)

PSYC:500 Personality (4 Credits)

Prerequisite: Admission to the Graduate School. Consideration of current conceptualizations of the normal personality with emphasis on methods of measurement, experimental findings and research techniques. (Formerly 3750:500)

PSYC:510 Psychological Tests & Measurements (4 Credits)

Prerequisite: Admission to the Graduate School. Consideration of the nature, construction and use of tests and measurements in industry, government and education. Includes aptitude and achievement tests, rating scales, attitude and opinion analysis. (Formerly 3750:510)

PSYC:520 Abnormal Psychology (4 Credits)

Prerequisite: Admission to the Graduate School. Survey of syndromes, etiology, diagnoses and treatments of major psychological conditions ranging from transient maladjustments to psychoses. (Formerly 3750:520)

PSYC:530 Psychological Disorders of Children (4 Credits)

Prerequisite: Admission to the Graduate School. Survey of syndromes, etiologies and treatments of behavioral disorders in children from the standpoint of developmental psychology. Behavioral data and treatment approaches emphasized. (Formerly 3750:530)

PSYC:543 Human Resource Management (4 Credits)

Prerequisite: Admission to the Graduate School. The application of psychological theory to the effective management of human resources in an organization, including recruitment, selection, and retention of personnel. (Formerly 3750:543)

PSYC:544 Organizational Theory (4 Credits)

Prerequisite: Admission to the Graduate School. The application of psychological theory to macro-level processes in organizations including leadership, motivation, task performance, organizational theories and development. (Formerly 3750:544)

PSYC:545 Psychology of Small Group Behavior (4 Credits)

Prerequisite: Admission to the Graduate School. Intensive investigation of factors affecting behavior and performance in small groups including effects of personality, social structures, task, situation and social-cognitive variables. (Formerly 3750:545)

PSYC:550 Cognitive Development (4 Credits)

Prerequisite: Admission to the Graduate School. Theory and research on life-span changes in cognitive processes including concept formation/categorization, information processing and Piagetian assessment tasks. (Formerly 3750:550)

PSYC:560 History of Psychology (3 Credits)

Prerequisite: Admission to the Graduate School. Psychology in pre-scientific period and details of developmental or systematic viewpoints in 19th and 20th Centuries. (Formerly 3750:560)

PSYC:601 Psychological Research using Quantitative & Computer Methods I (4 Credits)

Sequential prerequisite: Graduate standing in psychology or the collaborative doctoral program in counseling psychology or special nondegree students with permission. Psychological research problem applying quantitative and computer methods. Topics include research design, sampling, controls, threats to validity, hypotheses testing, psychological measurement, error, robustness and power. (Formerly 3750:601)

PSYC:602 Psychological Research using Quantitative & Computer Methods II (4 Credits)

Sequential. Prerequisite: Graduate standing in psychology or the collaborative doctoral program in counseling psychology or special nondegree students with permission. Psychological research problem applying quantitative and computer methods. Topics include research design, sampling, controls, threats to validity, hypotheses testing, psychological measurement, error, robustness and power. (Formerly 3750:602)

PSYC:610 Core I: Social Psychology (2 Credits)

Prerequisite: Graduate standing in psychology or the collaborative doctoral program in counseling psychology or permission of instructor. Introduction to empirical research and theories on the psychological processes related to interpersonal behavior, focusing on topics like attitude change, social influence, and prosocial behavior. (Formerly 3750:610)

PSYC:620 Core II: Cognitive Psychology (2 Credits)

Prerequisite: graduate standing in psychology or the collaborative doctoral program in counseling psychology or permission of instructor. Survey of theories, concepts, empirical phenomena, and methodologies in human cognitive psychology. Topics include attention, cognitive capacity, learning, memory, categorization, skill acquisition/expertise, and training effectiveness. (Formerly 3750:620)

PSYC:630 Core III: Individual Differences (2 Credits)

Prerequisite: Graduate standing in psychology or the collaborative doctoral program in counseling psychology or permission of instructor. Survey of theoretical perspectives on individual differences in personality and behavior and of literature on between- and within-group cultural variables influencing personality development and assessment. (Formerly 3750:630)

PSYC:640 Core IV: Biopsychology (2 Credits)

Prerequisite: Graduate standing in psychology or the collaborative doctoral program in counseling psychology or permission of instructor. Survey of nervous system structure/function including neuroanatomy, neuron physiology, and synaptic transmission. Also overviews biological bases of learning, memory, consciousness, intelligence, psychopharmacology, behavior genetics. (Formerly 3750:640)

PSYC:650 Core V: Social-Cognitive Psychology (2 Credits)

Prerequisite: graduate standing in psychology or the collaborative doctoral program in counseling psychology or permission of instructor. Social and cognitive theory/research applied to the issue of how people understand their social experiences. Topics include: person perception, attribution, social categorization, social inference. (Formerly 3750:650)

PSYC:660 Science and Ethics of Industrial Psychology (4 Credits)

Survey of Industrial Psychology including coverage of selection and performance management. Also, discusses professional and scientific guidelines regarding the ethics of Industrial Psychology. (Formerly 3750:660)

PSYC:672 Counseling Practicum (4 Credits)

Prerequisites: Graduate standing in psychology and permission of instructor. Introduction to and development of therapeutic skills and intervention techniques via instruction, role play exercises, and case conference evaluations of actual clinical work samples. (May be repeated for a total of 8 credits.) Credit/Noncredit. (Formerly 3750:672)

PSYC:673 Counseling Practicum Lab (4 Credits)

Prerequisites: Graduate standing in psychology and instructor's permission. Corequisite: PSYC 672. Application of therapeutic skills and intervention techniques to work with clients in the Psychology Department Counseling Clinic, including small group supervision of clinical work. (May be repeated for a total of 8 credits.) Credit/Noncredit. (Formerly 3750:673)

PSYC:674 Personnel Practicum (1-4 Credits)

(May be repeated.) Prerequisites: PSYC 660, graduate standing in psychology, 14 credits of graduate psychology, and permission of the instructor. Supervised field experience in industrial/organizational psychology in settings including business, government or social organizations. The field experience requires the application of industrial/organizational psychological theories and techniques. Credit/Noncredit. (Formerly 3750:674)

PSYC:675 Applied Cognitive Aging Practicum (1-4 Credits)

(May be repeated.) Prerequisites: PSYC 727, graduate standing in psychology, 14 credits of graduate psychology and permission of the instructor. Supervised field experience in applied cognitive aging psychology to provide the student with the opportunity to apply skills and knowledge acquired in the academic setting and to obtain knowledge about community programs and agencies which focus on developmental processes. Credit/Noncredit. (Formerly 3750:675)

PSYC:680 External Special Topics (1-4 Credits)

(May be repeated for a maximum of 16 credits.) Prerequisite: permission of area chair. Graduate coursework taken at Kent State, Youngstown State, and/or Cleveland State universities to apply toward a UA degree either as a required or an elective course. (Formerly 3750:680)

PSYC:699 Master's Thesis (1-4 Credits)

(May be repeated.) Prerequisite: Permission of the instructor. Research analysis of data and preparation of thesis for master's degree. (Formerly 3750:699)

PSYC:700 Survey of Projective Techniques (4 Credits)

Prerequisite: PSYC 630. Introduction to rationale, assumptions and ethics, and research of projective testing. Elementary administration, scoring and interpretation of Rorschach; and survey of other important contemporary projective instruments. (Formerly 3750:700)

PSYC:701 Psychodiagnostics (4 Credits)

Prerequisite: PSYC 700. Application of psychological testing to problems of diagnosis and evaluation. Practical experience in administration, scoring and interpretation. Integration of projective data with other assessment techniques in variety of settings. (Formerly 3750:701)

PSYC:707 Supervision in Counseling Psychology I (4 Credits)

Prerequisite: Doctoral standing or permission of instructor. Instruction and experience in supervising a graduate student in counseling. (Formerly 3750:707)

PSYC:709 Introduction to Counseling Psychology (2 Credits)

Prerequisite: Graduate standing in the Collaborative Program in Counseling Psychology. Introduction to historical foundations of and recent developments in counseling psychology, with an emphasis on contemporary research literature in the field. (Formerly 3750:709)

PSYC:710 Theories of Counseling & Psychotherapy (4 Credits)

Prerequisite: PSYC 630. Major systems of individual psychotherapy explored within a philosophy of science framework: Freudian, behavioral, Rogerian, cognitive, and other. Includes research, contemporary problems and ethics. (Formerly 3750:710)

PSYC:711 Vocational Behavior (4 Credits)

Prerequisite: PSYC 630. Theories and research on vocational behavior and vocational counseling. Topics include major theories of vocational behavior, empirical research on these theories, applied work in vocational counseling and applied research. (Formerly 3750:711)

PSYC:712 Principles & Practice of Individual Intelligence Testing (4 Credits)

Prerequisite: PSYC 630 or graduate standing in school psychology, and instructor's permission. History, principles and methodology of intelligence testing, supervised practice in administration, scoring and interpretation of individual intelligence tests for children and adults. (Formerly 3750:712)

PSYC:713 Professional, Ethical & Legal Issues in Counseling Psychology (4 Credits)

Prerequisite: Doctoral standing or permission of the instructor. Examination of major issues in the field such as the counselor as a professional and as a person, and issues, problems and trends in counseling. (Formerly 3750:713)

PSYC:714 Objective Personality Evaluation (4 Credits)

Prerequisites: [PSYC 630 or PSYC 500], PSYC 520, and COUN 645. Study of the development, administration, and interpretation of objective instruments for personality assessment (MMPI, CPI, MBTI, 16PF and selected additional inventories). (Formerly 3750:714)

PSYC:715 Research Design in Counseling I (3 Credits)

Prerequisite: Doctoral standing or permission of the instructor. Study of research designs, evaluation procedures, and review of current research. (Formerly 3750:715)

PSYC:717 Issues of Diversity in Counseling Psychology (4 Credits)

Prerequisites: PSYC 630; one semester of practicum work. Critical examination and application of research and theory in counseling diverse populations, focusing on race/ethnicity, sex/gender, sexual orientation, age, disability, and spirituality. (Formerly 3750:717)

PSYC:718 History & Systems in Psychology (2 Credits)

Prerequisite: PSYC 630. Philosophical and scientific antecedents of psychology and details of the development of systematic viewpoints in the 19th and 20th centuries. (Formerly 3750:718)

PSYC:727 Psychology of Adulthood & Aging (4 Credits)

Prerequisite: Graduate standing in psychology or in the collaborative program in counseling psychology, or permission of the instructor. Aspects of development, aging with emphasis on life-span methodology and research design. Age-related changes in intelligence, personality, sensation, perception, learning, memory, socialization, and intervention approaches. (Formerly 3750:727)

PSYC:728 Social and Emotional Development Across the Lifespan (4 Credits)

Prerequisites: Graduate standing in psychology or permission of the instructor. An advanced course that introduces students to current theoretical perspectives and empirical findings regarding social and emotional development in adulthood. (Formerly 3750:728)

PSYC:729 Brain and Behavior in Adulthood (4 Credits)

Prerequisite: Permission of the department. This course focuses on principles of psychological and neuropsychological assessment in adulthood and later life including the assessment of memory processes, attention, executive functioning, language processes, and intelligence. (Formerly 3750:729)

PSYC:730 Health Psychology in Later Life (4 Credits)

Prerequisite: Permission of department. This course will introduce you to the theoretical and methodological issues of Health Psychology in Later Life, as well as allow for discussion of important psychological phenomena relating to the study and understanding of health-related issues within the framework of lifespan development and aging. (Formerly 3750:730)

PSYC:731 Sensorimotor Processes in Adulthood (4 Credits)

Prerequisite: Permission of department. Overview of theory, methods, and data on sensory and motor processes and how aging affects these phenomena. (Formerly 3750:731)

PSYC:732 Cognitive Aging (4 Credits)

Prerequisite: Permission of department. Survey of selected topics in cognitive aging including memory, problem-solving, decision-making, and expertise. (Formerly 3750:732)

PSYC:733 Mental Health and Aging (4 Credits)

Prerequisite: Permission of department. This course will introduce you to the theoretical and methodological issues of Mental Health and Aging as well as allow for discussion of important psychological phenomena relating to the study and understanding of mental health related issues within the framework of lifespan development and aging. (Formerly 3750:733)

PSYC:734 Diversity Across the Lifespan (4 Credits)

Prerequisite: Permission of department. The purpose of this course is to understand the diversity of aging. Although the broad framework for the course is lifespan development, there will be a strong emphasis on more specific identities in which older adults belong and the ways in which those identities impact aging. The main objective of this course is for the student to not only value the study of diversity, but to be able to incorporate diversity into his/her own research. (Formerly 3750:734)

PSYC:736 Psychopharmacology & Adulthood (4 Credits)

Prerequisite: PSYC 640. Psychopharmacology addresses a diverse range of drugs that act in the brain. Drug mechanisms are discussed in the context of emotional, cognitive, and behavioral effects. (Formerly 3750:736)

PSYC:740 Industrial Gerontology (4 Credits)

Prerequisites: PSYC 660, graduate standing in psychology, or permission of instructor. Study of age-related issues in work involving adult and older adult workers. Topics include personnel selection, training, motivating and appraising older employees; health and safety; job design, vocational guidance; and retirement. (Formerly 3750:740)

PSYC:750 Advanced Psychological Tests & Measurements (2 Credits)

Prerequisites: Graduate standing in psychology or in the collaborative program in counseling psychology, or permission of the instructor. Analysis of test construction techniques. Statistical analyses of tests with review of published tests and measurements used in psychology. Study of psychometric theory and principles. (Formerly 3750:750)

PSYC:751 Organizational Psychology (4 Credits)

Prerequisites: PSYC 660, graduate standing in psychology, or permission of the instructor. Applies the general systems theory framework to the study of the relationships between organizational characteristics and human behavior, the internal processes of organizations, and the relationships between organizations and their environment. (Formerly 3750:751)

PSYC:752 Personnel Selection and Advanced Applied Testing Issues (4 Credits)

Review of strategies employed by industrial/organizational psychologists for personnel selection, placement and promotion. Includes discussion of advanced testing issues. (Formerly 3750:752)

PSYC:753 Training (2 Credits)

Prerequisites: PSYC 660, graduate standing in psychology, or permission of the instructor. Review of industrial training methods and programs in terms of various theoretical orientations, as well as consideration of techniques to evaluate these programs. (Formerly 3750:753)

PSYC:754 Research Methods in Psychology (2-4 Credits)

Prerequisites: PSYC 660, graduate standing in psychology or permission of instructor. Scientific method and its specific application to psychology. Topics include data collection, validity, reliability, use of general linear model and its alternatives and power analysis. (Formerly 3750:754)

PSYC:755 Computer Applications in Psychological Research (4 Credits)

Prerequisite: Graduate standing in psychology or permission of instructor. Practicum in application of computers to psychological research including data collection, analysis and interpretation. Also covers computer simulation of decision making including use of different models. (Formerly 3750:755)

PSYC:756 Role of Attitudes & Values in Industrial/Organizational Psychology (4 Credits)

Prerequisites: PSYC 660, graduate standing in psychology, or permission of the instructor. Consideration of the role of attitudes and values in the prediction of behavior including consumer psychology, explaining attitude changes, measurement of attitudes and the use of survey methodology. (Formerly 3750:756)

PSYC:757 Organizational Motivation & Leadership (4 Credits)

Prerequisites: PSYC 660, graduate standing in psychology, or permission of instructor. Survey of theories of motivation specifying both the intrinsic and extrinsic determinants of worker motivation. The leadership process and its relation to motivation, group performance and attributions are also analyzed. (Formerly 3750:757)

PSYC:759 Job Evaluation & Equal Pay (4 Credits)

Prerequisite: PSYC 660. Major job evaluation systems will be reviewed and critiqued. Issues such as minimum qualifications for a job will be reviewed. Advantages and disadvantages of various job evaluation systems will be compared. Issues concerning federal regulation including the Equal Pay Act, comparable worth and other issues will be discussed. Regression approaches to job evaluation and applicable court cases will be reviewed. (Formerly 3750:759)

PSYC:760 Organizational Change & Transformation (4 Credits)

Prerequisites: PSYC 660 or permission of instructor. Survey of theories and introduction to practical methods of organizational change and transformation used to increase organizational effectiveness and improve employee quality of work life. (Formerly 3750:760)

PSYC:761 Information Processing & Industrial/Organizational Psychology (4 Credits)

Prerequisite: PSYC 660. Coverage of current theories in cognitive psychology is applied to traditional concerns of industrial/organizational psychology such as performance appraisal or motivation. (Formerly 3750:761)

PSYC:762 Personnel Psychology & the Law (4 Credits)

Prerequisite: PSYC 660. Issues in personnel psychology which have legal implications are reviewed. The impact of recent court decisions are evaluated in staffing and compensation. (Formerly 3750:762)

PSYC:763 Performance Feedback and Evaluation (4 Credits)

