

ECON 310 - Economic Statistics

Fall - 2025

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Class: Mondays & Wednesdays from 9:30-10:45 a.m.
Class Website: <https://canvas.emich.edu/>
Office Hours: Mondays & Wednesdays 11 a.m. until 3:00 p.m.
and by appointment

Description

ECON 310 is designed to help you build the statistical and analytical skills that economists, businesses, and policymakers use every day. In this course, you'll learn how to describe data with graphs and summary statistics, work with probability distributions, test hypotheses, and use regression analysis to uncover relationships in data. These tools are the foundation for understanding how economists study real-world issues like unemployment, inflation, wages, and growth. You'll get hands-on practice using Microsoft Excel and AI tools such as Microsoft Copilot to analyze and visualize data, while also learning how to evaluate the accuracy and limitations of AI-generated results. By the end of the course, you will not only understand the role of statistics in economics, but also develop marketable skills in data analysis, problem-solving, and communication that are valuable for upper-level courses, research projects, and careers in economics, business, and beyond.

Prerequisites: MATH 105, MATH 118, MATH 119 or MATH 120

Recommended Textbook

Statistics for Management and Economics by Gerald Keller. Published by Cengage Learning.

The textbook provides supplementary information that complements the lecture notes. In the event that you choose not to purchase the textbook, a viable substitute is the book titled "Introductory Statistics," which is accessible at no cost via OpenStax. You can find it at the following web address: <https://openstax.org/details/introductory-statistics>.

Required Software

Microsoft Excel

In this course, we will be using Microsoft Excel. The University's campus license allows students to install Microsoft Office (Windows, Mac and mobile device versions) at no cost. To obtain the software, log in to <https://portal.office.com> using your EMU email address (username@emich.edu) and NetID password and then follow the instructions on the page to download and install the application. Microsoft Excel is available on the computer in the Economics Computer Lab located in room 717 in Pray-Harrold.

You are responsible for knowing the basic functionality of Microsoft Excel. There are several resources online that will help you learn the basics of Excel. I suggest the tutorials provided by Microsoft, that

are available for Windows users [HERE](#) and for Mac users [HERE](#). I encourage you to complete these tutorials by the end of the first week of class.

Microsoft Copilot

In this course, we will also make use of Microsoft Copilot as a support tool for learning economic statistics. Microsoft Copilot is an AI-powered assistant that helps you work smarter by answering questions, generating ideas, and making complex tasks easier. You can chat with Copilot to get help with writing, data analysis, presentations, and more—just by using everyday language. While Copilot can be built into apps like Word and Excel for some users, it’s also available as a standalone tool you can access on your phone or computer to boost productivity and creativity across different subjects. For more information click [HERE](#)

Copilot can help you with tasks such as generating Excel formulas, creating charts, and explaining statistical concepts in plain language. However, AI is not a substitute for your own understanding — you are responsible for verifying all outputs and demonstrating mastery of the material. When you use Copilot, you must document how you used it (e.g., “I used Copilot to generate the initial regression formula, then verified it in Excel”). Responsible use of AI will enhance your learning; over-reliance will not. Copilot is an EMU approved AI tool and can be found [HERE](#) or go to <https://copilot.microsoft.com/>, you must log in to your EMU account to use this service.

While Microsoft Copilot and other Large Language Models (LLMs) are powerful tools for summarizing and analyzing data, they are not perfect. These tools may occasionally produce inaccurate information, omit important details, or even generate content that was not in the original source (a phenomenon known as hallucination). Always fact-check AI responses against the original data or report (such as BLS releases) before using them in your assignments.

Marketable Skills Gained in ECON 310

This course develops several highly valued skills that employers actively seek across industries:

- **Data Analysis with Excel:** Apply statistical techniques to real-world economic and business data using Microsoft Excel.
- **AI-Assisted Analysis:** Use Microsoft Copilot responsibly to generate formulas, create charts, and summarize results while verifying accuracy.
- **Statistical Literacy:** Interpret descriptive statistics, probability, hypothesis tests, and regression results to answer practical economic and business questions.
- **Quantitative Problem Solving:** Develop structured approaches to analyzing data and solving problems with evidence-based reasoning.
- **Data Visualization:** Communicate insights clearly through charts, tables, and graphical summaries.
- **Critical Thinking with Data:** Evaluate the validity of statistical results and identify limitations in data and analysis.
- **Applied Research Skills:** Conduct an independent regression analysis project, simulating tasks done in policy, business, and consulting environments.

