

Data Analysis for Agribusiness and Applied Economics

AEDE 2005 Spring 2024

Course Information

- **Course times and location:** Mondays and Wednesdays, 10:20 a.m.-12:05 p.m. in Hitchcock Hall 446
- **Credit hours:** 3
- **Mode of delivery:** In Person
- **Instructor:** Anne Fitzpatrick, PhD, Department of Agricultural, Environmental and Development Economics
- **Email:** Fitzpatrick.88@osu.edu *Preferred method of contact*
- **Office location:** 324 Agricultural Administration Building
- **Office hours:** Mondays and Wednesdays 2-3 pm, or by appointment
- **Preferred means of communication:**
 - My preferred method of communication for questions is **email or by attending office hours. You are also encouraged to use the expertise of our TA (see below).**
 - My class-wide communications will be sent through the Announcements tool in CarmenCanvas. Please check your [notification preferences](https://go.osu.edu/canvas-notifications) (go.osu.edu/canvas-notifications) to be sure you receive these messages.

Teaching Assistant

- **Name:** Xingyi Hu
- **Email:** hu.2285@osu.edu
- **Recitation times:** Fridays 9:10am-10:05am; 10:20am-11:15am in Ag Administration Building Room 005 *You must attend your enrolled recitation*
- **Office Hours:** Wed 1 – 2 PM in Ag Admin 227. Also by appointment by request. Zoom link is go.osu.edu/xingyihu



Course Prerequisites/Co-Requisites

Prerequisite: MATH 1130 or its equivalent.

Course Description

AEDE 2005 is an introductory three-credit 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 is designed to meet the requirements of the major in Agribusiness and Applied Economics as well as satisfy the General Education requirement in data analysis.

Course Learning Goals and Outcomes

Students develop skills in drawing conclusions and critically evaluating results based on data.

General Education Expected Learning Goals and Outcomes

As part of the Data Analysis category of the General Education curriculum, this course is designed to prepare students to be able to do the following:

- Develop competency in Excel
 - Students develop a familiarity with how to use Excel for data storage and analysis
- Learn data analysis and processing techniques.
 - Students understand how to manipulate data for use in analysis
- Critical thinking skills related to the understanding of presented data
 - Students understand basic concepts of statistics and probability
 - Students comprehend methods needed to analyze and critically evaluate statistical arguments
 - Students recognize the importance of statistical ideas

This course fulfills these learning outcomes by a combination of lecture, homework assignments, assessments, and lab-based Excel practice.

How This Course Works

Mode of delivery:

This course is taught in person. Students are expected to attend class each week during the scheduled, synchronous meeting sessions (Mondays and Wednesdays, 10:20 a.m.-12:05 a.m). Exams will be administered via Carmen during the scheduled class meetings as found on the course schedule. If you miss a class session, please ask a classmate for notes. Quizzes will be administered in person during class. Exams will be administered in person. Assignments will be submitted via Carmen.

Pace of activities: Please see the tentative course schedule.

Credit hours and work expectations: This is a 3 credit-hour course. According to [Ohio State bylaws on instruction](http://go.osu.edu/credithours) (go.osu.edu/credithours), students should expect around 8-9 hours per week of time spent on class work, including direct instruction (instructor content and Carmen activities) and homework to receive a (C) average

Attendance and participation requirements: Research shows regular participation is one of the highest predictors of success. Attendance is not mandatory at lectures but increases your learning and performance in three distinct ways:

- I administer brief quizzes in nearly every class based on the material from the previous class. The average of your top 10 quiz scores may replace a lower midterm exam or group Excel project score
- Every class period will feature you working in small groups that double as the groups for your group Excel homework projects. This helps you learn and coordinate with group members to complete group projects
- You can ask questions as I go over new material and I can check over your attempts at practice questions that are worked on in small groups nearly every class period.



Course Materials, Fees and Technologies

Required Materials and/or Technologies

- [Free textbook] *Online Statistics Education: A Multimedia Course of Study* (<http://onlinestatbook.com>)

Required Equipment

- **Computer:** current Mac (MacOS) or PC (Windows 10) with high-speed internet connection.
- **Other:** a mobile device (smartphone or tablet) to use for BuckeyePass authentication

If you do not have access to the technology you need to succeed in this class, review options for [technology and internet access](http://go.osu.edu/student-tech-access) (go.osu.edu/student-tech-access).

Required Software

Microsoft Office 365: All Ohio State students are now eligible for free Microsoft Office 365. Visit the [installing Office 365](http://go.osu.edu/office365help) (go.osu.edu/office365help) help article for full instructions. You will be using Excel extensively and Google Sheets is not a substitute.