Prerequisites: PSYC 660, graduate standing in psychology, or permission of instructor. Examines current research and practice in the area of performance appraisal. Topics will include: criterion development, rater training, appraisal effectiveness, feedback processes, and performance measurement. (Formerly 3750:763)

PSYC:764 Cognitive Assessment (2 Credits)

Prerequisite: PSYC 750 and enrollment in the Collaborative Program in Counseling Psychology. History, principles and methodology of cognitive assessment, supervised practice in administration, scoring and interpretation of individual intelligence tests for children and adults. (Formerly 3750:764)

PSYC:765 Objective Personality Assessment (2 Credits)

Prerequisites: PSYC 750 and student must be enrolled in Collaborative Program in Counseling Psychology. Study of the development, administration, and interpretation of objective measures of personality assessment (MMPI, PAI and selected additional inventories). (Formerly 3750:765)

PSYC:766 Applications of Assessment (2 Credits)

Prerequisites: PSYC 764 and PSYC 765. Student must be enrolled in the Collaborative Program in Counseling Psychology. Corequisite: PSYC 777. Study of integrative report writing and other applications of assessment. (Formerly 3750:766)

PSYC:777 Psychopathology (4 Credits)

Prerequisites: PSYC 709, PSYC 630, and PSYC 713. This course sets out to understand mental conditions in terms of their historic roots and current nomenclature used to identify, diagnose, and treat psychopathology ranging from transient maladjustments to severe psychoses. (Formerly 3750:777)

PSYC:780 Graduate Seminar in Psychology (1-4 Credits)

(May be repeated.) Prerequisites: Graduate standing in psychology and permission of the instructor. Special topics in psychology. (Formerly 3750:780)

PSYC:795 Advanced Counseling Practicum (4 Credits)

(May be repeated.) Prerequisites: 3750:671, PSYC 672, PSYC 673 and permission of instructor. This course provides graduate students in counseling with actual client contacts and supervisory experiences under faculty supervision. Credit/Noncredit. (Formerly 3750:795)

PSYC:796 Counseling Psychology Practicum (4 Credits)

(May be repeated.) Prerequisite: PSYC 795 (eight hours) or COUN 675 (five hours). Advanced counseling psychology students will have supervised training with clients in a variety of settings and will focus on supervised development of specialized theoretical applications. Credit/Noncredit. (Formerly 3750:796)

PSYC:797 Independent Reading and/or Research: Psychology (1-3 Credits)

(May be repeated.) Prerequisite: Permission of the instructor. Individual readings and/or research on a topic under supervision of faculty member with whom specific arrangements have been made. (Formerly 3750:797)

PSYC:899 Doctoral Dissertation (1-12 Credits)

Prerequisite: Open to properly qualified students. Required minimum 12 credits; maximum subject to departmental approval. Supervised research on topic deemed suitable by the dissertation committee. (Formerly 3750:899)

Public Administration and Urban Studies (PAUS)

PAUS:512 National Urban Policy (3 Credits)

Prerequisite: Permission. Examines major federal policies that relate to urban problems in regard to policy-making processes, implementation and impact on local governments. (Formerly 3980:512)

PAUS:516 Personnel Management in the Public Sector (3 Credits)

Fundamental issues and principles of public sector personnel administration, including recruitment, selection, training, motivation, supervision, evaluation, labor relations and affirmative action. (Formerly 3980:516)

PAUS:517 Leadership and Decision-Making (3 Credits)

Examines the context of public organizational management including relevant organizational theories, strategic management and planning and public sector leadership. (Formerly 3980:517)

PAUS:518 Citizen Participation (3 Credits)

This course considers the fundamental theory, background, techniques, and issues of citizen participation in urban management and policy-making. (Formerly 3980:518)

PAUS:519 Community Organizing (3 Credits)

The course examines the evolution and influence of neighborhood, community and "grass-roots" organizations on public policy-making in urban areas. (Formerly 3980:519)

PAUS:526 Grantsmanship (3 Credits)

Students will gain knowledge of the grant-seeking and awarding processes. Emphasis is on public funding opportunities and public organizations in the States. (Formerly 3980:526)

PAUS:527 Cultural Competence In the Public Sector (3 Credits)

Considers how public and non-profit managers can effectively communicate and provide services to culturally diverse individuals. Addresses management issues related to social stratification system. (Formerly 3980:527)

PAUS:543 Introduction to Public Policy (3 Credits)

Considers how public managers need to understand models of public policy formulation. Covers major policy issues and the analysis of policy implementation and policy impacts. (Formerly 3980:543)

PAUS:551 Introduction to City Management (3 Credits)

Prerequisite: PAUS 611. This course examines the historical role of city management in professionalizing local government operations; examines current responsibilities and trends in the practice of city management and leadership. (Formerly 3980:551)

PAUS:562 Fundraising & Resource Management (3 Credits)

Prerequisite: PAUS 563. Examines alternative methods of fundraising and unique resource management challenges and opportunities of non-profit organizations. (Formerly 3980:562)

PAUS:563 Non-Profit Management (3 Credits)

Presents a broad understanding of the operating environment, unique concerns of leadership, resource development, aspects of volunteerism, and management processes in non-profit organizations. (Formerly 3980:563)

PAUS:573 Computer Applications in Public Organizations (3 Credits)

Introduces microcomputer applications used in public organizations and includes data bases, data entry, web pages, report writing, graphical representation and spreadsheets. (Formerly 3980:573)

PAUS:590 Workshop in Urban Studies (1-3 Credits)

Prerequisite: Permission. (May be repeated for a maximum of six credits) Group studies of special topics in urban studies and public administration. May not be used to meet core graduate requirements. May be used for elective credit only. (Formerly 3980:590)

PAUS:600 Basic Quantitative Research (3 Credits)

Prerequisite: Permission. Examines basic framework of social science research methodologies and basic complementary statistical techniques, including probability and sampling. (Formerly 3980:600)

PAUS:601 Advanced Research & Statistical Methods (3 Credits)

Prerequisite: PAUS 600. Extends study of social science to include more advanced research designs and multivariate statistical techniques. (Formerly 3980:601)

PAUS:602 History of Urban Development (3 Credits)

Examination of major literature on processes of urbanization in United States and selected facets of urban institutional development. (Formerly 3980:602)

PAUS:605 Orientation to the Master of Public Administration (0 Credits)

Prerequisite: Admission to the MPA program. Corequisite: Take during the first semester in the MPA program. This orientation to the MPA program provides information and strategies for new students regarding classes, advising and career opportunities. (Formerly 3980:605)

PAUS:606 Foundations of Urban Public Administration and Policy (3 Credits)

Introduces theory and principles of public administration and policy. Considers local government management practices, along with policy issues and problems arising in urban settings. (Formerly 3980:606)

PAUS:609 Health Behavior: Theory and Application (3 Credits)

Prerequisite: Graduate standing/status. This course provides an overview of behavior change theories at the individual, interpersonal and community levels with an emphasis on application in health policy decision-making. (Formerly 3980:609)

PAUS:610 Legal Foundations of Public Administration (3 Credits)

Prerequisite: Permission. Introduction to the legal foundations and context of public administration, including the interaction of the course, public organizations, public administration and the public. (Formerly 3980:610)

PAUS:611 Introduction to the Profession of Public Administration (3 Credits)

Prerequisite: Permission. Introduction to the theory and practice of the field of public administration. Foundation course for later MPA study. (Formerly 3980:611)

PAUS:613 Intergovernmental Management (3 Credits)

Prerequisite: Permission. Examines the field of intergovernmental relations as it applies to urban administration and management. (Formerly 3980:613)

PAUS:614 Ethics & Public Service (3 Credits)

Prerequisite: Admission to the MPA program or permission. Corequisite: PAUS 606. Examines how public managers should consider ethics and public service in addressing problems; considers ethical implications of decisions and public policies and considers diversity. (Formerly 3980:614)

PAUS:615 Public Organization Theory (3 Credits)

Prerequisite: Permission. Examines the development of public organizational theory and the current status of theoretical developments in the field of public administration. (Formerly 3980:615)

PAUS:620 Social Services Planning (3 Credits)

Prerequisite: Permission. In-depth analysis of total social services requirements and various ways in which social services planning function is carried out in urban communities. (Formerly 3980:620)

PAUS:621 Urban Society & Service Systems (3 Credits)

Prerequisite: Permission. Analysis of social bases of urban society; hierarchies, social problems, relationships to planning, public services. (Formerly 3980:621)

PAUS:622 Health Planning & Public Policy (3 Credits)

Basic knowledge of the health service delivery system is provided for planners and administrators in the public sector. (Formerly 3980:622)

PAUS:623 Public Works Administration (3 Credits)

Prerequisite: Permission. Examines the building, maintenance and management of public works. (Formerly 3980:623)

PAUS:624 Emergency Management Policy Implementation & Analysis (3 Credits)

Examines the implementation of emergency management policy at the federal, state, and local level: Analyzes current policy initiatives in this emerging field. (Formerly 3980:624)

PAUS:625 Strategic Perspectives in Emergency Management (3 Credits)

Prerequisite: Permission. Public administration responsibilities in emergency management. Examines unfunded mandates and the optimal strategies for success in the four phases of emergency management. (Formerly 3980:625)

PAUS:640 Fiscal Analysis (3 Credits)

Prerequisite: Permission. Study of revenue and expenditure patterns of the city's government. (Formerly 3980:640)

PAUS:641 Urban Economic Growth & Development (3 Credits)

Prerequisite: Permission. Examination of urban economic unit and its susceptibility to social, economic, political and physical change. (Formerly 3980:641)

PAUS:642 Public Budgeting (3 Credits)

Prerequisite: Permission. Current professional practice and theoretical issues in public budgeting and management of capital and operating budgets. (Formerly 3980:642)

PAUS:644 Public Sector Fund Management (3 Credits)

Prerequisites: PAUS 640 and PAUS 642. Provides an overview of theoretical approaches for recording and reporting data related to public projects or programs and reviews methods for investing project funds. (Formerly 3980:644)

PAUS:645 Public Sector Labor Relations (3 Credits)

Prerequisite: PAUS 616. This course examines fundamental issues and principles of public sector labor relations with particular attention to collective bargaining processes and to administration of labor contracts. (Formerly 3980:645)

PAUS:647 Aging Policy (3 Credits)

In this course students will examine political institutions that impact the adoption and implementation of programs for the aged, including: Medicare, Medicaid, and Social Security. (Formerly 3980:647)

PAUS:650 Comparative Urban Systems (3 Credits)

Prerequisite: Permission. Conceptual schemes and methodology for comparative urban analysis among a number of major cities selected from each continent. (Formerly 3980:650)

PAUS:660 Strategic Management (3 Credits)

This course examines disciplined effort to produce fundamental decisions and actions that shape what public organizations are, what they do and why they do it. (Formerly 3980:660)

PAUS:661 Public Project Design & Management (3 Credits)

Prerequisites: PAUS 600 and PAUS 642. Provides in-depth theoretical overview of the public project cycle including hands-on approaches to design and management. Examines frameworks for implementation, monitoring and analysis of project impact. (Formerly 3980:661)

PAUS:664 Managing Information & Technology in the Public Sector (3 Credits)

Focus on issues that confront public managers in utilizing information as an organizational asset. (Formerly 3980:664)

PAUS:671 Program Evaluation in Urban Studies (3 Credits)

Prerequisite: PAUS 600 or equivalent. Major considerations appropriate for conducting evaluations of a wide variety of human service programs and policies affecting urban and metropolitan areas. (Formerly 3980:671)

PAUS:674 Analytic Techniques for Public Administrators (3 Credits)

Prerequisite: PAUS 600. Public sector applications of quantitative methods, including decision analysis, queuing theory, mathematical programming, and simulation. (Formerly 3980:674)

PAUS:675 Advanced Techniques in Policy Analysis (3 Credits)

Prerequisites: PAUS 600 and PAUS 601. Public Sector application of techniques for analyzing policy proposals including decision analysis and simulations. (Formerly 3980:675)

PAUS:680 Select Topics in Urban Studies (1-3 Credits)

(A maximum of 27 credits may be earned in PAUS 680 and PAUS 681) Prerequisite: Permission. Selected topics in specific areas of urban planning, in various developmental processes of cities, or in various urban policy and administrative issues. (Formerly 3980:680)

PAUS:681 Select Topics in Urban Studies (1-3 Credits)

(A maximum of 27 credits may be earned in 680 and 681) Prerequisite: Permission. Selected topics in specific areas of urban planning, in various developmental processes of cities, or in various urban policy and administrative issues. (Formerly 3980:681)

PAUS:688 Capstone Seminar in Public Administration (3 Credits)

Prerequisite: Completed core or concurrent enrollment in core courses. 30 credit hours in program. Synthesizing experience at end of the MPA program where key program concepts are integrated and applied to contemporary issues. (Formerly 3980:688)

PAUS:690 Seminar in Urban Studies (3 Credits)

Prerequisites: 16 credits of urban studies core plus quantitative methods. Urban research methods applied to specific urban research area. Comprehensive paper required. (Formerly 3980:690)

PAUS:691 Master's Colloquium (1 Credit)

This course is required for masters' students on assistantships. The course reviews programmatic, research and curricula issues in the masters' programs. (Formerly 3980:691)

PAUS:695 Internship in Public Administration & Urban Studies (1-3 Credits)

Faculty-supervised work experience for "pre-service" students participating in policy planning and administration in public and non-profit organizations. (Formerly 3980:695)

PAUS:697 Individual Studies in Public Administration & Urban Studies (1-3 Credits)

Prerequisite: Permission. Directed individual readings or research on specific area or topic. (May be repeated) (Formerly 3980:697)

PAUS:699 Master's Thesis (1-9 Credits)

Prerequisite: Permission. Supervised thesis writing. May be repeated for a total of nine credits, however, only six credits apply toward degree. Replaces two courses in specialization. (Formerly 3980:699)

PAUS:700 Advanced Research Methods I (3 Credits)

Prerequisite: Master's level statistics or permission. Introduction to statistical techniques and methodologies in doctoral and postdoctoral research. Emphasis on conceptual and mathematical interrelationships. (Formerly 3980:700)

PAUS:701 Advanced Research Methods II (3 Credits)

Prerequisite: PAUS 700 or equivalent. Continuation of 700. Emphasis placed upon conceptual and mathematical interrelationships of multivariate statistical techniques as well as application of these techniques through computer analysis of urban data sets. (Formerly 3980:701)

PAUS:702 Urban Theory I (3 Credits)

Prerequisite: Permission. Review of major theoretical tradition examining urban problems; for students entering the doctoral program in urban studies (first in two-course sequence). (Formerly 3980:702)

PAUS:703 Urban Theory II (3 Credits)

Prerequisite: PAUS 702. Review of major professional disciplines dealing with urban problems; for students entering the doctoral program in urban studies (second in two-course sequence). (Formerly 3980:703)

PAUS:704 Public Bureaucracy (3 Credits)

Prerequisite: Permission. Analysis of bureaucratic operations in the implementation of public policy, including special attributes of human service organizations and the democratic theory debate. (Formerly 3980:704)

PAUS:705 Economics of Urban Policy (3 Credits)

Prerequisite: Master's level knowledge of macroeconomics and microeconomics or special permission. Use of research tools of economic analysis in seminar format to examine options available to urban policy makers in operation of public services and economic development of cities. (Formerly 3980:705)

PAUS:706 Program Evaluation (3 Credits)

Prerequisite: Permission. Advanced treatment of topics in program evaluation. (Formerly 3980:706)

PAUS:707 Urban Planning & Management Strategies (3 Credits)

Prerequisite: Permission. Analysis of urban planning policy issues and strategies for implementation in public policy formulation. Emphasis on use of planning process as integrative mechanism. (Formerly 3980:707)

PAUS:708 Urban Policy: The Historical Perspective (3 Credits)

Prerequisite: Permission. Critical examination of major ideas about the city from Aristotle to the 20th Century and of the impact on urbanization on society and public policy. (Formerly 3980:708)

PAUS:709 Systems & Processes of Policy Analysis (3 Credits)

Prerequisite: Permission. Analysis of administrative processes within public organizations, federal, state and local in the United States; emphasis on urban community. (Formerly 3980:709)

PAUS:710 Qualitative Research Methods (3 Credits)

Prerequisites: PAUS 700 and PAUS 701. Critical examination of Social Science Research methodologies such as content analysis. Open-ended survey techniques and other means of creating non-statistically generated data. (Formerly 3980:710)

PAUS:711 Seminar in Public Administration (3 Credits)

Prerequisite: Permission. In depth review and critique of major intellectual traditions, concepts and theories underlying public administration in the United States. (Formerly 3980:711)

PAUS:714 Seminar in Policy Analysis & Evaluation (3 Credits)

Prerequisite: Permission. In depth review and critique of major intellectual traditions, concepts and theories underlying policy analysis and evaluation in the United States. (Formerly 3980:714)

PAUS:715 Seminar in Urban & Regional Planning (3 Credits)

Prerequisite: Permission. In depth review and critique of major intellectual traditions, concepts and theories underlying urban and regional planning in the United States. (Formerly 3980:715)