- **Communication of Results:** Summarize complex statistical findings in plain language for a professional or non-technical audience.

Evaluation Criteria

Your grade will be based on three exams each worth 25% of your final grade, problem sets worth a total of 10% of your final grade, in-class worksheets worth a total of 5% of your final grade, and a regression project worth 10% of your final grade. The grading scale for the course is as follows:

A.....93-100%	B+.....86-89%	C+.....76-79%	D+.....66-69%	F.....0-59%
A-.....90-92%	B.....83-85%	C.....73-75%	D.....63-65%	
	B-.....80-82%	C-.....70-72%	D-.....60-62%	

Exams

There will be a total of three exams, including the final exam. The final exam is not comprehensive and will cover the material following the second exam. The exams will be based on material covered in class. Each exam will consist of two components: an in-class portion and a take-home portion. The take-home portion will require the use of Excel and Microsoft Copilot for data analysis and interpretation. Tentative dates for the exams will be announced on Canvas and via email. Each exam is worth 25 percent of your final grade.

Make-up exams will only be given in certain circumstances. However, once you take an exam, you will not be allowed to re-take it. I reserve the right to judge what types of reasons are legitimate. You must secure from me permission to miss an exam **before** the exam (if possible). You will receive a grade of zero for any exam that you miss for which you do not have an excused absence.

Academic dishonesty is unacceptable and will not be tolerated. If you are caught cheating on an exam you will receive a grade of zero and the incident will be referred to the Office of Student Conduct and Community Standards for investigation.

Problem Sets

There will be approximately one problem set assigned for each lecture. This means there will be ten problem sets throughout the semester. I allow you to drop one problem set, therefore, your final grade will be based on the highest grade achieved on nine of the ten problem sets. The problem sets will be posted on Canvas together with the data needed to complete the assignment. Problem sets usually consist of questions that require data analysis using Excel and Copilot. The problem sets need to be turned in on Canvas, and you must turn in your own problem set (no copying!). Evidence that students copied assignments from other classmates will result in a zero for that assignment for all students involved. Answers to problem sets will be uploaded to Canvas after the due date. No late assignments will be accepted. Problem sets are graded on an all or nothing basis. This means that you must attempt EVERY question to receive credit, otherwise you receive a zero for the problem set. Collectively, the problem sets are worth 5 percent of your final grade.

In-class Worksheets

Throughout the course, you will engage in short in-class problems designed to reinforce key concepts and provide hands-on practice with the material. These problems will be collected and graded to encourage participation and ensure comprehension. There will be approximately one assignment per lecture, and I will allow you to drop two of them. Completing these exercises will contribute 5 percent to your final grade.

Regression Analysis Project

This project requires you to conduct an empirical study using regression analysis. In essence, you will be able to use the tools learned in class to do statistical research. The project will consist of a formal report including a data analysis using Excel and Copilot along with a write up of the results and answers to specific questions. A complete description for the project will be posted on Canvas later in the semester. The project is worth 10 percent of your final grade.

Canvas

Canvas, EMU's learning management system, is integral to the course and will be used extensively. You will use Canvas to access necessary course files, turn in problem sets and exams, communicate with me, receive announcements, and keep track of your grades. You must be able to access the Canvas course page to complete this course. If you are having problems using Canvas, please refer to the following link for help: <https://www.emich.edu/elearning/support/index.php>

Grievance Policy

Anyone feeling that a dispute exists after the grading of an exam may submit a written grievance. The grievance should identify the item in dispute and provide arguments supporting your position. Grievances must be submitted via email to me within three days after the conclusion of the exam. If you do submit a grievance, then I reserve the right to re-grade your entire exam.

Classroom Conduct

Any successful learning experience requires mutual respect. Neither instructor nor student should be subject to behavior that is rude, disruptive, intimidating, or demeaning. Views may differ on what counts as rudeness or courtesy. If you are not sure what constitutes good conduct in this classroom, ask the instructor. The instructor has primary responsibility for and control over classroom behavior and maintenance of academic integrity.

Students are expected to adhere to the standards and expectations detailed in the [Student Handbook](#). In addition, cell phones, side conversations, tardiness, foul language, and the use of open laptops and ipads/tablets for purposes other than for class will not be tolerated. These are very disruptive to students and if the problem persists I will ask you to leave. If you are caught cheating I will give you a zero for that assignment/exam. This includes using Large Language Models (e.g., ChatGPT) to complete your exam. If the problem persists I will take further action.

