

Applied Econometrics I (3250: 325)
Monday & Wednesday: 2:00pm – 3:15pm
Bus Admin 176
Spring 2022

1. Practical Information

Instructor:	Dr. Ali Enami (www.alienami.com)
Email:	ae28@uakron.edu
Office:	College of Business Administration (CBA), Department of Economics, Room 324.
Office Hours: (Online, unless you email me at least one day in advance to meet in-person)	Wednesdays 11am-1pm. Please use this link to reserve a time . When it is the time for our meeting, use my virtual office on MS-Teams. I may be still talking to the person scheduled to meet me before you, so please be patient if I didn't get to accept your call right away. Email me if you need to make an appointment outside the specified time or if you want to meet in person.
Course Website:	Brightspace . This is your go-to place for all course related items such as course slides, announcements, homework, and grades.
Course Credits:	Three, corresponding to about 6-8 hours/week of coursework out of class.
Prerequisites:	[3470:261 AND 3470:262] OR 6500:304 .
Time zone:	Eastern Standard Time (EST)

2. Course Description and Objectives

2.1. Course Description

Econometrics is using real world data and statistical analysis to assess the validity of economic theories, the impact of business initiatives, and the effects of government policies. This course focuses on the concept of *causal inference*, for example, does the increase in marketing budget causes the increase in sales or the same increase in sales would have happened (e.g., because of the holiday season) even if the marketing budget was unchanged?

We begin the semester by a review of relevant topics from probability and statistics (e.g., hypothesis testing) and then proceed to the main topic of this course which is the linear regression model. We end the semester with an overview of some topics related to the non-linear regression models. Throughout the course we rely on SAS and Excel to analyze data and you will use these tools to complete your course project.

2.2. Learning Objectives

At the end of this course, students will be able to:

- Measure the causal effect in the context of the *potential outcomes causal model*.
- Explain the assumptions embedded in linear regression models that need to be true in order for the parameter estimates to have a casual (as opposed to correlational) interpretation.
- Use SAS to conduct simple and multiple regression analysis.
- Interpret the coefficients of a regression model and discuss their statistical and economic significance.

3. Textbooks, Assignments, and Class Project

3.1. Textbooks

- Required: S&W: James Stock and Mark Watson, Introduction to Econometrics, 4th Edition, Pearson.
 - You have already paid for this book through the First Day initiation. This is how First Day works (according to The University of Akron bookstore):
To reduce the cost of course materials, the materials for this course are provided digitally in Brightspace, and they will be charged to you through your tuition. There is nothing additional required for you to purchase. Discounted print copies may be available to you after the add/drop period. Please check with your bookstore staff. By law the cost is below market value, and it is very unlikely that you will find them cheaper elsewhere. If you choose to opt out of the program and source your materials in another format, you may do so by filling out the form provided at uakron.edu/book and taking it into the bookstore personnel.
- Delwiche, Lora D., and Susan J. Slaughter. The little SAS book: a primer. SAS Institute, 2019.

3.2. Homework

- There are 4 homework assignments for this course. I will assign them as soon as we are done with the relevant topics for each assignment.
- Mastering the questions in the homework assignments is the best way of studying for exams.
- Given the circumstances of the pandemic, every homework assignment comes with an automatic 48-hour extension. **Remember: Automatic extension is to resolve unpredictable issues, not an additional time to do the homework.**
 - If you are facing an issue that cannot be resolved using the automatic extension, you need to contact me immediately and prior to the end of the initial deadline, if possible. This is because the automatic extension is not an extra time to do the homework and you are expected to submit your homework assignments on the initial deadline if there are no unforeseen problems.
- The online homework assignments that accompany each chapter of your textbook are not graded and they are for your practice only. However, completing them is a way for you to show that you are putting in the necessary effort to learn the material.

3.3. Class Project

- As part of this class, you will work on an individual project that involves analyzing data and running various regression models to answer specific questions. This project relies mainly on SAS.
- We will discuss this three-step project in class and additional documents and guideline will be posted on Brightspace (**Class Project** module). But the steps are as follows:
 1. Complete a free online course: [SAS Programming 1: Essentials](#)
 2. Produce summary statistics and descriptive graphs.
 3. Conduct regression analysis.
- The due dates will be posted on Brightspace and they are listed below (see the section on the Summary of Important Dates). Each due date includes a 48-hour automatic extension to resolve unforeseen problems.
- The first step of the project carries a maximum of 5% bonus points for those who complete it earlier than the due date. Specifically, for every 24 hours that you finish this step earlier than its due date, you receive 1% bonus points (for a maximum of 5% points).