PAUS:716 Theoretical Foundations for Public Affairs (3 Credits)

Prerequisite: Permission of instructor. This course critically considers the theoretical foundations for public affairs for scholarship and research. It contrasts traditional social and natural science inquiry and more recent alternative theories to PA theory. (Formerly 3980:716)

PAUS:720 Comparative Planning Strategies (3 Credits)

Prerequisite: PAUS 715. Review and analysis of alternative planning theories, institutions, and implementation strategies in a variety of national settings. (Formerly 3980:720)

PAUS:730 Ethics in Government (3 Credits)

This course will explore the differences between individual and collective responsibility, private and public morality and the nexus between democratic and moral development. (Formerly 3980:730)

PAUS:731 Theories of Public Budgeting & Finance (3 Credits)

Prerequisite: PAUS 711. Examines the theories and perspectives that have shaped how government uses and implements budgets. (Formerly 3980:731)

PAUS:732 Governance & Administration (3 Credits)

Governance and administration are interrelated activities, yet have been taught as distinct activities. This course explores the connections and interrelatedness of the concepts. (Formerly 3980:732)

PAUS:733 Theories of Public Sector Human Resource Management (3 Credits)

Prerequisite: Permission. Examination of the organizational behavior and administrative theories that support modern public personnel systems. (Formerly 3980:733)

PAUS:734 Conceptual & Legal Foundations of Public Administration (3 Credits)

Prerequisite: Permission. Theoretical examination of how constitutional and administrative law influence public sector decision-making. (Formerly 3980:734)

PAUS:735 Comparative Administration (3 Credits)

Prerequisite: Permission. Examination of the various political and administrative frameworks within which public administrators function. (Formerly 3980:735)

PAUS:736 Leading Public Organizations (3 Credits)

Prerequisite: Permission. Examination of the various theories of organizational leadership and their application in public organizations. (Formerly 3980:736)

PAUS:740 Survey/Research Methods in the Public Sector (3 Credits)

Prerequisite: Permission. Examination of the techniques and methods used by public organizations to enhance civic involvement. Critiques of methodologies based upon information needs and citizens surveyed. (Formerly 3980:740)

PAUS:741 Economic Analysis in Public Administration (3 Credits)

Review of analytical methods for urban socio-economic data gathering, modeling, analysis and reporting. (Formerly 3980:741)

PAUS:760 Seminar in Health Policy (3 Credits)

Comprehensive review of health policy using historical, political, and economic perspectives and contexts. Emphasizes frameworks for conducting health policy analyses. (Formerly 3980:760)

PAUS:780 PhD Colloquium (1 Credit)

This course introduces new doctoral students to the perspectives and practices of doctoral study. This is a credit/ non-credit course. (Formerly 3980:780)

PAUS:788 Urban Policy Studies (1-4 Credits)

(May be repeated for a maximum of 16 credits.) Prerequisite: Permission of instructor or chair. Selected topics for specialized instruction delivered at Kent, Youngstown, and/or Cleveland State universities to apply toward a UA degree either as a required or an elective course. (Formerly 3980:788)

PAUS:795 Pro-Seminar (3 Credits)

Prerequisite: Successfully pass all comprehensive examinations. Seminar to discuss approaches to researching and writing the dissertation. Discussion of alternative methodologies, styles and perspectives. Credit/ noncredit. 44.0401.

PAUS:798 Directed Research (3 Credits)

Prerequisite: Permission. Under the close supervision of a faculty member, a student will utilize social science methods in applied research. (Formerly 3980:798)

PAUS:799 Urban Tutorial (3 Credits)

Prerequisite: Permission. Intensive study of a particular approved field within urban studies and public affairs under supervision of tutor. (May be repeated once.) (Formerly 3980:799)

PAUS:899 Doctoral Dissertation (1-12 Credits)

Prerequisite: Advancement to Candidacy and PAUS 795. Open to properly qualified student accepted as candidate for Doctor of Philosophy degree. Student must register for at least one credit each semester until dissertation is accepted. Minimum of 12 credits required. (May be repeated.) Credit/noncredit. (Formerly 3980:899)

Risk Management and Insurance (RMI)

RMI:514 Risk Management and Insurance: Property and Casualty (3 Credits)

Prerequisite: FIN 602 or equivalent, or permission of instructor. Addresses tools for managing risk, legal concepts or insurance contracts, personal insurance and commercial property and casualty insurance policies as well as other risk issues. (Formerly 6400:514)

RMI:515 Risk Management and Insurance: Life and Health (3 Credits)

Prerequisite: FIN 602 or equivalent, or permission of instructor. Concepts of life and health insurance and risk management are addressed. (Formerly 6400:515)

RMI:518 Insurance Operations (3 Credits)

Prerequisites: RMI 514 or RMI 515. This course provides a detailed examination of the composition, financial structure, and operation of the property-casualty insurance industry. While the primary focus of the course is on the U.S. insurance market, it also provides for an overview of the international insurance marketplace. (Formerly 6400:518)

RMI:560 Risk and Insurance Analytics (3 Credits)

Prerequisite: RMI 514 or RMI 515. The primary objective of this course is to provide an introduction to risk and insurance analytics and the application of analysis techniques to insurance underwriting, fraud detection and risk management. Topics to be covered include: 1. An overview of the application of analytics to risk management and insurance, 2. Basic Data Modeling Concepts, 3. Traditional Analysis Techniques, 4. Modern Analysis Techniques, 5. Application to Underwriting, 6. Application to Claims, 7. Application to Risk Management. (Formerly 6400:560)

RMI:561 Financial Risk Management (3 Credits)

Prerequisite: RMI 514 or RMI 515 or permission. Explores risk issues at the firm level with emphasis upon identification and management of risk to enhance firm value. (Formerly 6400:561)

Sales (SALES)

SALES:630 Customer Relationship Management (3 Credits)

Prerequisite: SALES 620. CRM is a customer-centric business process used to organize, automate, and synchronize advertising, marketing, sales, support and service functions across an organization. Students will gain a clear understanding of key CRM concepts and how an effective CRM strategy can build brand equity, maximize customer lifetime value and drive profitable revenue growth. (Formerly 6600:630)

SALES:681 Sales Management (3 Credits)

Prerequisite: SALES 620. Develops analytical and managerial skills through case studies and other learning activities relating to the organization, selection, training, motivation, and control of a domestic or global sales force. (Formerly 6600:681)

School Psychology (SPSY)

Social Work (SOWK)

SOWK:558 Adult Day Care (3 Credits)

Prerequisite: Permission of instructor. Planning, development, implementing, evaluating, and delivery of adult day-care services. (Formerly 7750:558)

SOWK:580 Special Topics: Social Work & Social Welfare (1-3 Credits)

Prerequisite: Permission of instructor. Analysis of current social work and social welfare theory and policy, settings, innovative interventions and trends in delivery systems in relation to selected areas of concern. Topics and credits variable. (Formerly 7750:580)

SOWK:597 Individual Investigations in Social Work (1-3 Credits)

Prerequisites: Permission and prearrangement with instructor. Individual readings, research or projects in area of interest in social welfare theory or institutional operations or in social work practice under guidance of social work faculty member. Preparation of report paper appropriate to nature of topic. For social work major. (Formerly 7750:597)

SOWK:601 Foundation Field Practicum (3 Credits)

This course is to be taken in the first semester of the MSW program. A one semester, 200 clock-hour, supervised internship at a social service agency. Credit/Noncredit (Formerly 7750:601)

SOWK:602 Foundation Field Practicum (3 Credits)

Prerequisites: Second of two field practicum courses to be taken in the first year of the MSW program. A two-semester, 400 clock hour, supervised internship at a social service agency. Credit/Noncredit. (Offered only Spring Semester.) (Formerly 7750:602)

SOWK:603 Advanced Field Practicum (3 Credits)

Prerequisites: First of two field practicum courses to be taken in the second year of the MSW program. A two-semester, 500 clock hour, supervised internship in a social service agency, based on the student's concentration and specialization. Credit/Noncredit. (Offered only Fall Semester.) (Formerly 7750:603)

SOWK:604 Advanced Field Practicum (3 Credits)

Prerequisites: Second of two field practicum courses to be taken in the second year of the MSW program. A two-semester, 500 clock hour, supervised internship in a social service agency, based on the student's concentration and specialization. Credit/noncredit. (Offered only Spring Semester.) (Formerly 7750:604)

SOWK:605 Social Work Practice with Small Systems (3 Credits)

Prerequisite: Graduate status or permission of instructor. Provides the basic knowledge, skills, professional ethics and values necessary for beginning social work practice with small client systems. (Formerly 7750:605)

SOWK:606 Social Work Practice with Large Systems (3 Credits)

Prerequisite: SOWK 605. Provides the basic knowledge, skills, and strategies of social work practice with task groups, organizations and communities. (Formerly 7750:606)

SOWK:607 Advanced Practice with Small Systems I (3 Credits)

Prerequisite: Second level graduate student or permission of instructor. This course focuses on the differential assessment of individuals, families and small groups and the application of a range of theory bases. (Formerly 7750:607)

SOWK:608 Advanced Practice with Small Systems II (3 Credits)

Prerequisite: SOWK 607 or permission of instructor. As a continuation of Advanced Practice I, this course focuses on the development and implementation of intervention strategies with and on behalf of small systems. (Formerly 7750:608)

SOWK:611 Dynamics of Racism & Discrimination (3 Credits)

Prerequisite: Graduate status or permission of instructor. Provides knowledge of analyzing and understanding the factors leading to and sustaining racism, sexism, homophobia, and the like, at micro and macro levels. (Formerly 7750:611)

SOWK:612 Foundation Field Practice (3 Credits)

Prerequisite: Graduate status and in the first semester of field experience. This course is to be taken in the first semester of the MSW program. A two-semester, 200 clock hours per semester (400 clock hours for both semesters), supervised internship at a community-based agency. Credit/noncredit. Offered fall only. (Formerly 7750:612)

SOWK:613 Advanced Field Practice I (3 Credits)

Prerequisite: Graduate status and in the second semester of field education. This course is the second of two field practicum courses to be taken in the first year of the MSW program. A two-semester, 200 clock hours per semester (400 clock hours for both semesters), supervised internship at a community-based agency. Credit/noncredit. Offered Spring only. (Formerly 7750:613)

SOWK:614 Advanced Field Practice II (3 Credits)

Prerequisite: Graduate status and in the third semester of field education. This course is to be taken in the third semester of the MSW program. 250 hours per semester and 17 hours of supervised field experience at health and human services agencies. Credit/noncredit. (Formerly 7750:614)

SOWK:615 Advanced Field Practice III (3 Credits)

Prerequisite: Graduate status and in the fourth semester of field experience. This course is to be taken in the fourth semester of the MSW program. 250 hours per semester and 17 hours of supervised field experience at health and human services agencies. Credit/noncredit. (Formerly 7750:615)

SOWK:622 Fundamentals of Research I (3 Credits)

Prerequisite: Graduate status or permission of instructor. This course provides an Introduction to the logic of scientific inquiry, the research process, and the relationship between research and social work practice. (Formerly 7750:622)

SOWK:623 Fundamentals of Research II (3 Credits)

Prerequisite: SOWK 622, statistics course, or permission of instructor. Provides students with an understanding of quantitative and qualitative methodologies and the use of descriptive and inferential statistics in analyzing research data. (Formerly 7750:623)

SOWK:624 Ethics and Professional Behavior (3 Credits)

Prerequisites: Graduate Status or permission of instructor. This course provides an exploration of values and ethics related to social work theory, research, policy, and practice with individuals, families, groups, organizations, and communities. (Formerly 7750:624)

SOWK:625 Diversity and Difference in Practice (3 Credits)

Prerequisite: Graduate standing or permission. This course provides foundation on diversity and difference related to social work practice; analyzing and understanding racism, sexism, homophobia and discrimination at all practice levels. (Formerly 7750:625)

SOWK:626 Advancing Human Rights and Social Policy (3 Credits)

Prerequisites: Graduate status or permission of instructor. This course will examine the historical, philosophical, and value bases of advancing human rights and advocating for social welfare as well as the relationship between social work practice, policy and service delivery. (Formerly 7750:626)

SOWK:627 Science of Social Work (3 Credits)

Prerequisite: Graduate standing or permission. This course provides the student with the logic of scientific inquiry, quantitative and qualitative methodologies, the research process and the relationship between research and social work practice. (Formerly 7750:627)

SOWK:628 Human Behavior and the Social Environment (3 Credits)

Prerequisites: Graduate standing or permission. This course focuses on human behavior and life cycle development of people as individuals, members of families, groups, organizations and communities. (Formerly 7750:628)

SOWK:629 Advanced Social Work Practice: Evaluation (3 Credits)

This course provides students with methods of evaluating programs in agencies, including approaches, measurements, designs, data collection and analysis employed in program outcome research. (Formerly 7750:629)

SOWK:631 Human Behavior & Social Environment: Small Social Systems (3 Credits)

Prerequisite: Graduate status or permission of instructor. This course focuses on understanding the human behavior and life cycle development of people as individuals and as members of families and other small groups. (Formerly 7750:631)

SOWK:632 Human Behavior & Social Environment: Large Systems (3 Credits)

Prerequisites: SOWK 631 or permission of instructor. This course focuses on the human behavior of people as members of larger social systems including formal and informal organizations, communities and institutions. (Formerly 7750:632)

SOWK:633 Advanced Social Work Practice: Assessments (3 Credits)

Prerequisite: Graduate status or permission. This course provides the student with the knowledge relative to advanced generalist social work practice, engagement, psychosocial assessment, barriers to the professional relationships, and intervention. (Formerly 7750:633)

SOWK:634 Advanced Social Work Practice: Interventions (3 Credits)

Prerequisite: Admission into the MSW program. This course provides students with interventions with individuals, families, groups, and communities and the application of a range of theory bases. (Formerly 7750:634)

SOWK:646 Social Welfare Policy I (3 Credits)

Prerequisite: Graduate status or permission of instructor. Examines the historical, philosophical and value bases of social welfare as well as the relationship between social work practice, policy and service delivery. (Formerly 7750:646)

SOWK:647 Social Welfare Policy II (3 Credits)

Prerequisite: SOWK 646 or permission of instructor. This course prepares students with the beginning skills to engage in social problem/policy analysis. (Formerly 7750:647)

SOWK:650 Advanced Standing Integrative Seminar (6 Credits)

Prerequisite: Advanced standing. Provides an integrative view of social work practice with an emphasis on values, foundation knowledge and skills, and evaluation of professional interventions. (Formerly 7750:650)

SOWK:651 Foundation in Addiction Studies (3 Credits)

This introductory course provides a broader understanding of theories and issues in the addictions field. The course explores the theories of addiction related to: legal and ethical issues; diversity and cultural competence; and the roll of addictions in the current health care delivery system. (Formerly 7750:651)

SOWK:652 Addiction Assessment and Treatment Planning (3 Credits)

Examines a broad range of instruments, tools and strategies available for the identification and assessment of substance abuse problems. Content includes four modules; Screening, brief intervention, and referral (SBIRT); assessment; diagnosis; and treatment planning. (Formerly 7750:652)

SOWK:653 Evidence-Based Practices for Addictions (4 Credits)

Focuses on knowledge and skills needed for the development and implementation of prevention strategies, treatment approaches, and recovery maintenance in the addictions field. Emphasis is placed on selection and utilization of evidence-based practices. (Formerly 7750:653)

SOWK:654 Addiction Treatment Modalities and Models (3 Credits)

Emphasis on enhancement of knowledge and development of skills for use of evidence-based group and family therapy practices as they apply to work with people struggling with substance-related problems. (Formerly 7750:654)

SOWK:655 Psychopharmacology in Addiction Treatment (2 Credits)

Explores effects of psychoactive drugs of abuse and principles of pharmacotherapy in the treatment of substance use disorders. (Formerly 7750:655)

SOWK:656 Social Work Practice with Gays & Lesbians (3 Credits)

Prerequisite: Second level graduate status or permission of instructor. This course examines gay and lesbian culture and lifestyles, discrimination based on sexual orientation, and intervention strategies appropriate to practice with gays and lesbians. (Formerly 7750:656)

SOWK:657 Child Welfare I (3 Credits)

Prerequisite: Admission into the MSW program. This course provides students with an advanced in-depth exploration of structure and functioning of social services designed to help children, and of practice of social work in child-welfare settings. (Formerly 7750:657)

SOWK:658 Child Welfare II (3 Credits)

Prerequisite: Admission into the MSW program or departmental consent. The course provides an in-depth exploration of structure and functioning of social services designed to help children and social work practice in child-welfare settings. (Formerly 7750:658)

SOWK:659 Motivational Interviewing for Social Work Practice (3 Credits)

Prerequisite: Admission to MSW program or departmental consent. This course presents students with an overview of the basic concepts of the trans-theoretical model of change and Motivational Interviewing for social work practice. (Formerly 7750:659)

SOWK:660 Cognitive Behavioral Therapy I: The Basics (3 Credits)