University Policies

In addition to the articulated course specific policies and expectations, students are responsible for understanding all applicable University guidelines, policies, and procedures. For resources related to staying healthy [Click Here](#). The [EMU Student Handbook](#) is the primary resource provided to students to ensure that they have access to all University policies, support resources, and students' rights and responsibilities. Changes may be made to the EMU Student Handbook whenever necessary, and shall be effective immediately, and/or as of the date on which a policy is formally adopted, and/or on the date specified in the amendment. Please note: Electing not to access the link provided below does not absolve a student of responsibility.

For questions about any university policy, procedure, practice, or resource, please contact the Office of the Ombuds: 248 Student Center, (734) 487-0074, emu.ombuds@emich.edu, or visit the website: <http://www.emich.edu/ombuds>

University course policies link: <http://www.emich.edu/studenthandbook/policies/academic.phpuniv>

Disability Concerns

I am dedicated to creating an accessible, inclusive, and inviting learning environment for all students, including those who may have disabilities that could impact their participation in this class. If you believe you may have trouble participating or effectively demonstrating learning in this course, please contact me (with or without an accommodation letter from the [Disability Resource Center](#)) to discuss reasonable accommodations. Requests for accommodations by persons with disabilities may be made by contacting the Disability Resource Center (DRC) (246 Student Center; (734) 487-2470; swd.office@emich.edu). Once your eligibility for an accommodation has been determined, you will be issued a letter of accommodation (LOA). Please present your LOA to me at the start of the academic semester or once it has been distributed to you by the DRC. You are welcome to contact me at any point in the semester about such issues, but it is best if we can talk at least one week prior to the need for any modifications.

University Writing Center

The [University Writing Center \(UWC\)](#) offers writing support to all EMU undergraduate and graduate students. In doing so, they value the diversity of our campus and honor all students and the languages they bring with them to the university. The UWC offers three types of support, each of which provides students with focused feedback and with strategies for the development of ideas and for revision.

Holman Success Center

The [Holman Success Center](#) provides Academic Support (including tutoring) through a variety of virtual and in-person services.

Academic Advising

Academic Advisors are available to all undergraduate students for both in-person and virtual advising appointments to assist them with their academic major/minor, General Education questions, and graduation requirements. Students can schedule advising appointments through [Academic Advising](#).

University Library

Library research support is available to all students. This includes getting started with research, identifying sources to search, developing search strategies, evaluating resources, and more. See <https://www.emich.edu/library/help/ask.php> for all of the ways in which you can get help with research, including both in-person and remotely through online chat and appointments with librarians.

Sexual Misconduct Prevention & Response Office (formerly Title IX Office)

Title IX of the Education Amendments of 1972 prohibits discrimination on the basis of sex under any education program or activity receiving federal financial aid. Sexual assault and sexual harassment is a form of sex discrimination prohibited by Title IX. [What you need to know about Title IX](#).

Student and Exchange Visitor Statement (SEVIS)

The Student Exchange Visitor Information System (SEVIS) requires F and J students to report numerous items to the [Office for International Students & Scholars \(OISS\)](#).

Mental Health and Wellness:

- If you NEED HELP NOW: Call 988 or Text HOME to 741741
- EMU CAPS: 734.487.1118 (24/7) or email: counseling.services@emich.edu
- Trinity Health Ann Arbor: 734.712.5637 / UM Hospital: 734.996.4747
- Campus Police: 734.487.1222
- [EMU Mental Health and Wellness Resources & Guides](#)
- [Washtenaw County Support Resources](#)

Tentative Topics to be Covered

1. Introduction to Statistics (Chapter 1)
2. Descriptive Statistics - Graphical Techniques (Chapters 2 & 3)
3. Descriptive Statistics - Numerical Techniques (Chapter 4)
4. Probability (Chapter 6)
5. Random Variables & Discrete Probability Distributions (Chapter 7)

Exam 1

6. Continuous Probability Distributions (Chapter 8)
7. Sampling Distributions (Chapter 9)
8. Estimation (point & interval) (Chapter 10)
9. Hypothesis Testing (Chapter 11)

Exam 2

10. Simple Linear Regression (Chapter 16)
11. Multiple Linear Regression (Chapter 17)
12. Analysis of Variance (ANOVA) (Chapter 14)

Exam 3

*This syllabus is subject to change. If I do make changes, I will email the revised syllabus and announce them in class.