4. SAS

- Our official programming language in this class is SAS. Specifically, the free online version of it: [SAS OnDemand for Academics](#).
- You will need to create an account and join the class on SAS OnDemand for Academics so that you get access to the data we use in this class. Additional instruction about how to create an account and join the class is available on Brightspace (see **Class Project** module).

5. Attendance and In-Class Assignments

- You are expected to attend all classes and actively participate in the class.
- If we are forced to go virtual due to the pandemic, we will use MS-Teams for our online classes.
- Additional policies in case we have to go online:
 - If you are new to MS-Teams, [see this link](#). I expect you to assume ownership and help me make sure everything goes smoothly. If you are tech savvy, help other students (and me!) troubleshoot problems.
 - In case of severe technical problems, we will switch to other platforms, e.g., WebEx.
 - When you attend the class online, you are encouraged, but not required, to turn on your video and be professional.
 - You are expected to look and behave as if you are in the class (e.g., have a proper cloth on).
 - Use a professional virtual background if your actual background would be distracting for the class.
- If you need to miss more than four classes, you are required to contact me and discuss your reason in advance.
 - The only exception to this rule is a medical emergency for you or your immediate family members. In cases of such emergencies, you should contact me as soon as you can.

- My general policy is to not accept any reason besides medical emergencies. However, I will consider exceptions to this general policy if you present a strong case (e.g., if you need to work a full-time job).
- I use in-class assignments to make sure you are not only attending the classes, but also attentive to the material. Needless to say, there is no make-up for the in-class activities.
 - In-class assignments are for bonus points only.
 - All in-class assignments are online and you will answer them on your personal electronic devices (e.g., smart phone or laptop) at the time of class.
- Additionally, I may need your help to better coordinate class activities. Additional bonus points will be awarded for volunteering and taking the lead on these tasks.

6. Exams

- This class has one midterm and one final exam.
- All exams are in-person.
- If we have to go virtual due to the pandemic, I'll use Respondus Monitor to proctor exams.
 - You can find [tutorial material for Respondus here](#).
 - You would need a laptop with a webcam. If you are in need of technology (laptop, webcam, etc.) contact the library to borrow one (if it is available). The 2nd place to go is to complete a [Help-A-Zip Referral Form](#).
 - Respondus Monitor does not work on Chromebooks. You would then need to use Proctorio (which requires some additional setup). Reach out to me at least two weeks before the first exam if you have no alternative and have to take exams on a Chromebook.
- There will be no make-up midterm exam and I only will move the weight of midterm to final if you receive a prior approval from me to miss an exam.
 - As a general rule, I will not approve missing an exam unless it is out of your control.
 - In the case of medical emergencies, if it is clear that you could not have contacted me prior to the exam, I will consider approving your absence post-midterm. However, you need to contact me ASAP.
 - Even with a prior approval, you will officially receive a zero for midterm on Brightspace until you take the final exam. This is to make sure there is no misunderstanding about your grade in the class prior to the final exam.
- There will be no make-up final exam.
 - In very rare cases, such as medical emergencies or conflicts with other exams at the University of Akron, I would consider adjustment to the time of exam.
 - With the exception of medical emergencies that prevents you from contacting me prior to the final exam, you need to secure my approval prior to the final exam for a change in the time of exam. You will receive a zero on the final exam if you fail to contact me in advance. In the case of medical emergencies, you need to contact me ASAP. In justified emergencies that prevent you from taking the final exam in the week of exams, I will follow university policies.
 - NOTE: poor travel plans (e.g., buying plane tickets in the week of exams), attending a wedding, etc. are not justifiable reasons to get an adjustment to the time of final exam.

- If you meet the high bar described above, I will provide a make-up final exam that I find appropriate.

7. Grading System

7.1. Grade Breakdown

Homework assignments (four HWs)	20%
Class project (three steps)	30%
Midterm exam	25%
Final exam	25%
Bonus	
○ Early completion of the first step of the project (1% per day)	5% (Max)
○ In-class assignments	~2%
○ Other	TBD

See the class policies regarding behaviors that would result in sanctions up to and including failure in this course.