This course covers Cognitive Behavioral Therapy (CBT) conceptual foundations, assessments, developing a case conceptualization and intervention plan, implementing CBT interventions, and termination and relapse prevention. Extensive use of role play and self-evaluation of skill development is a key component. (Formerly 7750:660)

SOWK:661 Cognitive Behavioral Therapy II: Beyond the Basics (3 Credits)

Prerequisite: SOWK 660. An introduction to the third generation Cognitive Behavioral Therapies (Mindfulness, Dialectical Behavioral Therapy, Acceptance Commitment Therapy, etc.). The course includes disorder-specific protocols with an emphasis on psychological mechanisms that apply across a range of disorders, ie. transdiagnostically. (Formerly 7750:661)

SOWK:662 Psychopathology (3 Credits)

Prerequisite: Admission into the MSW program or departmental consent. The course provides students with an examination of the symptoms, theories, and psychosocial aspects of mental illness, and the role of the social worker in the treatment of mental disorders. (Formerly 7750:662)

SOWK:663 Psychopathology & Social Work (3 Credits)

Prerequisite: Second level graduate student or permission of instructor. An examination of the symptoms, theories, and psychosocial aspects of mental illness, and the role of the social worker in the treatment of mental disorders. (Formerly 7750:663)

SOWK:664 Social Work Practice with Families and Children (3 Credits)

Prerequisite: Admission into the MSW program. The course provides students with theories, models, strategies and techniques used in working with families and children in their environment. (Formerly 7750:664)

SOWK:665 Supervision & Staff Development (3 Credits)

Prerequisite: second level graduate student or permission of instructor. An examination of the purpose, functions, and theories of supervision; the impact of cultural, ethnic and racial differences in supervision/staff development; and problems encountered. (Formerly 7750:665)

SOWK:666 Global Health Disparities (3 Credits)

Prerequisite: Admission to the College of Health and Human Sciences. This course provides a fundamental understanding of the purpose, function and importance of understanding global health disparities. The course examines the disparities in health condition and health care among minority populations for several specific diseases. The most significant current health care problems facing populations in the United States and the world will be identified. These conditions are significant health concerns in the majority population as well as minority population. It brings to light the behavioral and cultural characteristics of the global populations that contribute to the disproportionate presence of the disease in that population, and the disparity in treatment available. Furthermore, the course will introduce the students to view globally and act locally regarding to specific health problem of interest to the student or that demonstrate local needs, thus preparing students to potential paths of future program design. (Formerly 7750:666)

SOWK:667 Trauma-Informed Social Work Practice (3 Credits)

Prerequisite: Admission into the MSW program or departmental consent. The course provides students with an overview of the concepts of the impact of traumatic experiences on both clients and those who work with them, with an emphasis on empirically validated therapies. (Formerly 7750:667)

SOWK:671 Social Work Administration (3 Credits)

Prerequisite: second level graduate student or permission of instructor. This course focuses on supervisory and managerial roles and functions as they are carried out at different hierarchical levels in human service organizations. (Formerly 7750:671)

SOWK:672 Community Organization & Planning (3 Credits)

Prerequisite: must have completed first year of master's program. Required for all second year students concentrating on Macro Practice sequence. Prepares students to work in communities and in public and private agencies. (Formerly 7750:672)

SOWK:673 Strategies of Community Organization (3 Credits)

Prerequisite: second level graduate student or permission of instructor. Emphasizes the historical development and application of several community strategies used to identify community problems, and how to organize and empower diverse community groups. (Formerly 7750:673)

SOWK:674 Community, Economic Systems & Social Policy Analysis (3 Credits)

Prerequisite: second level graduate student or permission of instructor. This course provides a base for understanding economic systems and analyzing the political framework at federal, state, and local levels and their impact on communities. (Formerly 7750:674)

SOWK:675 Program Evaluation (3 Credits)

Prerequisite: second level graduate student or permission of instructor. This course provides students with methods of evaluating programs in agencies, including approaches, measurement, design, data collection and analyses employed in program outcome research. (Formerly 7750:675)

SOWK:676 Fiscal Management of Social Agencies (3 Credits)

Prerequisite: second level graduate student or permission of instructor. This elective course concentrates on the financial management of social administration, financial planning and management, principles of economic and fiscal exchange, accountability and fiscal accounting. (Formerly 7750:676)

SOWK:677 Direct Practice Research (3 Credits)

Prerequisite: Graduate standing. This course provides students with an advanced knowledge about the methodology of single system design and skills to implement an evaluation study of their intervention with clients. (Formerly 7750:677)

SOWK:678 Family Financial Management (3 Credits)

This course is an on-line class. It is designed to help students gain an appreciation and working knowledge of the individual/family as a complex and ever-changing financial unit. We will look at the social and cultural practices that contribute to our view of money and financial management. We will also examine the American social class system and our attitudes toward appearances, status, savings and financial security. We will look at patterns of decision making and a range of financial practice behaviors as well as the profiles of families as they go through the family development cycle. We will also explore how families prepare for the unforeseen, and work toward the resolution of family financial problems. Case studies, exercises, quizzes, and on-line discussions will aid us in this process. (Formerly 7750:678)

SOWK:680 Aging & Social Work Practice (3 Credits)

Prerequisite: second level graduate student or permission of instructor. An examination and evaluation of aging programs and policies, demographic trends and the changing role of social work service providers. (Formerly 7750:680)

SOWK:681 Aging: Policies & Programs (3 Credits)

Prerequisite: second level graduate student or permission of instructor. An examination and evaluation of aging programs and policies, demographic trends and the changing role of social work service providers. (Formerly 7750:681)

SOWK:685 Social Work Practice: Family & Children (3 Credits)

Prerequisite second level graduate student or permission of instructor. Examines the major problems encountered by children and families in the life cycle and explores intervention strategies and programs to address their needs and strengths. (Formerly 7750:685)

SOWK:686 Social Welfare Policy & Services: Family & Children (3 Credits)

Prerequisite: second level graduate student or permission of instructor. Examines the federal and state laws, policies, and services governing children and families, including the supportive, supplemental and substitutive aspects of services. (Formerly 7750:686)

SOWK:690 Advanced Practice & Policy in Substance Abuse (3 Credits)

Prerequisite: second level graduate student or permission of instructor. This course provides students the knowledge and skill base necessary for managing and practice with people involved in substance abuse, evaluating programs, and preventive work. (Formerly 7750:690)

SOWK:691 Social Work Values and Ethics (3 Credits)

Prerequisite: Full admission to Graduate program in social work. This elective ethics course focuses on practical or applied ethics. Fundamentals of moral reasoning and ethical decision-making in social work practice are reviewed. Utilized are case materials that illustrate application of normative ethics and standards in the NASW Code of Ethics. (Formerly 7750:691)

SOWK:692 Group Work Practice (3 Credits)

Prerequisite: Full admission to the graduate program in social work. Examines the fundamental knowledge and skills required for social work practice with groups across multiple client systems. Knowledge of social work values and ethics is applied as it relates to all aspects of group work. Dynamics of working with special populations will be emphasized (e.g., the effect of the addictive processes on group therapy, age-appropriate communication with children). (Formerly 7750:692)

SOWK:693 Special Topics for Advanced Social Work Practice (1-3 Credits)

Prerequisite: admission to the MSW Program or permission of the program director. Detailed analysis and study of current practice issues and considerations faced by social work practitioners providing services and interventions at advanced levels. (Formerly 7750:693)

SOWK:694 Theories & Procedures in Addiction Studies (3 Credits)

Prerequisite: Full admission to the graduate program in social work. Explores historical perspective of substance abuse in society, models and theories that describes addiction and the effects of addiction on individuals and families; effects of addiction in individuals; techniques and practices that have positive outcomes in treatment and prevention fields; and professional issues facing the addiction field. (Formerly 7750:694)

SOWK:695 Health Care: Planning & Policy Issues (3 Credits)

Prerequisite: second level graduate student or permission of instructor. This course is designed to orient students to the planning and policy issues in health care, and how social work can interface with health care. (Formerly 7750:695)

SOWK:696 Epidemiologic Analysis of Health & Social Problems (3 Credits)

Prerequisite: second level graduate student or permission of instructor. This course applies the epidemiological method to social work practice, such as treatment groups, making administrative decisions, in planning and evaluation, and doing preventive work. (Formerly 7750:696)

Sociology (SOCIO)

SOCIO:510 Social Structures & Personality (3 Credits)

Prerequisite: Permission. Interrelationships between position in society, personality characteristics. Personality treated as both result and determinant of social structure and process. Lecture. (Formerly 3850:510)

SOCIO:511 Social Interaction (3 Credits)

Prerequisite: Permission. Intensive study of advanced theory and research in social psychology, particularly how social interaction and self-conception affect one another. Lecture. (Formerly 3850:511)

SOCIO:512 Socialization: Child to Adult (3 Credits)

Prerequisite: Permission. Theoretical and empirical analyses of process by which infant, child, adolescent and adult learn social and cultural requirements necessary to function in new roles, changing roles and society in general. (Formerly 3850:512)

SOCIO:521 Race & Ethnic Relations (3 Credits)

Prerequisite: Permission. Analysis of structure and dynamics of race and ethnic relations from a variety of perspectives emphasizing both historical and contemporary issues. Lecture. (Formerly 3850:521)

SOCIO:525 Sociology of Urban Life (3 Credits)

Prerequisite: Permission. Emergence and development of urban society. Examination of urban social structure from neighborhood metropolis, the problems and prospects. Emphasis on various life styles of urban subcultures. Lecture/discussion. (Formerly 3850:525)

SOCIO:528 The Victim in Society (3 Credits)

Prerequisite: Permission of instructor. Study of the nature, causes, and consequences of victimization with special focus on crime victimization. (Formerly 3850:528)

SOCIO:530 Juvenile Delinquency (3 Credits)

Prerequisite: Permission. Analysis of social structure and process from which delinquency develops. Emphasis on current and past research. Lecture/discussion. (Formerly 3850:530)

SOCIO:531 Corrections (3 Credits)

Theories, beliefs and practices of community and institutional corrections systems, including past and current social research. Course taken prior to 3 credit hour Field Placement in Corrections. (Formerly 3850:531)

SOCIO:533 Sociology of Deviant Behavior (3 Credits)

Prerequisite: At least six additional credits of sociology courses or permission. Survey of theories of deviant behavior and relevant empirical research. Special emphasis given to interaction processes and social control. Lecture. (Formerly 3850:533)

SOCIO:541 Sociology of Law (3 Credits)

Prerequisite: At least six additional credits of sociology courses or permission. Social origins and consequences of law and legal processes. Emphasis on uses of law, social change and aspects of legal professions. Lecture. (Formerly 3850:541)

SOCIO:544 Social Issues in Aging (3 Credits)

Prerequisite: Permission. A look into the major issues and problems facing older persons. Special attention is given to the unmet needs of the elderly as well as an examination of current societal policy and programs to meet these needs. (Formerly 3850:544)

SOCIO:547 Sociology of Sex and Gender (3 Credits)

Review of research and theories of sex and gender. Examination of gender as structure, process and experience in society. (Formerly 3850:547)

SOCIO:550 Sociology of Mental Illness (3 Credits)

Prerequisite: Permission. The social history of the mental hospital, theories and epidemiology of mental illness, community-based treatment models, the organization of mental health services, the role of personal social networks and mutual support groups. (Formerly 3850:550)

SOCIO:555 Family Violence (3 Credits)

Family violence with a focus on child abuse, courtship violence, spouse/partner abuse, and elder abuse. Theories, methodologies, and strategies to end family violence are explored. (Formerly 3850:555)

SOCIO:560 Sociological Theory (4 Credits)

Prerequisite: Permission. An overview and examination of theoretical issues in sociology, through the study of both classical and contemporary theoretical work. (Formerly 3850:560)

SOCIO:602 Family & Society (3 Credits)

Prerequisites: Graduate standing in sociology or permission of instructor. Examination of the interplay of family and society: family as both independent/dependent variable, at micro/macro levels. Development and impact of family policies is discussed. (Formerly 3850:602)

SOCIO:604 Quantitative Methods in Sociology (4 Credits)

Prerequisite: Graduate standing in Sociology or permission of instructor. Introduction to use of quantitative methods for analyzing sociological issues. Instruction in the process of empirically verifying a theoretical question, from conceptualization to analysis. (Same as KSU 72211) Lecture. (Formerly 3850:604)

SOCIO:615 Epidemiologic Methods in Health Research (3 Credits)

Prerequisites: Graduate standing in sociology or permission of instructor. Designed to introduce the student to methods of developing and understanding information concerning the distribution of illness and injury in society and evaluations of interventions to reduce the burden. (Formerly 3850:615)

SOCIO:625 Sociology of Sentiments & Emotions (3 Credits)

Prerequisites: Graduate standing in sociology or permission of instructor. A sociological perspective is employed to analyze and understand the production, distribution and utilization of socially created sentiments and emotions. (Same as KSU 6/72435). Seminar. (Formerly 3850:625)

SOCIO:628 Professional and Ethical Issues in Sociology (3 Credits)

Prerequisite: Graduate standing in Sociology. Introduction to professional and ethical issues including the logic of inquiry, developing effective approaches to independent learning and research, the research certification process and plagiarism. Lecture. (Formerly 3850:628)

SOCIO:631 Social Psychology (3 Credits)

Prerequisites: Graduate standing in sociology or permission of instructor. Intensive examination of social psychological theory and research, both classic and contemporary. Provides student with background and working knowledge of social psychological aspects of social phenomena. (Same as KSU 72430) Seminar. (Formerly 3850:631)

SOCIO:634 Personality & Social Systems (3 Credits)

Prerequisites: Graduate standing in sociology or permission of instructor. Examination of contemporary theory and research on linkages between personality and society. Some applications in studies of modernization, social class and occupations and sex roles. (Same as KSU 72433) Seminar. (Formerly 3850:634)

SOCIO:639 Sociology of Gender (3 Credits)

Prerequisite: Permission. Examination of theories and research on gender origins, characteristics and changes. Emphasizes recent empirical research on gender role patterns and processes in various industrial societies. Same as (KSU 6/72566). (Formerly 3850:639)

SOCIO:646 Social Inequalities (3 Credits)

Prerequisites: Graduate standing in sociology or permission of instructor. Seminar dealing with social class and castes with special reference to American social structure. (Same as KSU 72546) Seminar. (Formerly 3850:646)

SOCIO:649 Sociology of Work (3 Credits)

Prerequisites: Graduate standing in sociology or permission of instructor. Examination of work as behavioral phenomenon in human societies; contrasts with non-work and leisure; significance of occupations, professional and work types in organization of work. (Same as KSU 72542) Seminar. (Formerly 3850:649)

SOCIO:651 Seminar in Race Relations (3 Credits)

Prerequisites: Graduate standing in sociology or permission of instructor. Analysis of the structure and dynamics of race and ethnic relations with attention given to both historical and contemporary issues. (Same as KSU 72870) Seminar. (Formerly 3850:651)

SOCIO:656 Sociology of Health Care (3 Credits)

Prerequisites: Graduate standing in sociology or permission of instructor. A general study of the field of medical sociology with special emphasis on analysis of health and health care in the contemporary urban United States. (Same as KSU 72323). (Formerly 3850:656)

SOCIO:663 Deviance (3 Credits)

Prerequisite: Graduate standing in sociology or permission of instructor. Examination of nature and types of deviance. Problems and issues in theory and research. (Same as KSU 72760) Seminar. (Formerly 3850:663)

SOCIO:664 Sociology of Criminal Behavior (3 Credits)

Prerequisites: Graduate standing in sociology or permission of instructor. Analysis of relationship of crime and delinquency to social structure and social processes. Responses by criminal justice agencies. Seminar. (Formerly 3850:664)

SOCIO:665 Juvenile Delinquency: Theory & Research (3 Credits)

Prerequisite: Graduate standing in sociology or permission of instructor. Analysis of theories of delinquency; ecological, class structural, substructural, etc. Review of relevant research also presented. Seminar. (Formerly 3850:665)

SOCIO:666 Sociology of Corrections (3 Credits)

Prerequisite: Graduate standing in sociology or permission of instructor. Analysis of correctional institution as social system; its formal structure and informal dynamics. Analysis of present state of corrections research. Seminar. (Formerly 3850:666)

SOCIO:677 Family Analysis (3 Credits)

Prerequisite: Graduate standing in sociology or permission of instructor. Analysis and evaluation of sociological theory and research in the family. Concentration on techniques of theory construction and research design in sociological study of the family. (Same as KSU 72543) Seminar. (Formerly 3850:677)

SOCIO:678 Social Gerontology (3 Credits)

Prerequisite: Graduate standing in sociology or permission of instructor. Impact of aging upon individuals and society. Reactions of individuals and society to aging. (Same as KSU 72877) Seminar. (Formerly 3850:678)

SOCIO:686 Population (3 Credits)

Prerequisite: Graduate standing in sociology or permission of instructor. Analysis of basic population theory and methods. Trends and differentials in fertility, mortality, migration and selected social demographic variables also considered. (Same as KSU 72656) Seminar. (Formerly 3850:686)