- **You must have a version of Excel where you can install and use the 'Data Analysis Pack' option in Excel.**
- A few Excel functions sometimes work differently on Apple computers; the campus computers are PCs but my personal computer is Apple. If you have confusion on how to do something, you can send an email.
- You may rely upon the computers available in the Friday lab sessions
- However, many people prefer to work on their own laptops or other computers

CarmenCanvas Access

You will need to use [BuckeyePass](http://buckeyepass.osu.edu) (buckeyepass.osu.edu) multi-factor authentication to access your courses in Carmen. To ensure that you are able to connect to Carmen at all times, it is recommended that you do each of the following:

- Register multiple devices in case something happens to your primary device. Visit the [BuckeyePass - Adding a Device](http://go.osu.edu/add-device) (go.osu.edu/add-device) help article for step-by-step instructions.
- Request passcodes to keep as a backup authentication option. When you see the Duo login screen on your computer, click **Enter a Passcode** and then click the **Text me new codes** button that appears. This will text you ten passcodes, good for 365 days, that can each be used once.



- [Install the Duo Mobile application](https://go.osu.edu/install-duo) (go.osu.edu/install-duo) on all of your registered devices for the ability to generate one-time codes in the event that you lose cell, data, or Wi-Fi service.

If none of these options will meet the needs of your situation, you can contact the IT Service Desk at [614-688-4357 \(HELP\)](tel:614-688-4357) and IT support staff will work out a solution with you.

Technology Skills Needed for This Course

- Basic computer and web-browsing skills
- [Navigating CarmenCanvas](https://go.osu.edu/canvasstudent) (go.osu.edu/canvasstudent)

Technology Support

For help with your password, university email, CarmenCanvas, or any other technology issues, questions or requests, contact the IT Service Desk, which offers 24-hour support, seven days a week.

- **Self Service and Chat:** go.osu.edu/it
- **Phone:** [614-688-4357 \(HELP\)](tel:614-688-4357)
- **Email:** servicedesk@osu.edu
- **TDD:** 614-688-8743

Grading and Faculty Response

How Your Grade is Calculated

Assignment category	Points
Midterm exams (3 @ 100, top 2 count toward grade)	200
Group Excel assignments (3 @ 100, top 2 count toward grade)	200
Lab attendance	50
Lab final exam (Excel usage)	100
Final exam (Thursday, April 25 at 10am)	150
Quizzes (you may use the average of your best 10 quiz scores to replace the lowest remaining midterm and group excel assignment grade)	
Total	700

See [Course Schedule](#) for due dates.

Descriptions of Major Course Assignments

Exams will be administered in person and require numerical answers to questions and short explanations. Students are permitted to use material they bring on a single sheet of standard paper (e.g., formulas), but must complete all exams without the help of others. The top 2 of the 3 midterm exams will count toward your final grade.

Group excel assignments will require you to analyze data in Excel according to instructions. Groups will be assigned by the instructor and given time during lectures and labs to meet to coordinate, but you will need additional group time outside of class to complete the assignments. Group projects must be the work of your group only. The top 2 of the 3 group project grades will count toward your final grade.

The final exam will be cumulative. The Excel Final Exam (Lab Final) will be administered during the last lab session and will require you to upload an Excel sheet to Carmen.

Quizzes will be administered in person during class sessions and require numerical answers to questions. The average of your top 10 quiz scores may be used to replace the lowest score among the 4 midterm exam and group excel scores that contribute to your final grade.

You will receive 5 points for each lab session that you attend in full.

Example 1 – Low quiz average. Suppose you had:

- midterm exams grades of: 0, 90, 100
- group excel project grades of: 20, 80, 90
- average of your top 10 quizzes: 70
- Final exam grade of: 82
- Your final grade will use: 90, 100 (top 2 exams), 80, 90 (top 2 excel grades), 82

Example 2 – High quiz average. Suppose you had:

- midterm exams grades of: 0, 90, 100
- group excel project grades of: 20, 80, 90
- average of your top 10 quizzes: 85
- Final exam grade of: 82
- Your final grade will use: 90, 100 (top 2 exams), 90, 85 (top excel grade + quiz ave), 82

Late Assignments and Make-Up Work

Please refer to Carmen for due dates. Due dates are set to help you stay on pace and to allow timely feedback that will help you complete subsequent assignments.

Group assignments submitted after the deadline will receive a 20 point deduction for each day it is late. If you miss an exam, there is no make-up or redo provided as your lowest exam grade is dropped and quiz average grade may be used to replace another exam grade if needed. Quizzes must be taken in the class they are administered; there are no makes ups.