7.2. Grade Scale (after your grade is rounded up to the nearest half a percentage point)

A:	90-100%
A-:	87-89.5%
B+:	83-86.5%
B:	80-82.5%
B-:	77-79.5%
C+:	73-76.5%
C:	70-72.5%
C-:	67-69.5%
D+:	63-66.5%
D:	60-62.5%
D-:	55-59.5%
F:	Less than 55%

8. Summary of Important Dates

- Homework assignments (4 assignments)
 - Due dates: Exact due dates are TBD, but expect them at the end of chapters 3, 5, 7, and the last chapter that we have time to cover.
 - Automatic extension: 48 hours.
- Class Project
 - The project has multiple steps and you submit your work on Brightspace. The due dates will be posted on Brightspace, but they are roughly as follows:
 1. Complete [SAS Programming 1: Essentials](#): Friday, Jan. 28th at 11pm.
 2. Produce summary statistics and descriptive graphs: Friday, Feb. 25th at 11pm.

- 3. Conduct regression analysis: Friday, Apr. 29th at 11pm.
 - There is a 48-hour automatic extension for each due date.
- Midterm
 - Wednesday, Mar. 2nd at the time of the class.
- Final Exam
 - Wednesday, May 4th, 2:30 – 4:30pm.

9. Class policies and University Resources

9.1. Courtesy and Cooperation

- In this class, we are all expected to be respectful toward each other.
- We are all living through a very challenging time and we all need to cut each other some slack.
- Now, more than ever, I need your full cooperation to make sure you enjoy a high-quality learning experience. So be proactive, volunteer, and take the lead in helping with class activities.
- Interruptive and disrespectful behaviors will not be tolerated and depending on the infraction, the penalty could be as much as receiving an F in this class.

9.2. Covid-19

- I follow the university's policies regarding Covid-19 which some of them are listed [here](#). As a result of these policies, we may need to switch to online mode for a few or all sessions. However, my hope is that we never have to go online.

9.3. Communication Expectations

- Per university's policy, please inform me via email, within a 24-hour window, if you plan not to attend class or missed a class due to a Covid-19 related event. All details about your decision path with regards to Covid-19 and reporting instructions are available at UA's [Coronavirus Information](#) website in the section titled, "Students: What to do if (scenarios)."
- I use Brightspace announcement and/or email to keep you updated with the class plans and potential changes.
- You are expected to check your university email frequently, i.e., at least twice a day specially at the beginning and end of the day. This would allow me to inform you about the potential need to cancel a class or to switch to online mode in case I become sick.
- Email is the best way to reach me. Allow one full business day (i.e., weekend does not count) for me to get back to you before you send any follow ups.
- All assignments have a 48-hour automatic extension which is to make sure you resolve any issues. You should not use this time to do the assignment and I will not accept any late submission if you cannot establish (through proper documentation) that you began the troubleshooting process prior to this 48-hour extension.

- If we had to go online for exams: in the case of technical problems at the time of an exam, you need to notify me immediately. If the technical issue is related to Brightspace, you need to notify IT Help Desk (helpdesk@uakron.edu) as well. If you cannot continue working on the exam, use your cellphone to document the issue, i.e., by recording a video or taking photos.

9.4. Academic Integrity and Code of Conduct

- I expect you to follow the university code of conduct:
 - <https://www.uakron.edu/ogc/UniversityRules/pdf/41-01.pdf>
- For the class project, you need to submit your own work. Do not copy or paraphrase others' work as yours. Review the following links to learn more about how to avoid plagiarism:
 - <https://www.uakron.edu/tutoring/bwc/resources-for-students/resources-about-plagiarism.dot>
 - <https://www.uakron.edu/cba/student-resources/integrity.dot>

9.5. Title IX

Title IX of the Education Amendments of 1972 prohibits sex discrimination against students, guests and employees of educational institutions.

The regulations implementing Title IX are enforced by the U.S. Department of Education Office for Civil Rights and prohibit discrimination, exclusion, denial, limitation, or separation based on gender. It is intended to end sex discrimination in all areas of education. [More about Title IX.](#)

9.6. Sexual Harassment and Sexual Violence

The University of Akron is committed to providing an environment free of all forms of discrimination, including sexual violence and sexual harassment ([see the policy here](#)). This includes instances of attempted and/or completed sexual assault, domestic and dating violence, gender-based stalking, and sexual harassment. If you (or someone you know) has experienced or experiences sexual violence or sexual harassment, know that you are not alone. Help is available, regardless of when the violence or harassment occurred, and even if the person who did this is not a student, faculty or staff member.