SOCIO:696 Master's Research Paper (1-6 Credits)

(Must be repeated for a minimum of 6 credits). Prerequisite: Graduate standing in sociology or permission of instructor. Supervised writing of a paper for Master's Research Paper option. (Formerly 3850:696)

SOCIO:697 Readings in Contemporary Sociological Literature (1-3 Credits)

(May be repeated) Prerequisites: Graduate standing in Sociology, seven credits of sociology, and permission of advisor, instructor, and chair of the department. Intensive reading and interpretation of written material in student's chosen field of interest. Regular conferences with instructor. (Formerly 3850:697)

SOCIO:698 Directed Research (1-3 Credits)

(May be repeated) Prerequisite: Graduate standing in sociology or permission of instructor. Empirical research to be conducted by the student under graduate faculty supervision. (Formerly 3850:698)

SOCIO:699 Master's Thesis (1-6 Credits)

(Must be repeated for a minimum of 6 credits). Prerequisite: Graduate standing in sociology or permission of instructor. Supervised thesis writing. (Formerly 3850:699)

SOCIO:700 College Teaching of Sociology (3 Credits)

Prerequisite: Teaching assistant in Sociology or permission of instructor. Training and experience in college teaching of sociology. Not approved as credit toward degree. Seminar. (Formerly 3850:700)

SOCIO:706 Multivariate Techniques in Sociology (4 Credits)

Prerequisites: SOCIO 604 or permission; a sociology graduate student only. Methodological problems using advanced multivariate techniques in analysis of sociological data. Topics include nonexperimental causal analysis such as recursive and nonrecursive path analysis. (Same as KSU 72217). (Formerly 3850:706)

SOCIO:709 Advanced Data Analysis (4 Credits)

Prerequisites: SOCIO 706 or equivalent, graduate standing in Sociology or permission of instructor. Critical examination of data analysis techniques having particular relevance to research problems in sociology. (Same as KSU 72218) Lecture. (Formerly 3850:709)

SOCIO:711 Survey Research Methods (3 Credits)

Prerequisites: SOCIO 603 and SOCIO 604, or permission. In-depth study of design and administration of social surveys. (Same as KSU 72220) Seminar. (Formerly 3850:711)

SOCIO:714 Qualitative Methodology (4 Credits)

Prerequisite: Graduate standing in Sociology or permission of instructor. Study of qualitative methods including interviewing, observation, use of personal documents, archival data, and special problems of recording and analyzing qualitative data. (Same as KSU 72219) Lecture. (Formerly 3850:714)

SOCIO:722 Early Sociological Thought (3 Credits)

Prerequisite: Graduate standing in sociology or permission of instructor. Two to four major pre-1930 sociological theorists will be examined in depth. (Same as KSU 72191) Seminar. (Formerly 3850:722)

SOCIO:723 Contemporary Sociological Thought (3 Credits)

Prerequisites: SOCIO 722 and Graduate standing in sociology or permission of instructor. Intensive, critical analysis of current scholarship in a broad range of contemporary sociological theories. Virtually all required reading will be from primary sources. (Same as KSU 72105) Seminar. (Formerly 3850:723)

SOCIO:726 Stratification & Health (3 Credits)

Prerequisite: Graduate standing in sociology or permission of instructor. Race, social class, and gender differences in physical and mental health status, help-seeking behavior, and health care. Race, class, and gender stratification of health care workers. (Same as KSU 72328) (Formerly 3850:726)

SOCIO:727 Sociology of Occupations, Professions & Health Care (3 Credits)

Prerequisite: Graduate standing in sociology or permission of instructor. Sociological examination of the organization of work in the health care field with emphasis on occupations, professions, and health care delivery. (Same as KSU 72327) (Formerly 3850:727)

SOCIO:728 Sociology of Mental Health & Mental Disorders (3 Credits)

Prerequisite: Graduate standing in sociology or permission of instructor. Sociological examination of the social processes that affect mental health, that frame cultural ideas of normality and illness, and that define clinical pathology. (Same as KSU 72326) (Formerly 3850:728)

SOCIO:747 Urban Sociology (3 Credits)

Prerequisite: Graduate standing in sociology or permission of instructor. Analysis of theories of urban process and review of major contributions to empirical analysis of urban life. (Same as KSU 72659) Seminar. (Formerly 3850:747)

SOCIO:753 Special Topics in Social Organization (1-3 Credits)

(May be repeated). Prerequisite: Graduate standing in Sociology or permission of instructor. Open course to cover content area not readily subsumable under other headings. Content of course to be determined by instructor. (Same as KSU 72595) Seminar. (Formerly 3850:753)

SOCIO:797 Individual Investigation (1-3 Credits)

(May be repeated). Prerequisites: one semester of graduate work, permission of instructor, advisor and chair of department. Readings and/or research supervised by member of graduate faculty. (Same as KSU 72896) (Formerly 3850:797)

SOCIO:798 Individual Investigation (1-3 Credits)

(May be repeated). Prerequisites: one semester of graduate work, permission of instructor, advisor and chair of department. Readings and/or research supervised by member of graduate faculty. (Same as KSU 72896) (Formerly 3850:798)

SOCIO:899 Doctoral Dissertation (1-10 Credits)

(Must be repeated for a minimum of 30 credits) Prerequisite: Graduate standing in sociology or permission of instructor. Dissertation. (Same as KSU 82199) (Formerly 3980:375)

Spanish (SPAN)

SPAN:503 Advanced Grammar (3 Credits)

Prerequisite: graduate status or permission of department. Advanced study of Spanish syntax and grammatical analysis. Taken as 503, does not count toward the M.A. in Spanish. Conducted in Spanish. (Formerly 3580:503)

SPAN:504 Introduction to Spanish Linguistics (4 Credits)

Prerequisite: Graduate status or permission of department. This course provides a detailed overview of the structure of Spanish and areas of inquiry within linguistics: phonetics, phonology, morphology, syntax, semantics and applied fields. (Formerly 3580:504)

SPAN:505 Spanish Linguistics: Phonology (4 Credits)

Prerequisite: Graduate status or permission of department. Descriptive study of Spanish phonetics and morphology, comparison of Spanish and English sounds, historical aspects, regional accents and sociolinguistic variation. Conducted in Spanish. (Formerly 3580:505)

SPAN:506 Spanish Linguistics: Syntax (4 Credits)

Prerequisite: Graduate status or permission of department. Descriptive study of Spanish syntax; introduction to theories of grammar; overview of Spanish semantics and pragmatics. Conducted in Spanish. (Formerly 3580:506)

SPAN:507 Survey of Hispanic Literature: Spain (4 Credits)

Prerequisite: Graduate status or permission of department. Historical overview of representative works and literary movements in Spain. Taken as 507, does not count toward Spanish M.A. Conducted in Spanish. (Formerly 3580:507)

SPAN:508 Survey of Hispanic Literature: Spanish America (4 Credits)

Prerequisite: Graduate status or permission of department. Historical overview of representative works and literary movements in Spanish America. Taken as 508, does not count toward Spanish M.A. Conducted in Spanish. (Formerly 3580:508)

SPAN:509 Cultural Manifestation in Medieval & Renaissance Spain (4 Credits)

Prerequisite: Graduate status or permission of department. Comparative study of representative artistic and literary works of the Medieval and Renaissance periods. Conducted in Spanish. (Formerly 3580:509)

SPAN:510 Spanish Applied Linguistics (4 Credits)

Prerequisite: Graduate status or permission of department. This course discusses current theories of second language acquisition and their implications for the learning of problematic Spanish structures. (Formerly 3580:510)

SPAN:511 Spain During the Baroque Period (4 Credits)

Prerequisite: Graduate status or permission of department. A comparative study of the different cultural manifestations during the 17th century in Spain. Conducted in Spanish. (Formerly 3580:511)

SPAN:512 Cervantes: Don Quijote (4 Credits)

Prerequisite: Graduate status or permission of department. Reading and analysis of Don Quijote as the first modern novel in the historical context of Renaissance and Baroque esthetics. Conducted in Spanish. (Formerly 3580:512)

SPAN:513 Don Juan Myth in Spanish Culture (4 Credits)

Prerequisite: Graduate status or permission of department. Study of the evolution of the Don Juan myth from its origins to its latest versions in the 20th century. (Formerly 3580:513)

SPAN:514 Cultural Politics in the River Plate (4 Credits)

Prerequisite: Graduate status or permission of department. This course will examine the military dictatorships of the seventies and eighties in Argentina and Uruguay by looking at how these regimes affect culture. (Formerly 3580:514)

SPAN:516 Representing Reality in 19th Century Spain (4 Credits)

Prerequisite: Graduate status or permission of department. A comparative study of the major literary and artistic movements in Spain from Realism to Modernism. Conducted in Spanish. (Formerly 3580:516)

SPAN:518 20th Century Spain: The Avant-Garde in Literature & Art (4 Credits)

Prerequisite: Graduate status or permission of department. A comparative study of the major literary and artistic movements in Spain which illustrate the primary cultural changes of the century. Conducted in Spanish. (Formerly 3580:518)

SPAN:519 Spanish Civil War & its Cultural Impact (4 Credits)

Prerequisite: Graduate status or permission of department. Study of the impact of the Civil War on Spanish culture. (Formerly 3580:519)

SPAN:522 Special Topics in Specialized Language Skills, or Culture, or Literature (1-4 Credits)

Prerequisite: Graduate status or permission of department. (May be repeated.) Development of specialized language skills or reading of significant works of literature or culture not studied in other courses. (Formerly 3580:522)

SPAN:525 20th Century Spanish-American Novel (4 Credits)

Prerequisite: Graduate status or permission of department. Reading and discussion of representative contemporary Latin American novels. Conducted in Spanish. (Formerly 3580:525)

SPAN:527 Latino Cultures in USA (4 Credits)

Prerequisite: Graduate status or permission of department. Inquiry into the Latino experience of displacement and marginality through the analysis of cultural manifestations in the USA. Conducted in Spanish. (Formerly 3580:527)

SPAN:530 Women in 20th Century Hispanic Literature (4 Credits)

Prerequisite: Graduate status or permission of department. Reading and analysis of selected works from the 20th Century that depict women in Hispanic countries. Methodologies of feminist criticism will be studied. Conducted in Spanish. (Formerly 3580:530)

SPAN:531 Hispanic Culture: Spain (4 Credits)

Prerequisite: Two of the group SPAN 401, SPAN 402, SPAN 403 or permission of instructor. Study of society, customs, history, art, music, etc. of Spain, from a Hispanic perspective. Conducted in Spanish. (Formerly 3580:531)

SPAN:532 Hispanic Culture: Spanish America (4 Credits)

Prerequisite: Graduate status or permission of department. Overview and historical survey of Spanish American civilization and culture. Taken as 532, does not count toward the M.A. in Spanish. Conducted in Spanish. (Formerly 3580:532)

SPAN:661 Spanish Teaching Practicum (2 Credits)

Prerequisite: Teaching, assistantship or permission. Orientation and practice of particular aspects of teaching Spanish language and culture. Student teaching experiences are periodically reviewed and evaluated. These credits may not be applied toward degree requirements. (Formerly 3580:661)

SPAN:697 Individual Readings in Spanish (1-4 Credits)

Content of given individual reading program taken from course contests approved for graduate work in Spanish. (Formerly 3580:697)

SPAN:698 Individual Readings in Spanish (1-4 Credits)

Content of given individual reading program taken from course contests approved for graduate work in Spanish. (Formerly 3580:698)

Special Educational Programs (EDSP)

EDSP:590 Workshop in Economic Education or in Social Studies (1-3 Credits)

Individual work under staff guidance on curriculum problems; utilization of community resources; planning of curriculum units. (Formerly 5800:590)

Speech-Language Pathology and Audiology (SLPA)

SLPA:530 Aspects of Normal Language Development (3 Credits)

(Not open to communicative disorders major) Introduction to acquisition and development of comprehension and production of language - phonologically, semantically and syntactically. Relates language acquisition to perceptual development of child and looks at function of language in individual, family and school. (Formerly 7700:530)

SLPA:540 Augmentative Communication (3 Credits)

Prerequisite: Graduate standing in speech-language pathology. Overviews augmentative communication systems-candidates, symbol systems, devices, vocabulary, funding. Considers interdisciplinary issues in assessment/intervention. (Formerly 7700:540)

SLPA:545 Multicultural Considerations for Audiologists & Speech-Language Pathologists (2 Credits)

Prerequisite: SLPA 110 or graduate standing. This course introduces the multicultural considerations faced by audiologists and speech-language pathologists providing services to families and individuals with communication disorders. (Formerly 7700:545)

SLPA:552 Child, Illness and Loss (3 Credits)

This course examines the phenomena of illness, loss and bereavement in modern society with a special emphasis on children and families. (Formerly 7700:552)

SLPA:553 Facilitating Support Groups (3 Credits)

Theories, strategies and skills needed to facilitate support groups for children and for adults are studied using a variety of approaches including participation in a support group. (Formerly 7700:553)

SLPA:554 Child in the Hospital (4 Credits)

Prerequisite: permission of the instructor. Seminar dealing with social needs and problems of hospitalized/ill child and family. Literature related to effects, separation, illness and stress. Examination of strategies for coping. (Formerly 7700:554)

SLPA:555 Practicum: Experience in a Child-Life Program (3 Credits)

Prerequisite: CHFD 561 or permission of the instructor. Field experience in a child life program and classroom activities including critical analysis of a currently functioning program and program administration. (Formerly 7700:555)

SLPA:556 Child in the Hospital Lab (2 Credits)

Corequisite: SLPA 554. Experiential lab in which students practice communication and clinical skills applied to pediatric diagnosis in a health related setting. (Formerly 7700:556)

SLPA:560 Speech-Language & Hearing Disorders in the Public Schools (2 Credits)

(Not open to communicative disorders major) Nature, causes and treatment of speech, hearing and language disorders in public schools. Special reference to role of classroom teacher in identifying and referring student with suspected problems and in working with school clinician. (Formerly 7700:560)

SLPA:561 Organization & Administration: Public School Speech-Language & Hearing Programs (2 Credits)

Prerequisites: Senior or graduate standing or permission. For clinicians who plan to work in public school systems. Covers program requirements and professional/ethical issues imposed by PL 94-142 and IDEA legislation. (Formerly 7700:561)

SLPA:580 Early Intervention for Preschoolers (2 Credits)

Prerequisite: graduate status. This course explores model programs currently being offered to the three to five year old population, with and without disabilities at two different levels. (Formerly 7700:580)

SLPA:583 Hospital Settings, Children & Families Lab (2 Credits)

Corequisite: SLPA 584. Practice, videotape and self-evaluate child life competencies related to working with children and families in a health related setting. (Formerly 7700:583)

SLPA:584 Hospital Settings, Children and Families (3 Credits)

Prerequisite: permission of the instructor. Focuses on hospital as a major social institution; introduces procedures and functions of the hospital; roles played by various hospital personnel plus cursory knowledge of medical terminology, common childhood diseases, illnesses and injuries. (Formerly 7700:584)

SLPA:585 Developmental Disabilities (2 Credits)

Prerequisite: Full admission to the graduate program in speech-language pathology. This course addresses current practice related to clinical intervention designed for individuals with developmental disabilities. Explores the social aspects of communication, including challenging behavior, ineffective social skills, and lack of communication opportunities. (Formerly 7700:585)

SLPA:590 Workshop: Speech-Language Pathology and Audiology (1-3 Credits)

(May be repeated for a total of four credits) Prerequisite: permission. Group investigation of particular phase of speech pathology and/or audiology not offered by other courses. (Formerly 7700:590)

SLPA:594 Child Life Internship (5 Credits)

Prerequisite: SLPA 555 and permission of advisor. Field experience in a child life program at an approved pediatric facility under the supervision of Certified Child Life Specialists. (Formerly 7700:594)

SLPA:602 Assessment, Play and Therapeutic Interventions with Children (3 Credits)

An overview of the theoretical framework of play and assessment of children's developmental and emotional needs. Therapeutic interventions and activities are explored. (Formerly 7700:602)

SLPA:603 Child Life Professional Practice and Communication (3 Credits)

Provides the knowledge of child life professional practice, standards of clinical practice, competencies and ethics. Skills related to therapeutic communication with patients, families and staff will be explored and practiced. (Formerly 7700:603)

SLPA:608 Advanced Skills in Augmentative-Alternative Communication (1 Credit)

Prerequisites: SLPA 540, SLPA 613, and SLPA 650 with a grade of A- or greater, graduate standing in speech-language pathology and enrollment in the AAC Concentration Certificate Program. Advanced coursework addressing augmentative and alternative communication (AAC) clinical skills related to evaluation, intervention, technology and professional development experiences. (Formerly 7700:608)

SLPA:610 Instrumentation in Speech Pathology and Audiology (2 Credits)

Principles and use of clinical and research instrumentation in speech and hearing. (Formerly 7700:610)

