AEDE 2005: Data Analysis for Agribusiness and Applied Economics

Spring 2026

Department of Agricultural, Environmental, and Development Economics

The Ohio State University

Instructor:	Ashish Adhikari	**Lecture:**	Tue & Thu, 12:10 to 2:00 PM
Email:	adhikari.143@osu.edu	**Lab:**	Friday, 9:10 to 10:10 AM
Office:	342 Ag Admin Building	**Room:**	Ag Admin Building 005
Office hours:	Monday 11:00 AM to 12:00 PM, in person or on Zoom (or email me for another time)	**Prerequisite:**	MATH 1130 or equivalent
		Credits:	3

Course Description

AEDE 2005 is an introductory course that emphasizes computer applications of the principles of probability and statistics to the problems of data collection, analysis, presentation, and interpretation in economics and business. The course meets the requirements of the major in Agribusiness and Applied Economics and also satisfies the General Education requirement in data analysis. We learn the ideas in lecture on Tuesdays and Thursdays and then practice them in Excel in the Friday lab.

Goals and Learning Outcomes

The main goal of this course is for you to be able to draw conclusions from data and to critically evaluate results based on data. By the end of the semester, you should be able to:

1. explain the basic concepts of probability and statistics;
2. describe and summarize a dataset in Excel, including cleaning the data and building pivot tables;
3. build and interpret confidence intervals and hypothesis tests, and work out the sample size a study needs;
4. use ANOVA, chi-square tests, and regression to answer questions in economics and business; and
5. read a statistical argument critically and explain your own results in plain language.

How This Course Works

This is an in person course. In lecture I go over new material, and in nearly every class you will work on practice questions on your own or in small groups while I check your attempts and answer questions. Nearly every class also has a brief quiz on the material from the previous class.

Attendance at lecture is not mandatory, but it helps your learning and your grade in two ways. First, your

top 10 quiz scores count toward your grade, and their average can replace a lower midterm or group project score. Second, lecture is where you can ask questions as we go and get feedback on the practice problems.

The Friday labs are where we do the Excel work: data cleaning and management, pivot tables, confidence intervals, hypothesis testing, ANOVA, regression, and chi-square tests. A few labs are left open so that teams can work on their group projects. You receive 5 points for each lab session you attend in full.

There are three group Excel projects. I assign the teams and give you some time in lecture and lab to coordinate, but you should plan to meet outside class as well.

Following Ohio State's credit hour policy (go.osu.edu/credithours), you should expect to spend around 8 to 9 hours per week on this course, including class time, to earn a grade of C on average.

Course Materials

Textbook. *Online Statistics Education: A Multimedia Course of Study* (onlinestatbook.com). It is free online, and the chapter numbers in the schedule refer to this book.

Software. We use Microsoft Excel extensively, and the graded assignments require it. Please make sure your version of Excel lets you install the Data Analysis ToolPak. I teach using the Windows version. A few Excel functions sometimes work differently on Apple computers. A Mac also works, but you may suffer some extra frustration. You may use the computers in the classroom, although many people prefer to work on their own laptops.

Carmen. Course materials, assignment submissions, and grades are all on Carmen, Ohio State's Canvas site.

Grading

Assignment category	Points
Group Excel projects (3 at 100 points each)	300
Midterm exams (3 at 100 points each, top 2 count)	200
Final exam	150
Lab final exam (Excel usage)	100
Quizzes in class (about 16, best 10 count)	100
Lab attendance	50
Total	**900**

Midterm exams are given in person, one at the end of each section of the course (A, B, and C). They ask for numerical answers and short explanations. You may bring a single sheet of paper with notes on both sides (formulas, for example), but you must complete the exam without help from others. Only your top two

midterm scores count.

The final exam is cumulative and is given in person during the final exam period.

Group Excel projects ask your team to analyze data in Excel following a set of instructions. Your project must be the work of your group only.

The lab final exam takes place in the last lab session. You complete a set of tasks in Excel and upload your file to Carmen.

Quizzes are short and are given during class. Your best 10 quiz scores count.

Grading scale. Letter grades are based on the percentage of the 900 total points.

Grade	A	A−	B+	B	B−	C+	C	C−	D+	D	E
Minimum %	93	90	87	83	80	77	73	70	67	60	below 60

An A means you have shown proficiency in all of the learning outcomes, a B in most of them, and a C in some. A student who makes a good faith effort on all parts of the course and stays engaged will earn at least a C−.

Course Policies

Late work and missed exams. Group projects submitted after the deadline lose 10% for each day they are late. There are no makeup exams, since your lowest midterm is already dropped and your quiz average can replace another exam score if needed. Quizzes must be taken in the class where they are given. If a prolonged excused absence causes you to miss more than one exam, please come and talk to me so we can work something out.

Generative AI. Students may use generative AI tools (e.g., ChatGPT or Copilot) to learn course material, but using them to complete assignments is prohibited and will be treated as academic misconduct.

Academic integrity. Quizzes are closed note. For exams, you may use your one sheet of notes, but you must complete them yourself without any outside help. Group projects should be the original work of your group only. You are welcome to ask a trusted person outside your group to proofread your work, but no one else should revise or rewrite it. Study groups are encouraged, but comparing answers on a quiz or assignment is not allowed. Never make your results look better than they are; everything you do in this course is meant to be a learning experience. If you are unsure about a particular situation, please ask me ahead of time.

Contacting me. Email is the best way to reach me. I reply to emails within 48 hours on school days, and you can generally expect feedback on group projects within 7 days.

University policies. Ohio State's standard syllabus statements on academic misconduct, disability services, religious accommodations, and mental health apply to this course. You can read them at ugeducation.osu.edu.

Daily Schedule (subject to change)

Chapters refer to *Online Statistics Education*. Group projects are due at midnight on the day listed.

Week of	Tuesday	Thursday	Friday (Lab)
Jan 13, 15	**Begin Section A:** Introduction (Ch. I)	Descriptive statistics (Ch. III)	Excel basics and descriptive statistics
Jan 20, 22	Descriptive statistics (Ch. III)	Descriptive statistics (Ch. III)	Excel data cleaning and management
Jan 27, 29	Descriptive statistics (Ch. III)	Probability (Ch. V) Teams announced	Excel data cleaning and management (cont.)
Feb 3, 5	**Begin Section B:** Sampling and the normal distribution (Ch. VII and IX)	Section A review	Excel pivot tables
Feb 10, 12	**Section A exam**	Confidence intervals (Ch. X)	Open lab *Group project 1 due*
Feb 17, 19	Confidence intervals (Ch. X)	Calculating required sample sizes (Ch. XIII)	Excel confidence intervals
Feb 24, 26	Hypothesis testing (Ch. XI)	Hypothesis testing (Ch. XII)	Excel hypothesis testing
Mar 3, 5	Hypothesis testing (Ch. XII)	Analysis of variance (Ch. XV, sections 1 to 5)	Open lab *Group project 2 due*
Mar 10, 12	Section B review	**Section B exam**	Excel ANOVA
Mar 17, 19	*Spring break, no class*		
Mar 24, 26	**Begin Section C:** Regression (Ch. XIV)	Regression (Ch. XIV)	Excel regression
Mar 31, Apr 2	Chi-square tests (Ch. XVII)	More regression	Excel chi-square
Apr 7, 9	More regression	Regression and catching up	Open lab *Group project 3 due*
Apr 14, 16	Section C review	**Section C exam**	No lab
Apr 21, 23	Review for final	Review for Excel final	**Excel competency final (in lab)**
Apr 30	**Final exam (cumulative):** Thursday, 2:00 to 3:45 PM, Ag Admin Building 005		