Confidential help is available. If you wish to speak to a professional, in confidence, please contact:

- *Rape Crisis Center, 24-hour Hotline: 877-906-RAPE. Office located in the Student Recreation and Wellness Center 246. The on-campus office number is 330-972-6328. [Help for victims of sexual misconduct.](#)*
- *University [Counseling and Testing Center](#), 330-972-7082*
- *[Student Health Services](#), 330-972-7808*

Please know the majority of other University of Akron employees, including faculty members, are considered to be “responsible employees” under the law and are

required to report sexual harassment and sexual violence. If you tell a responsible employee about a situation, that employee will be required to report it to the Title IX Coordinator and possibly the police.

Additional information, resources, support and the University of Akron protocols for responding to sexual violence are available on our [sexual respect site](#) and our [Title IX site](#).

9.7. Accessibility and Accommodation

- If you are entitled to an accommodation, you need to contact the Office of Accessibility and follow the university policy (below) ASAP:

At the University of Akron [Office of Accessibility](#), our goal 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.

This mission goes well beyond the legal requirements, including Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act (ADA) of 1990, and supports the University's commitment to create an accessible and welcoming environment for all students. Our goal is to:

- *provide students with full access to the academic environment*
- *advocate for social justice for students with disabilities*
- *embrace the diversity of our student body*
- *celebrate a culturally sensitive and accessible campus.*

The University will make reasonable accommodations for persons with documented disabilities ([see policies](#)).

You are encouraged to contact the Office of Accessibility for information about registering with the office. You can reach the Office by email at access@uakron.edu, stop by Simmons Hall 105 or call 330-972-7928 or 330-972-5764 (TDD).

- If you require special accommodations for exams (e.g., “time and a half”), you must provide documentation and make arrangements with me at least a week prior to the exam dates.

9.8. Academic and Student Support Resources

- A list of resources is available in **Course Orientation** module (**Academic and Student Support Resources** sub-module)

9.9. Academic Calendar

- [All University deadlines on adding, dropping, and the like](#) will be observed:
- [Final exam schedule](#) is determined by the university.
- The university has a [policy, deadline, and procedure for course withdrawal](#) if you choose to do so.

10. Tentative Class Schedule

<u>Week of</u>	<u>Topics</u>	<u>Relevant Chapters/Activity</u>
Jan. 10	Syllabus and Brightspace Review Economic Questions and Data	S&W, Ch 1
Jan. 17	<i>Monday: No Class (MLK Day)</i> Review of Probability	S&W, Ch 2
Jan. 24	Review of Probability and Statistics <i>One or both classes may be cancelled due to a court appearance.</i>	S&W, Ch 2 & 3 Step 1 of the Project due
Jan. 31	Review of Statistics SAS Session (for step 2 of the project)	S&W, Ch 3 Homework #1
Feb. 7	Ordinary Least Squares: Simple Regression	S&W, Ch 4 & 5
Feb. 14	Ordinary Least Squares: Simple Regression	S&W, Ch 4 & 5 Homework #2
Feb. 21	SAS Session (for step 2 of the project)	Step 2 of the Project due
Feb. 28	<i>Monday: Review session</i> <i>Wednesday: Midterm</i>	
Mar. 7	Ordinary Least Squares: Multiple Regression	S&W, Ch 6 & 7
Mar. 14	Ordinary Least Squares: Multiple Regression	S&W, Ch 6 & 7 Homework #3
Mar. 21	Spring Break (No Classes)	
Mar. 28	SAS Session (for step 3 of the project)	
Apr. 4	Nonlinear Regression: Polynomial, Logarithm, and Interaction	S&W, Ch 8
Apr. 11	SAS Session (for step 3 of the project)	
Apr. 18	Regression with a Binary Dependent Variable (time permitting)	S&W, Ch 11 Homework #4
Apr. 25	Finishing any remaining topics and/or answering your questions.	Step 3 of the Project due

Final Exam: Wednesday, May 4th, 2:30 – 4:30pm.