SLPA:611 Research Methods in Communicative Disorders I (3 Credits)

Prerequisite: Full admission to the SLP or Child Life Specialist programs or permission of the school director. Introduction to experimental design in field of communicative disorders. (Formerly 7700:611)

SLPA:613 Advanced Topics in Augmentative-Alternative Communication (3 Credits)

Prerequisites: SLPA 540 with a grade of B- or better and graduate standing in speech-language pathology, or permission from instructor. Advanced coursework addressing assessment approaches, intervention planning, evidence-based interventions, language systems, alternative access methods and behavior management for clients who use augmentative-alternative communication. Students will develop advanced knowledge and skills through coursework, hands-on virtual labs, discussions, and assignments. (Formerly 7700:613)

SLPA:614 Language and Literacy Development (3 Credits)

Prerequisite: Full admission to the Master of Arts in Speech-Language Pathology. This course presents current research perspectives on child language disorders and clinical methodologies in language assessment and intervention. (Formerly 7700:614)

SLPA:615 Fluency Disorders :Assessment, Counseling and Treatment (3 Credits)

Prerequisite: Full admission to the SLP program or permission of the school director. This course provides information and discussion on theories, classification, diagnosis and treatment of fluency disorders. (Formerly 7700:615)

SLPA:620 Articulation/Phonology (3 Credits)

Prerequisite: Full admission to graduate program in speech-language pathology. Historical background, current theories and research related to etiology, evaluation and treatment of articulation and phonology disorders as well as childhood apraxia of speech. Survey current methods in and approaches to accent/dialect modification. (Formerly 7700:620)

SLPA:623 Support Systems for Individuals & Families with Communicative Disorders (2 Credits)

Prerequisite: Full admission to the SLP program or permission of the school director. Enhances students' abilities to interview, provide educational information, and create support systems for persons with communicative handicaps and their families. (Formerly 7700:623)

SLPA:624 Neurogenic Speech & Language Disorders (3 Credits)

Prerequisite: Full admission to the SLP program or permission of the school director. Course presents current theories and research related to neuroanatomical etiology, diagnosis, classification and treatment of adults with neurologically based communication disorders. (Formerly 7700:624)

SLPA:626 Voice & Cleft Palate (3 Credits)

Prerequisite: Full admission to the SLP program or permission of the school director. Background and current research related to normal vocal and velopharyngeal function as well as the etiology, diagnosis, and treatment of voice and cleft palate. (Formerly 7700:626)

SLPA:627 Stuttering: Theories & Therapies (2 Credits)

Pre-requisite: Full admission to the SLP program or permission of the school director. This course provides information and discussion on theories, classification, diagnosis, and treatment of fluency disorders. (Formerly 7700:627)

SLPA:628 Topics in Differential Diagnosis of Speech & Language Disorders (2 Credits)

(May be repeated for a total of four credits) Pre-requisite: Full admission to the SLP program or permission of the school director. (Formerly 7700:628)

SLPA:630 Clinical Issues in Child Language (4 Credits)

Prerequisite: Full admission to the SLP program or permission of the school director. Presents current research perspectives on child language disorders and clinical methodologies in language assessment and intervention. (Formerly 7700:630)

SLPA:631 Cognitive Communicative Issues in Special Language (3 Credits)

Prerequisite: Full admission to the SLP program or permission of the school director. A study of behavioral deficits, stages of recovery, assessment techniques, and principles of cognitive rehabilitation related to closed head injury. (Formerly 7700:631)

SLPA:632 Dysphagia (3 Credits)

Prerequisite: Full admission to the SLP program or permission of the school director. Outlines etiology, assessment, and treatment for infants, children, and adults with feeding and swallowing disorders (dysphagia). It provides actual experiences in diagnosis and feeding techniques. (Formerly 7700:632)

SLPA:633 Professional Issues (2 Credits)

Prerequisite: Full admission to the SLP program or permission of the school director. Ethical, moral, and legal processes within current SLP professional issues are discussed. Students are encouraged to develop personal professional viewpoints and identity. (Formerly 7700:633)

SLPA:639 Audiology for the Speech-Language Pathologist (3 Credits)

Prerequisite: Full admission to the SLP program or permission of the school director. Advanced information on hearing loss and concomitant communication problems with special orientation toward the speech-language pathologist. (Formerly 7700:639)

SLPA:640 Special Tests/Medical Audiology (4 Credits)

Prerequisite: SLPA 639 or permission of instructor. Underlying psychoacoustic principles of administration and interpretation of site-of-lesion tests. Relationship between otology and audiology; application of clinical audiology in medical environment. (Formerly 7700:640)

SLPA:642 Pediatric Audiology (2 Credits)

Prerequisite: SLPA 639 or permission of instructor. Etiology of hearing loss in children, techniques for testing preschool and school-age children and other difficult-to-test clients. (Formerly 7700:642)

SLPA:643 Industrial Audiology (2 Credits)

Prerequisite: SLPA 639 or permission of instructor. Theoretical principles of noise measurement; etiology of noise-induced hearing loss and acoustic trauma; industrial hearing conservation programs; Occupational Safety and Health Act (O.S.H.A.) regulations. (Formerly 7700:643)

SLPA:644 Aural Rehabilitation (4 Credits)

Prerequisite: permission of instructor. Review of current methodologies employed in aural rehabilitation of children and adults as well as current and potential areas of research. (Formerly 7700:644)

SLPA:645 Evoked Potentials (2 Credits)

Prerequisite: permission of instructor. A study of auditory, visual and somatosensory evoked potentials and their clinical applications in audiology and neuro-otology. (Formerly 7700:645)

SLPA:649 Electronystagmography (2 Credits)

Prerequisite: permission of instructor. Study of the anatomy and physiology of the vestibular system; nystagmus; electronystagmographic (ENG) recording procedures; ENG protocols; interpretation of ENG results. (Formerly 7700:649)

SLPA:650 Advanced Clinical Practicum: Speech-Language Pathology (1-6 Credits)

Prerequisite: Full admission to the SLP program or permission of the school director. Supervised clinical practicum in evaluation and treatment of speech and language disorders; includes preparation of written reports. (Formerly 7700:650)

SLPA:654 Advanced Clinical Practicum: Audiology (1-6 Credits)

Prerequisite: Permission (may be repeated). Supervised clinical practicum in evaluation and treatment of hearing disorders; includes preparation of written reports. (Formerly 7700:654)

SLPA:673 Public School Issues in Speech-Language-Hearing Programs (3 Credits)

Familiarizes participants with the organization and management of speech-language-hearing services in schools. (Formerly 7700:673)

SLPA:683 Neuroscience for Communicative Disorders (3 Credits)

Prerequisite: Full admission to the SLP program or permission of the school director. Familiarize students with anatomy and physiology of the normal and abnormal nervous system. Discusses identification, management, and course of common disorders of the nervous system. (Formerly 7700:683)

SLPA:690 Internship: Advanced Programming in Child Life (5 Credits)

Prerequisite: SLPA 594. Field experience in a specialized area in a child life program in an approved pediatric facility under the supervision of a certified child life specialist. (Formerly 7700:690)

SLPA:691 School-based Externship Seminar (1 Credit)

Taken concurrently with School-based Externship in Audiology or Speech-Language Pathology. Review and discussion of issues raised during externship experience. (Formerly 7700:691)

SLPA:693 School-based Externship: Speech Language Pathology (6 Credits)

Directed professional experience under supervision of a licensed and certified Speech-Language Pathologist and a University supervisor. (Formerly 7700:693)

SLPA:695 Externship: Speech Language Pathology (6 Credits)

Prerequisite: Full admission to the SLP program or permission of the school director. Clinical practicum in a selected speech-language pathology or audiology facility. (Formerly 7700:695)

SLPA:696 Externship Seminar (1 Credit)

(May be repeated once) Corequisite: SLPA 695. Prerequisite: Full admission to the SLP program or permission of the school director. Taken concurrently with externship in speech-language pathology. Review and discuss issues raised during extern experience. (Formerly 7700:696)

SLPA:697 Special Problems: Speech Pathology &/or Audiology (1-3 Credits)

(May be repeated for total of six credits.) Prerequisite: Full admission to the SLP program or permission of the school director. Guided research or reading in selected topics in speech pathology, audiology, or language disorders. (Formerly 7700:697)

SLPA:699 Masters Thesis (4-6 Credits)

(May be repeated for a total of six credits.) Prerequisite: permission of School Director. (Formerly 7700:699)

SLPA:701 Basic and Applied Physical Acoustics for Audiology (4 Credits)

Prerequisites: Admission to the Au.D. Program or permission of instructor. Study of physical acoustics, basis electricity and electronics, as well as principles, methodology, calibration, and maintenance of audiologic equipment. (includes 1 credit hour lab). (Formerly 7700:701)

SLPA:702 Anatomy and Physiology of the Peripheral Auditory and Vestibular System (4 Credits)

Prerequisites: Admission to the Au.D. program or permission of instructor. A study of the anatomy, biophysics, and physiology of the auditory and vestibular systems. (Formerly 7700:702)

SLPA:703 Speech Acoustics and Speech Perception (2 Credits)

Prerequisites: Admission to the Au.D. program or permission. Study of the acoustics, measurement, and nomenclature of speech sounds and theoretical and acoustic bases of speech perception. (Formerly 7700:703)

SLPA:704 Critical Analysis of Research in Audiology I (2 Credits)

Prerequisites: Admission to the Au.D. program or permission. General introduction to the research process with an emphasis on acquiring a reading knowledge of research and an ability to evaluate research. (Formerly 7700:704)

SLPA:705 Auditory Disorders (2 Credits)

Prerequisite: admission to the Au.D. program or permission. Study of conditions/diseases that can affect the auditory system. (Formerly 7700:705)

SLPA:706 Anatomy & Physiology Underlying Neuro-Otology (4 Credits)

Prerequisite: SLPA 702. An in depth study of the anatomy and physiology of the central auditory and vestibular nervous systems (include 1 hour lab). (Formerly 7700:706)

SLPA:707 Psychoacoustics (3 Credits)

Prerequisites: Admission to the Au.D. program or permission. Study of the principles, procedures, and research of psycho-acoustics: the relationships between the physical dimensions of auditory stimuli and the resultant perceptual experience with normal and impaired hearing. (Formerly 7700:707)

SLPA:708 Critical Analysis of Research in Audiology II (2 Credits)

Prerequisite: SLPA 704. Development of a reading knowledge of research and the ability to evaluate the quality of research studies. (Formerly 7700:708)

SLPA:709 Audiologic Assessment (3 Credits)

Prerequisite: SLPA 705, SLPA 752. Theoretical basis for the tests underlying basic audiologic assessment. (Formerly 7700:709)

SLPA:710 Industrial and Community Noise (3 Credits)

Prerequisite: Admission to the Au.D. program. Theoretical principles of noise measurement; etiology of noise-induced hearing loss and acoustic trauma; industrial hearing conservation programs; Occupational Safety and Health Act; community and recreational noise evaluation and management. (Formerly 7700:710)

SLPA:712 Diagnosis of Auditory Disorders (3 Credits)

Prerequisite: SLPA 709. Underlying theory and principles of administration and interpretation of site-of-lesion tests. (Formerly 7700:712)

SLPA:713 Hearing Aid Technology (4 Credits)

Prerequisite: SLPA 701. Study of amplification systems for the hearing impaired. (Formerly 7700:713)

SLPA:714 Gerontological Issues in Audiology (3 Credits)

Prerequisite: Admission to the Au.D. program. Physiological, psychological, and sociological theories of aging with a focus on the etiology, symptomatology, assessment, and rehabilitation of older adults with hearing impairments. (Formerly 7700:714)

SLPA:715 Central Auditory Processing: Evaluation and Management (2-3 Credits)

Prerequisites: SLPA 705, SLPA 706. Study of audiologic evaluation and habilitation/rehabilitation procedures for people having central auditory disabilities. (Formerly 7700:715)

SLPA:717 Pediatric Audiology (3 Credits)

Prerequisite: SLPA 709. Study of audiologic diagnostic and auditory habilitative protocols for the birth to 3 population. Both assessment and management strategies will be emphasized. (Formerly 7700:717)

SLPA:718 Cochlear Implants (2 Credits)

Prerequisite: Admission to the Au.D. program. Study of cochlear implants in children and adults including equipment, candidacy, mapping, and an overview of (re)habilitation. (Formerly 7700:718)

SLPA:719 Counseling in Audiology (3 Credits)

Prerequisites: Admission to the Au.D. program or permission. Focus on interviewing, counseling and interacting with individuals with hearing impairments, their families, and significant others. (Formerly 7700:719)

SLPA:721 Evaluation and Management of Balance Disorders (3 Credits)

Prerequisites: Admission to the Au.D. program or permission. Study of the balance mechanism; differential diagnostic assessment of balance disorders including electronystagmography, posturography and rotation testing; rehabilitation of the balance disordered patient. (Formerly 7700:721)

SLPA:725 Medical Management of Auditory Disorders (2 Credits)

Prerequisite: SLPA 712. A study of the multidisciplinary approach to medical/surgical management of patients with auditory and vestibular disorders. (Formerly 7700:725)

SLPA:726 Electrophysiological Techniques in Audiology (3 Credits)

Prerequisites: SLPA 706 or permission. Study of evoked responses used in diagnostic audiology, including ABR, MLR, EChocG, ENOG, ALR, P300, VER, and SSER. (Formerly 7700:726)

SLPA:727 Multicultural Issues in Audiology (2 Credits)

Prerequisites: Admission to the Au.D. program or permission. An introduction to Deaf Culture and the audiologist's roles and responsibilities in planning treatment with a member of the deaf community. (Formerly 7700:727)

SLPA:728 Seminar in Audiology (2 Credits)

Prerequisite: Admission to the Au.D. program. Selected current topics in audiology with emphasis on review of current literature. Course may be repeated up to 6 credits. (Formerly 7700:728)

SLPA:730 Practice Management in Audiology (3-4 Credits)

Prerequisites: Admission to the Au.D. program or permission. Study of issues which impact the management of audiological practices, including establishing a private practice, reimbursement, marketing, record keeping and professional liability. (Formerly 7700:730)

SLPA:731 Fourth Year Seminar (1-6 Credits)

Prerequisite: Admission to the Au.D. program. Corequisite: SLPA 749 or SLPA 750. In-depth consideration of topics/issues in the practice of audiology with emphasis upon issues related to clinical rotation issues. Repeatable up to 6 credits. (Formerly 7700:731)

SLPA:732 Audiologic Treatment Across the Lifespan (4 Credits)

Study of current methodologies employed in the audiologic treatment of people with hearing loss across the lifespan. Implementation of remedial strategies is emphasized. (Formerly 7700:732)

SLPA:734 Principles of Precepting (1 Credit)

Examination of the concepts and practices essential to the preceptor role. Emphasis on professional standards, adult learning theories, communication styles, ethical principles, and the multiple roles of a preceptor (educator, role model, mentor, facilitator, and evaluator). (Formerly 7700:734)

SLPA:735 Laboratory for Electrophysiologic Techniques in Audiology (1 Credit)

Prerequisite: Admission to the Au.D. program or permission. Corequisite: SLPA 726. Laboratory exercises for the assessment of auditory disorders including electrocochleography, the auditory brain stem response and auditory steady state responses. (Formerly 7700:735)

SLPA:736 Laboratory for the Evaluation and Management of Balance Disorders (1 Credit)

Prerequisite: Admission to the Au.D. program or permission. Corequisite: SLPA 721. Laboratory exercises for the assessment of balance disorders including videonystagmography, posturography and informal evaluations; approaches for the rehabilitation and treatment of the balance disordered patient. (Formerly 7700:736)

SLPA:737 Laboratory for Advanced Electrophysiological and Vestibular Measures (1 Credit)

Prerequisite: Admission to the Au.D. program or permission. Corequisite: SLPA 761. Laboratory exercises for the assessment, management and treatment of auditory and vestibular disorders including early, middle and late auditory evoked potentials and advanced vestibular measures. (Formerly 7700:737)

SLPA:747 Graduate Audiologist I (3 Credits)

Prerequisite: SLPA 757. Supervised clinical practicum in audiology which encompasses audiologic assessments and audiologic rehabilitation. Repeatable up to nine credits. (Formerly 7700:747)

SLPA:748 Graduate Audiologist II (3 Credits)

Prerequisites: SLPA 747 and permission. Supervised clinical practicum in audiology requiring the independent performance of audiologic assessment procedures, audiologic rehabilitation, and vestibular assessment and rehabilitation. Repeatable up to nine credits. (Formerly 7700:748)

SLPA:749 Graduate Audiologist III (6 Credits)

Prerequisites: SLPA 748 and permission. Corequisite: SLPA 731. Supervised clinical practicum in audiology requiring the independent performance of audiologic assessment procedures, audiologic rehabilitation, and vestibular assessment and rehabilitation. Repeatable up to 24 credits. (Formerly 7700:749)

SLPA:750 Graduate Audiologist IV (8 Credits)

