Mathematics (3450)

B.S. - Bachelor of Science and M.S. - Master of Science

Major: Applied Mathematics (345011BS and 345011MS)

Buchtel College of Arts and Sciences

Learning Outcomes

Students will demonstrate a working knowledge of standard topics in: calculus, linear algebra, differential equations and advanced calculus (theory and analysis of basic rules of calculus).

Students will demonstrate a working knowledge of standard topics in: applied numerical methods, mathematical models and statistics.

Students will demonstrate a working knowledge of standard topics in an application area, such as applied mathematics, computer science, chemistry, physics, engineering, economics, etc.

Students will demonstrate an ability to communicate mathematical results in written form.

Students will be able to formulate, analyze and solve mathematical models.
Students will be able to apply mathematical theories to solving routine and non-routine mathematical models.

Year 1: Fall	Crs	Spring	Crs
3450:221 Analytic Geometry-Calculus I	4	3450:222 Analytic Geometry-Calculus II	4
3300:111 English Composition I	3	3450:112 English Composition II	3
Beginning Foreign Language I	4	Beginning Foreign Language II	4
7600:105 Introduction to Public Speaking	3	Social Science Requirement	3
Natural Science Requirement	4	Physical Education/Wellness	1
Total	18	Total	15

Year 2: Fall	Crs	Spring	Crs
3450:223 Analytic Geometry-Calculus III	4	3450:335 Introduction to ODEs	3
Intermediate Foreign Language I	3	3450:312 Linear Algebra	3
Area Studies and Cultural Diversity	2	Social Science Requirement	3
Area Studies and Cultural Diversity	2	Natural Science Requirement	4
3460:209 Computer Science I	4	Intermediate Foreign Language II	3
Elective	3	3450:307 Fundamentals of Adv Math	3
Total	18	Total	19
		Summer: Elective	8
Year 3: Fall	**Crs**	**Spring**	**Crs**
3450:427 Applied Numerical Methods I	3	3450: 428 Applied Numerical Methods II	3
3450:421 Advanced calculus I	3	3450: 436 Mathematical Models	3
3470:461 Applied Statistics I	4	3450:522 Advanced calculus II**	3
300/400 Level Outside (non-math) Elective	3	300/400 Level Outside (non-math) Elective	3
3400: 210 Humanities In Western Tradition I	4	3450: 539 Advanced Engineering Math II**	3
Total	17	Total	15
		Summer: 300-600* Level Electives	6
Year 4: Fall	**Crs**	**Spring**	**Crs**
3450:627 Advanced Numerical Analysis I	3	3450:628 Advanced Numerical Analysis II	3
3450:633 Methods of Applied Mathematics I	3	3450:634 Methods of Applied Math II	3
3450:621 Real Analysis	3	3450:730 Adv Numerical Solution of PDEs	3

Total	9	Total **Summer**: Humanities Electives	9 6
Year 5: Fall	**Crs**	**Spring**	**Crs**
3450:692 Seminar in mathematics Elective* 3450:699 Thesis Research Total	3 3 3 9	Elective* 3450:698 Master's research Total	3 6 9

Note: Courses marked with * are possibly graduate level courses to be applied toward the elective requirement of the bachelor's degree. Courses marked with ** are to be applied to the elective requirements of **both** the bachelor's and master's degree. All general education and college requirements are satisfied in this accelerated five-year BS/MS program.

Degree Distribution Requirements

This curriculum guide is a recommended plan of study. Students with questions about degree requirements should contact an academic advisor.

300/400 Electives of which at least six credits are from some approved applied area such as Chemistry, Computer Science, Physics, Economics, Engineering, etc.

7700:101,102,201,202 & 222 may be substituted for Modern Language (35xx) courses.

The following credit hour requirements apply to this 5yr degree: Undergraduate - 122 minimum total credits; 32 credits in residence; the final 32 credits must be taken from The University of Akron. Graduate – 30 minimum total credits; 20 credits in residence.