Prerequisite: SLPA 749. Corequisite: SLPA 731. Supervised clinical practicum in audiology requiring the independent performance of audiologic assessment procedures, audiologic rehabilitation, and vestibular assessment and rehabilitation. Repeatable up to 24 credits. (Formerly 7700:750)

SLPA:751 Graduate Audiologist V (3-8 Credits)

Prerequisite: SLPA 750 and permission; Co-requisite: SLPA 731. Supervised clinical practicum in audiology requiring the independent performance of audiologic assessment procedures, audiologic rehabilitation, and vestibular assessment and rehabilitation. Repeatable up to 9 credits. (Formerly 7700:751)

SLPA:752 Clerkship I (1 Credit)

Prerequisites: Admission to the Au. D. program or permission of instructor. Introduction to clinical practicum in Audiology. Directed observation of clinical practice including audiologic diagnosis and audiologic rehabilitation are required. (Repeatable up to 6 credits) (Formerly 7700:752)

SLPA:753 Clerkship II (1 Credit)

Prerequisite: SLPA 752. Introduction to clinical practicum in audiology. Directed observation of clinical practice including audiologic diagnosis and audiologic rehabilitation are required. (Repeatable up to 6 credits) (Formerly 7700:753)

SLPA:754 Internship I (1 Credit)

Corequisite: SLPA 709 or permission. Clinical practicum in audiology during which students perform discrete tasks under supervision. (Repeatable up to 6 credits) (Formerly 7700:754)

SLPA:755 Internship II (1 Credit)

Prerequisite: SLPA 754. Supervised clinical practicum in audiology during which students will perform discrete tasks while under supervision. (Repeatable up to 6 credits) (Formerly 7700:755)

SLPA:756 Internship III (2 Credits)

Prerequisites: SLPA 755 or permission. Supervised practicum in audiology requiring the independent performance of basic audiologic procedures, including hearing aid management. (Repeatable up to 8 credits) (Formerly 7700:756)

SLPA:757 Internship IV (2 Credits)

Prerequisites: SLPA 756 and permission. Supervised clinical practicum in audiology requiring the independent performance of diagnostic audiology, hearing aids, and audiologic rehabilitation procedures. (Repeatable up to 8 credits) (Formerly 7700:757)

SLPA:758 Implantable Technology (4 Credits)

Prerequisite: Admission to the Au.D program or permission. Study of cochlear implants in children and adults including equipment, candidacy, mapping, and an overview of rehabilitation. (Formerly 7700:758)

SLPA:760 Hearing Aid Fitting & Selection Across the Lifespan (4 Credits)

Prerequisite: SLPA 713. Examination of the theory and practice of fitting hearing aids across the lifespan. Emphasis on special clinical procedures, research needs and evolving technology in hearing instruments. (Formerly 7700:760)

SLPA:761 Advanced Electrophysiologic & Vestibular Measures (4 Credits)

Prerequisites: SLPA 721 & SLPA 726. Advanced considerations in balance function assessment and management and in the study of evoked responses used in diagnostic audiology. (Formerly 7700:761)

SLPA:899 Doctoral Enrollment/Residency (1-8 Credits)

Prerequisite: Graduate standing in the Au.D. program and permission of instructor. Continuous enrollment course to maintain status in Au.D. program (Formerly 7700:899)

Sport Studies/Sport Science (SPRT)

SPRT:510 Intro: Sport Sociology (3 Credits)

Provides information to students about the sociological aspects of sport. (Formerly 5550:510)

SPRT:522 Sport Planning/Promotion (3 Credits)

Analysis of marketing/promotions from a sport manager's perspective. Emphasis on marketing strategy, tactics and development in sport delivery systems. (Formerly 5550:522)

SPRT:524 Sports Leadership (3 Credits)

Introduces students to current issues related to leadership, management, and supervision. Examines current sport leadership research and governance structure of amateur and professional sport organizations. (Formerly 5550:524)

SPRT:553 Principles of Coaching (3 Credits)

Basics for becoming a successful coach. Discussion of principles applying to most sports, players and coaches. (Formerly 5550:553)

SPRT:601 Sports Administration & Supervision (3 Credits)

Organizational and administrative efficiency in implementing sports programs (event management, budgeting, public relations); objective and effective procedures for evaluation/selection of personnel; periodic program reviews. (Formerly 5550:601)

SPRT:602 Motor Behavior Applied to Sports (3 Credits)

Coaching education principles related to motor development and motor skill learning. Focus on effective practices for learning and advanced skills teaching for coaches. (Formerly 5550:602)

SPRT:603 Tactics & Strategies in the Science of Coaching (3 Credits)

Course focuses on coaching and teaching the skills, tactics, and strategies in individual and team sports. (Formerly 5550:603)

SPRT:604 Current Issues in Sport and Physical Education (3 Credits)

This course represents a planned experience in interpretation and articulation of information within the context of selected issues in sport. (Formerly 5550:604)

SPRT:609 Motivational Aspects of Physical Activity (3 Credits)

Analysis of factors influencing motivation of motor performance with emphasis on competition, audience effects, aggression. (Formerly 5550:609)

SPRT:630 Business of Sport (3 Credits)

The focus of this course is related to the important knowledge that administrators should have related to the sport business field. (Formerly 5550:630)

Statistics (STAT)

STAT:550 Probability (3 Credits)

Prerequisite: Appropriate background is one semester of calculus or equivalent. Introduction to probability, random variables and probability distributions, expected value, sums of random variables, Markov processes. May not be used to meet graduate major requirements in statistics. (Formerly 3470:550)

STAT:551 Theoretical Statistics I (3 Credits)

Prerequisite: Three semesters of calculus or equivalent. Sequential (part 1 of 2). Elementary combinatorial probability theory, probability distributions (discrete and continuous), expectation and variance, moments and moment generating functions, bivariate and multivariate probability distributions, conditional distributions and independence, distributions of functions of random variables (univariate and bivariate), order statistics and their distributions (Formerly 3470:551)

STAT:552 Theoretical Statistics II (3 Credits)

Prerequisite: Three semesters of calculus or equivalent. Sequential (2nd of 2 parts). Sampling distributions, point estimation and properties of point estimators, sufficiency, Rao-Blackwell method and MVUE, methods of obtaining point estimators, interval estimation, hypothesis testing, power and sample size calculation, Neyman-Pearson theory of optimal tests (Formerly 3470:552)

STAT:553 Theoretical Statistics I Supplement (1 Credit)

Prerequisite: Appropriate background is at least one semester of calculus-based probability theory and mathematical statistics at the STAT 451 level. This course goes more in-depth on some of the material covered in STAT 451 but not emphasized. For ready reference, the topics covered in STAT 451 are elementary combinatorial probability theory, probability distributions (discrete and continuous), expectation and variance, bivariate and multivariate distributions and distributions of functions of random variables. Some study material and problems from outside the book will be included. (Formerly 3470:553)

STAT:554 Theoretical Statistics II Supplement (1 Credit)

Prerequisite: STAT 553 or permission. Topics in theoretical statistics that are a sequel to the coverage of STAT 451 and STAT 551 but are still not covered in STAT 452 (including a proof of the central limit theorem, large-sample properties of maximum likelihood estimators, convergence in probability and convergence in distribution, completeness and ancillarity). Some study material and problems from outside the book will be included. (Formerly 3470:554)

STAT:561 Applied Statistics (4 Credits)

Prerequisite: Appropriate background is two semesters of calculus or equivalent. Applications of statistical theory to natural and physical sciences and engineering, including probability distributions, interval estimation, hypotheses testing (parametric and nonparametric), and simple linear regression and correlation. May not be used to meet graduate major requirements in statistics. (Formerly 3470:561)

STAT:562 Applied Regression and ANOVA (4 Credits)

Prerequisite: Appropriate background is one semester of applied statistics or equivalent. Applications of the techniques of regression and multifactor analysis of variance. May not be used to meet graduate major requirements in statistics. (Formerly 3470:562)

STAT:565 Design of Sample Surveys (3 Credits)

(Appropriate background is one semester of applied statistics or equivalent.) Design and analysis of frequently used sample survey techniques. (Formerly 3470:565)

STAT:569 Reliability Models (3 Credits)

(Appropriate background is one semester of applied statistics or equivalent.) Selected topics in reliability modeling including parametric and nonparametric models, competing modes of failure, censored data and accelerated life models. (Formerly 3470:569)

STAT:570 Biostatistics and Epidemiology (3 Credits)

Prerequisite: Appropriate background is one semester of applied statistics (STAT 461 or STAT 561) or equivalent. Biostatistics and Epidemiological methods for biological and medical studies, including ANOVA, analysis of repeated measures, disease-related measures, log-linear models, and clinical trials. (Formerly 3470:570)

STAT:571 Introduction to Actuarial Science (3 Credits)

(Appropriate background is two semesters of calculus). Interest theory and financial mathematics used in actuarial science. Topics include time value of money, annuities, loans, bonds, cash flows and immunizations, interest rate swaps. (Formerly 3470:571)

STAT:572 Actuarial Models (3 Credits)

(Appropriate background is a course in theoretical statistics) Study of severity, frequency and aggregate models used in actuarial applications. Calibration and evaluation, credibility procedures, fundamental principles of pricing in short-term insurance coverage. (Formerly 3470:572)

STAT:573 Survival Analysis (3 Credits)

Prerequisite: Applied Statistics (STAT 461 or STAT 561) or equivalent. Basic concepts in survival analysis, censoring and data truncation, estimation of survival models, nonparametric hazard and survival function estimation, comparing survival times between groups (Formerly 3470:573)

STAT:575 Foundations of Statistical Quality Control (3 Credits)

(Appropriate background is one semester of applied statistics or equivalent.) Course provides a solid foundation in the theory and applications of statistical techniques widely used in industry. (Formerly 3470:575)

STAT:576 Bayesian Statistics (3 Credits)

(Appropriate background is one semester of applied statistics or equivalent). Basic concepts in Bayesian theory, sampling methods, MCMC, hierarchical modeling. Computer applications of Bayesian statistics to natural and physical sciences and engineering. (Formerly 3470:576)

STAT:577 Time Series Analysis (3 Credits)

Prerequisite: Appropriate background is one semester of probability, or one semester of theoretical statistics, or one semester of applied statistics or equivalent or permission. Stationarity. ARIMA modeling with seasonality. Parameter estimation, model diagnostics and forecasting. Regression with autocorrelated errors. Cointegration and multivariate ARMA models. Heteroscedasticity and long-memory models. (Formerly 3470:577)

STAT:580 Statistical Data Management (3 Credits)

(Appropriate background is one semester of applied statistics or equivalent.) Students learn data organization and structures, design of statistical databases, statistical software analysis, importing and exporting of data between software, and missing data analysis. (Formerly 3470:580)

STAT:582 Statistical Data Management Supplement (1 Credit)

Prerequisite: Appropriate background is one semester of familiarity with statistical software packages such as MINITAB, SPSS, SAS and R or permission. This course is solely intended to teach Master's students coming from the department's undergraduate curriculum how to manage (edit, search and manipulate with) data on the computer with a number of statistical software packages widely used in the academe and industry (above and beyond what they have learned at the undergraduate level). Homework assignments and data analysis projects are given. (Formerly 3470:582)

STAT:583 Advanced Statistical Computing (3 Credits)

Prerequisite: Appropriate background is one semester of applied statistics or equivalent. Topics include data management, random number generation, resampling methods, numerical optimization, Markov Chain Monte Carlo, smoothing methods, data mining: clustering and classification. (Formerly 3470:583)

STAT:584 Introduction to Machine Learning (3 Credits)

Prerequisite: Prior course in applied statistics. Methodologies for statistical learning, including generalized logistic regression, ridge regression, neural networks, support vector machines, principal components analysis, and K-means and hierarchical clustering (Formerly 3470:584)

STAT:585 Applied Analytics-Decision Trees (3 Credits)

Prerequisite: STAT 561. Selected topics in predictive modeling using CHAID, Classification and Regression Trees, Logistic Regression and Neural Networks. (Formerly 3470:585)

STAT:586 Spatial-temporal Statistics (3 Credits)

(Appropriate background is one semester of applied statistics or equivalent). Basic concepts of geostatistic, point pattern, area unit. Spatial-temporal modeling in high dimensional data. Computer applications to natural and physical sciences and engineering. (Formerly 3470:586)

STAT:589 Topics in Statistics (1-3 Credits)

(May be repeated for a total of six credits) Prerequisite: permission. Selected topics in advanced statistics, including quality control, reliability, sampling techniques, decision theory, advanced inference, stochastic processes and others. (Formerly 3470:589)

STAT:591 Workshop in Statistics (1-3 Credits)

(May be repeated with change of topic) Group studies of special topics in statistics. May not be used to meet undergraduate or graduate major requirements in mathematics and statistics. May be used for elective credit only. (Formerly 3470:591)

STAT:594 High-Dimensional High-Throughput Data Analysis (3 Credits)

Prerequisite: Regression and ANOVA and statistical data management, or instructor's permission. This course provides exposure to a variety of advanced statistical methods (beyond the ones taught in our undergraduate curriculum) for handling the challenges of high-dimensional high-throughput data, along with their software implementation and applications. Topics include multiple hypothesis testing and multiplicity adjustment, curse of dimensionality, sparsity, high-dimensional data visualization, dimension reduction methods, model selection and estimator selection, machine learning methods, aggregation of estimators and classifiers, graphical and network models. (Formerly 3470:594)

STAT:595 Statistical Consulting (1-3 Credits)

Prerequisite: STAT 580 or permission. Students will be assigned to work with an instructor on current projects in the Center for Statistical Consulting. May be repeated for a total of 4 credits; however, only 2 credits will count toward major requirements. Does not count for elective credit for math science department majors. (Formerly 3470:595)

STAT:596 Advanced Statistical Methods for Modern Data Analysis (3 Credits)

Prerequisites: Regression and ANOVA and statistical data management, or instructor's permission. This course provides exposure to a variety of advanced statistical methods (beyond the ones taught in our undergraduate curriculum) for handling the challenges of modern-day data analysis, along with their software implementation and applications. Topics include distribution-free statistical methods, modern regression methods (robust, penalized, nonparametric), generalized linear models, random effects models, generalized linear mixed models, generalized additive models, some machine learning methods, some data mining methods, graphical/network models and an introduction to biostatistics. (Formerly 3470:596)

STAT:650 Advanced Probability & Stochastic Processes (3 Credits)

Prerequisite: STAT 651. Random walk, distributions, unlimited sequence of trials, laws of large numbers, convolutions, branching processes, renewal theory, Markov chains, time-dependent stochastic processes. (Formerly 3470:650)

STAT:651 Probability & Statistics (4 Credits)

(Appropriate background is three semesters of Calculus or equivalent.) Probability, random variables, moments and generating functions, random vectors, special distributions, limit theorems, sampling, point estimation, hypothesis testing, confidence estimation. (Formerly 3470:651)

STAT:652 Advanced Mathematical Statistics (3 Credits)

Prerequisite: STAT 651. Convergence of random variables, the Central Limit Theorem; theory of estimation; theory of hypothesis testing; the multivariate normal density; introduction to linear models; Bayesian statistics. (Formerly 3470:652)

STAT:655 Linear Models (3 Credits)

(Appropriate background is Linear Algebra or STAT 651 or equivalent.) General linear model in matrix notation, general linear hypothesis, regression models, experimental design models, analysis of variance and covariance, variance components. (Formerly 3470:655)

STAT:661 Statistics for the Life Sciences (3 Credits)

Prerequisite: college level algebra or equivalent. Data description and presentation, probability applications in the life sciences (including sensitivity, specificity, relative risk), principles and application of statistical inference, ANOVA, correlation and regression. May not be used to meet graduate major requirements in statistics. (Formerly 3470:661)

STAT:663 Experimental Design (3 Credits)

(Appropriate background is one semester of applied statistics or equivalent.) Selected topics in experimental design including random and fixed effects, nested designs, split plot designs, confounding, fractional factorials, Latin squares, and analysis of covariance. (Formerly 3470:663)

STAT:665 Regression (3 Credits)

(Appropriate background is one semester of applied statistics or equivalent.) Correlation, simple and multiple linear regression: least squares, matrix notation, model building and checking estimation, hypothesis testing, outliers, influence, multicollinearity, transformations, categorical regressors; logistic regression. (Formerly 3470:665)

STAT:666 Nonparametric Statistics - Methods (3 Credits)

(Appropriate background is one semester of applied statistics or equivalent.) Theory and practice using techniques requiring less restrictive assumptions. Nonparametric analogues to t- and F-tests, ANOVA, regression and correlation. Computer applications. (Formerly 3470:666)

STAT:667 Factor Analysis (3 Credits)

(Appropriate background is one semester of applied statistics or equivalent.) Theory and techniques for identifying variables through use of principal components and factor analysis. Identification of groups using cluster analysis. Computer applications. (Formerly 3470:667)

STAT:668 Multivariate Statistical Methods (3 Credits)

(Appropriate background is two semesters of applied statistics or equivalent.) Multivariate techniques including distance concept, Hotelling T², multivariate ANOVA, regression and correlation, linear contrasts, factorial experiments, nested and repeat measure designs, Bonferroni X² tests, linear discrimination analysis, canonical correlations, application. (Formerly 3470:668)

STAT:669 Regression Encore (1 Credit)

Prerequisite: STAT 462 or STAT 562. Some advanced topics in regression analysis (beyond those covered in STAT 462 and STAT 562) that are usually included in the graduate-level regression analysis course. (Formerly 3470:669)

STAT:670 Advanced Biostatistics (3 Credits)

Prerequisite: STAT 570. Statistical issues and methods for biological, medical and health sciences including: clinical trials, sample size, power, log-linear models, survival analysis, and bioassay. Computer applications. (Formerly 3470:670)

STAT:675 Response Surface Methodology (3 Credits)

(Appropriate background is two semesters of applied statistics or equivalent.) First and second order response designs, efficient experimental plans, methods for the analysis, and optimization of response functions. (Formerly 3470:675)

STAT:689 Advanced Topics in Statistics (1-3 Credits)

(May be repeated for a total of six credits) Prerequisite: STAT 651. Selected topics in statistics including concepts in order, statistics, advanced inference, sequential analysis, stochastic processes, reliability theory, Bayesian statistics and regression. (Formerly 3470:689)

STAT:692 Statistics Masters Paper (2-3 Credits)

Prerequisite: permission of advisor. Supervised writing of paper based on a terminal project and its presentation in front of an audience. For Masters of Science in Statistics (Non-thesis Option). A minimum of 2 credit-hours and a maximum of 3 credit-hours. (Formerly 3470:692)

STAT:695 Practicum in Statistics & Mathematics (1-3 Credits)

Prerequisite: graduate teaching assistant or permission. Training and experience in college teaching of statistics. May not be used to meet degree requirements. Credit/non-credit. (Formerly 3470:695)

STAT:697 Individual Reading: Statistics (1-3 Credits)

Prerequisites: graduate standing and permission of the graduate academic adviser and the department chair. Directed studies in statistics under the guidance of a selected faculty member. (May be repeated for a total of four credits) (Formerly 3470:697)

STAT:698 Master's Research (1-6 Credits)

(May be repeated) Prerequisite: permission of advisor. Research in suitable topics in statistics culminating in a research paper. No more than 2 credits applicable to major requirements. (Formerly 3470:698)

STAT:699 Master's Thesis (2 Credits)

Prerequisite: Permission. (May be repeated for a total of 4 credits) Properly qualified candidates for master's degree may obtain 2-4 credits for research experience which culminates in the presentation of faculty-supervised thesis. (Formerly 3470:699)

Supply Chain and Operations Management (SCM)

SCM:533 Supply Chain Logistics Planning (3 Credits)

Prerequisite: SCM 675. Emphasizes the importance of planning in the development of the domestic and global supply chain logistics system that includes transportation, inventory, warehousing and procurement. (Formerly 6500:533)

SCM:655 Management of Operations (3 Credits)

Prerequisites: MGMT 650, MGMT 651, and ISM 652. An investigation of the issues directly related to the management of operations at the strategic, tactical and operational levels of the organization. (Formerly 6750:655)

SCM:656 Management of Global Supply Chain & Operations (3 Credits)

Prerequisite: HRM 600 or equivalent or permission of instructor. Study and explore the elements and issues related to globalization of supply chain, production and service operations. (Formerly 6500:656)

SCM:662 Supply Chain Analysis (3 Credits)

Prerequisite: SCM 675. Application of quantitative models in the analysis and design of systems in the supply chain and in manufacturing and service operations environments. (Formerly 6500:662)

SCM:665 Management of Technology (3 Credits)

Survey of the principles and management practices of technology driven organizations are discussed with concepts, models and case studies for managers of technology intensive operations. (Formerly 6500:665)

SCM:669 Polymer Management Decisions (3 Credits)

Introduces major polymer concepts, production processes, and uses of polymeric materials in an easy-to-comprehend interdisciplinary instructional way. Industrial case studies will help integrate enterprise-wide innovation and technology management related decisions. (Formerly 6500:669)

SCM:670 Management of Supply Chains and Operations (3 Credits)

An overview of the issues directly related to the management of supply chains and operations at the strategic, tactical, and operational levels of the organization. (Formerly 6500:670)

SCM:673 Quality & Productivity Techniques (3 Credits)

Prerequisite: MGMT 601. Introduction to techniques for improving productivity and quality, including statistical process control (SPC), material requirements planning (MRP), just-in-time (JIT) inventory control and management of the program. (Formerly 6500:673)

SCM:675 Global Supply Chain Management (3 Credits)

Prerequisite: Graduate Standing. Focuses on the integration of activities and information/material flows across multiple organizations that comprise the supply chain, and the relationships among those organizations. (Formerly 6500:675)

SCM:677 Supply Chain Sourcing (3 Credits)

Prerequisite: SCM 670. Introduces the student to fundamental sourcing concepts as well as the scope of responsibility and critical roles of the sourcing function within the principal organization in a supply chain network. (Formerly 6500:677)

SCM:678 Project Management (3 Credits)

Prerequisite: Graduate Standing. Provides working knowledge of tools and methods available to project managers including computerized analysis of network models to aid in the planning and control functions. (Formerly 6500:678)

SCM:680 Supply Chain Logistics Management (3 Credits)

Prerequisite: SCM 670. Emphasizes the importance of planning and operation of supply chain logistics systems that includes transportation, inventory and warehousing, with particular emphasis on international logistics, regulations and documentation. (Formerly 6500:680)

SCM:682 Management of Service Operations (3 Credits)

Application of operations and systems analysis to services organizations. (Formerly 6500:682)

SCM:685 BioInnovation and Design (3 Credits)

Bring together students with different academic backgrounds to work in teams and identify and develop new medical technologies and solutions to health care problems. (Formerly 6500:685)

Technical Education (EDTE)

EDTE:500 Postsecondary Learner (3 Credits)

Describes characteristics of the postsecondary learner; studies issues, factors, and strategies pertinent to successful facilitation of learning in a variety of postsecondary learning environments. Delivered in face to face web enhanced format and fully online format. (Formerly 5400:500)

EDTE:501 Learning with Technology (1 Credit)

An overview of informational learning and research technologies used and applied in workforce education and training by practitioners/learners for learning, research and evaluation. Online format. (Formerly 5400:501)

EDTE:505 Workforce Education for Youths and Adults (3 Credits)

History and operations of current workforce education for youth and adults. Includes study of social, economic, and political influences that stimulate growth and expansion of workforce education. Delivered in face to face web enhanced format and fully online format. (Formerly 5400:505)

EDTE:515 Training in Business & Industry (3 Credits)

Examine the role and mission of the training function in the modern industrial setting. Foundation for students interested in industrial trainer or training supervision positions. Delivered in face to face web enhanced format and fully online format. (Formerly 5400:515)

EDTE:520 Postsecondary Instructional Technology (3 Credits)

Experiences in using, developing, and evaluating instructional technologies and media used for technical instruction. Delivered in face to face web enhanced format and fully online format. (Formerly 5400:520)

EDTE:530 Systematic Curriculum Design for Postsecondary Instruction (3 Credits)

Development of postsecondary curriculum using sound instructional systems design principles and instructional technologies. Delivered in face to face web enhanced format and fully online format. (Formerly 5400:530)

EDTE:535 Systemic Instructional Design in Postsecondary Education (3 Credits)

Best practices in instructional strategies appropriate for postsecondary instructors. Emphasis on instructional design and learner outcome assessments. Delivered in face to face web enhanced format and fully online format. (Formerly 5400:535)

EDTE:580 Special Topics: Workforce Education/Training (1-3 Credits)

(May be repeated for a maximum of 6 credit hours with a change in topic.) Group study of special topics of critical, contemporary concern in professional education. (Formerly 5400:580)

EDTE:590 Workshop: Workforce Education and Training (1-3 Credits)

Individual work under staff guidance on curriculum problems, utilization of community resources, planning of curriculum units. Delivered in face to face web enhanced format and fully online format. (Formerly 5400:590)

EDTE:591 Workshop: Technical Education (1-3 Credits)

Individual work under staff guidance on curriculum problems, utilization of community resources, planning of curriculum units. (Formerly 5400:591)

EDTE:592 Workshop: Technical Education (1-3 Credits)

Individual work under staff guidance on curriculum problems, utilization of community resources, planning of curriculum units. (Formerly 5400:592)

EDTE:605 Advanced System Design: Needs Assessment and Evaluation (3 Credits)

An examination of the instructional design in workforce education and training and supporting research in effective performance-based program needs, assessment, and evaluation processes. Delivered in face to face web enhanced format and fully online format. (Formerly 5400:605)

EDTE:620 Postsecondary Teacher Leadership (3 Credits)

An examination of the role of supervisor of postsecondary instruction, facilitation and evaluation of postsecondary instructors, professional development, as well as related leadership and management issues. Delivered in face to face web enhanced format and fully online format. (Formerly 5400:620)

EDTE:660 Postsecondary Distance Learning (3 Credits)

Introduction to the nature, purpose, and philosophy of distance learning; examination of current scope, history, theory, institutions, and programs of distance learning. Delivered in an online format. (Formerly 5400:660)

EDTE:675 Advanced Instructional Applications Seminar (3 Credits)

Prerequisites: EDTE 500, EDTE 515 or EDTE 600 or EDTE 505, EDTE 520, EDTE 530, EDTE 535, EDTE 605, EDTE 620, EDFN 604 or EDFN 703; admission to the technical education program. Provides an environment for students to apply learned teaching skills, evaluate their teaching abilities, and fine-tune skills before independently teaching in the field. Delivered in face to face web enhanced format and fully online format. (Formerly 5400:675)

EDTE:690 Internship in Postsecondary Education (3 Credits)

Prerequisites: advisor and supervisor permission and completion of all required Technical Education coursework. Teaching of curriculum development under supervision from the University and the learning organization. Includes a seminar and portfolio development. Delivered in an online format. (Formerly 5400:690)

EDTE:695 Field Experience: Masters (1-6 Credits)

On-the-job experience related to student's program of studies. Credit/Non-credit. (Formerly 5400:695)

EDTE:697 Independent Study: Technical Education (1-3 Credits)

(May be repeated for a total of six credits.) Area of study determined by student's need. (Formerly 5400:697)

EDTE:698 Masters Problem (3 Credits)

(May be repeated for a total of six credits.) In-depth study of an instructional or curricular problem in workforce education or training. Student must be able to demonstrate critical, analytical, and problem-solving skills. (Formerly 5400:698)

EDTE:699 Masters Thesis (3 Credits)

(May be repeated for a total of six credits.) Opportunity to conduct research on a problem in workforce education or training. Student must be able to demonstrate needed analytical, evaluation, and basic research skills. Credit/Non-credit. (Formerly 5400:699)

Theatre (THEA)

THEA:533 Theatre Organization and Production Management (3 Credits)

Study of successful methods of theatre organization and production stage management of professional and non-professional performing arts operations. (Formerly 7800:533)

THEA:555 Creating Performance (3 Credits)

(May be repeated for a total of six credits.) This course introduces devising processes, improvisation, ensemble work, and physical theatre techniques appropriate to the preparation of practical performance projects from sources other than a conventional play. (Formerly 7800:555)

THEA:567 Multi-Cultural Theatre (3 Credits)

A detailed examination of contemporary performances, performance texts, and theoretical writings that reference the history and experience of diverse communities of America and the world. (Formerly 7800:567)

THEA:572 Methods of Teaching Elementary Theatre Arts (3 Credits)

Prerequisites: graduate status. Course provides skills, knowledge and experiences essential to teaching effective and creative theatre arts in elementary school through current theories, methods and materials. (Formerly 7800:572)

THEA:573 Methods of Teaching Secondary Theatre Arts (3 Credits)

Prerequisite: graduate status. This course presents skills, knowledge and experiences essential to teaching innovative and creative theatre arts in the secondary school through current theories, methods and materials. (Formerly 7800:573)

THEA:575 Acting for the Musical Theatre (3 Credits)

Prerequisite: permission. A scene study course in analyzing and performing roles in American musicals. Accompanist provided. (Formerly 7800:575)

THEA:576 Theatre and Community Action (3 Credits)

This course will explore civic engagement strategies and situations linking theatre and community in which students tackle community issues and concerns utilizing various performance techniques. (Formerly 7800:576)

THEA:590 Workshop in Theatre Arts (1-3 Credits)

(May be repeated for a total of 6 credits) Prerequisite: advanced standing or permission. Group study or group projects investigating particular phases of theatre arts not covered by other courses in curriculum. (Formerly 7800:590)

THEA:600 Research and Writing Techniques (3 Credits)

Exploration of the basic research tools and methods appropriate to the discipline, including utilization of the computer. Guidelines for writing thesis. (Formerly 7800:600)

THEA:603 Special Topics in Theatre Arts & Dance (1-4 Credits)

(May be repeated as different subject areas are covered, but no more than 12 credits may be applied toward M. A. degree) Traditional and experimental courses in theater, supplementing those listed in the General Bulletin. (Formerly 7800:603)

THEA:641 Problems in Directing (3 Credits)

Advanced directing course with special emphasis on staging of complex plays from all periods of dramatic literature. (Formerly 7800:641)

THEA:645 Seminar in Dramatic Literature (3 Credits)

Representative Western stage play (non-American) are examined in theatrical, historical, and critical/theoretical contexts. (Formerly 7800:645)

THEA:646 Graduate Acting: Techniques (3 Credits)

Advanced study of basic acting techniques, especially Stanislavski, through analysis and performance. Voice/Movement Lab required. (Formerly 7800:646)

THEA:648 Graduate Acting: Problems (3 Credits)

Study of problems confronting the advanced actor in various modern styles of performance Voice/Movement Lab required. (Formerly 7800:648)

THEA:658 History of Theatre (3 Credits)

Theater history from the Greeks to the present with emphasis on physical theater, conventions, and theater architecture of each period. (Formerly 7800:658)

THEA:659 Stage Lighting Design and Technology (3 Credits)

Study of the art and technique of stage lighting design, including drafting of lighting plots, function of lighting instruments and of intensity control. (Formerly 7800:659)

THEA:660 Advanced Technical Theatre (3 Credits)

Processes including multiple set productions, revolves and their rigging, techniques in simple hydraulics, pneumatics and load capacities, and properties and techniques in multi-media. (Formerly 7800:660)

THEA:662 Seminar in Scene Design (3 Credits)

Prerequisite: THEA 336 or undergraduate scene design course or permission of instructor. Study of problems in scene design: portfolio projects, research of noted designers, studies of theater spaces, and new scenographic materials. (Formerly 7800:662)

THEA:690 Graduate Research/Readings (1-3 Credits)

(May be repeated for a total of nine credits) Prerequisite: permission. Individual research or independent readings under supervision of member of theater graduate faculty. (Formerly 7800:690)

THEA:698 Internship: Theater (3-6 Credits)

Prerequisite: permission. Faculty supervised work experience in which student participates in an arts management, performance or technical situation with a selected cultural organization. (Formerly 7800:698)

THEA:699 Masters Thesis (1-6 Credits)

Prerequisite: permission of graduate coordinator of theater arts program. Research related to the completion of the master's thesis. (Formerly 7800:699)

Theatre Organizations (THEO)

THEO:601 Production Practicum:Design/Technology (1-2 Credits)

(May be repeated for a total of four credits) Prerequisite: Permission of instructor. Practice in selected production design/technology operations, applications and techniques as they apply to production projects and major departmental productions. (Formerly 7810:601)

THEO:605 Performance Practicum (1-2 Credits)

(May be repeated for a total of 12 credits) Prerequisite: Permission of project advisor. Recognition of work undertaken by the student when performing a role in a theater production. Credit assigned and work supervised by faculty project supervisor. (Formerly 7810:605)

Women's Studies (WMST)

WMST:580 Feminist Theory (3 Credits)

A summary of feminist theory to familiarize students with the main currents in contemporary feminist theory and the origins and evolution of that thought. (Formerly 3001:580)

WMST:585 Special Topics in Women's Studies (1-3 Credits)

Specialized topics and current issues in Women's Studies. Covers content and issues not currently addressed in other academic courses. Emphases will be on original source materials, critical analyses and the synthesis of empirical and theoretical aspects. (May be repeated) (Formerly 3001:585)

WMST:589 Internship in Women's Studies (1-4 Credits)

Prerequisite: Permission. This class provides supervised experience and on-the-job training in an organization, agency, corporation or group dealing with women's issues. (May be repeated for a maximum of four credits) (Formerly 3001:589)

WMST:590 Workshop: Women's Studies (1-3 Credits)

Group experiential study of special issues in Women's Studies. (May be repeated) (Formerly 3001:590)

WMST:593 Individual Studies on Women (1-3 Credits)

Directed study of selected topics related to women. Projects are chosen by student in consultation with instructor and approval of Director of Women's Studies. (Formerly 3001:593)

Addendum

There are no addenda at this time.

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