The course final is Thursday, April 25 from 10:00am-11:45am. In the event of an extraordinary circumstance such that you do not take the final exam, you must provide me written documentation (ahead of time, if possible). How missed finals are handled will be assessed on a case-by-case basis, but you should assume your grade will be a zero if you do not take the final.

Instructor Feedback and Response Time

[Example: I am providing the following list to give you an idea of my intended availability throughout the course. Remember that you can call [614-688-4357 \(HELP\)](tel:614-688-4357) at any time if you have a technical problem.

- **Preferred contact method:** If you have a question, please contact me first through my Ohio State email address. I will reply to emails within **24 hours on days when class is in session at the university, excluding weekends.**
- **Class announcements:** I will send all important class-wide messages through the Announcements tool in CarmenCanvas. Please check [your notification preferences](https://go.osu.edu/canvas-notifications) (go.osu.edu/canvas-notifications) to ensure you receive these messages.
- **Grading and feedback:** For assignments submitted before the due date, I will try to provide feedback and grades within **seven days**. Assignments submitted after the due date may have reduced feedback and grades may take longer to be posted.]

Grading Scale

Letter Grade	%	Proficiency
A	93.00–100.0	Demonstrates complete proficiency in all learning outcomes as demonstrated on assessments; participates in all aspects of the course in a positive and timely manner.
A-	90.00–92.99	
B+	87.00–89.99	Demonstrates proficiency in at least two learning outcomes as demonstrated on assessments; participates in all aspects of the course in a positive and timely manner.
B	83.00–86.99	
B-	80.00–82.99	
C+	77.00–79.99	Demonstrates proficiency in at least one learning outcome as demonstrated on assessments; participates in some aspects of the course in a positive and timely manner. A minimum grade of “C-” will be earned by a student making a good faith effort on all aspects of the course and demonstrated engagement.
C	73.00–76.99	
C-	70.00–72.99	
D+	67.00–69.99	Fails to meet proficiency in any learning outcome such that student will not be successful in higher-level courses; did not complete assessments; demonstrated lack of engagement, did not participate in course, did not complete assessment in a timely fashion.
D	60.00–66.99	
E	00.00–59.99	



Other Course Policies

Academic Integrity Policy

See [Descriptions of Major Course Assignments](#) as well.

Policies for this course

- **Quizzes:** Quiz policies will be announced on the day of the quiz. While you should expect they will be closed note and done by yourself, to encourage engagement and learning you may be able to consult or discuss with others as directed.
- **Exams:** You are permitted a single sheet with content of your choosing (both sides) when taking exams. However, you must complete them yourself, without any external help or communication.
- **Group assignments:** Your written group assignments should be the original work of members of only your group. In formal assignments, you should follow APA style to cite the ideas and words of your research sources. You are encouraged to ask a trusted person outside your group to proofread your assignments before you turn them in--but no one else should revise or rewrite your group's work.
- **Falsifying research or results:** All research you will conduct in this course is intended to be a learning experience; you should never feel tempted to make your results look more successful than it was.
- **Collaboration and informal peer-review:** While study groups and peer-review of major group projects is encouraged, remember that comparing answers on a quiz or assignment is not permitted. If you're unsure about a particular situation, please feel free just to ask ahead of time.

Ohio State's Academic Integrity Policy

Academic integrity is essential to maintaining an environment that fosters excellence in teaching, research, and other educational and scholarly activities. Thus, The Ohio State University and the Committee on Academic Misconduct (COAM) expect that all students have read and understand the University's Code of Student Conduct, and that all students will complete all academic and scholarly assignments with fairness and honesty. Students must recognize that failure to follow the rules and guidelines established in the University's Code of Student Conduct and this syllabus may constitute Academic Misconduct.

The Ohio State University's Code of Student Conduct (Section 3335-23-04) defines academic misconduct as: Any activity that tends to compromise the academic integrity of the University, or subvert the educational process. Examples of academic misconduct include (but are not

limited to) plagiarism, collusion (unauthorized collaboration), copying the work of another student, and possession of unauthorized materials during an examination. Ignorance of the University's Code of Student Conduct is never considered an excuse for academic misconduct, so I recommend that you review the Code of Student Conduct and, specifically, the sections dealing with academic misconduct.

If I suspect that a student has committed academic misconduct in this course, I am obligated by University Rules to report my suspicions to the Committee on Academic Misconduct. If COAM determines that you have violated the University's Code of Student Conduct (i.e., committed academic misconduct), the sanctions for the misconduct could include a failing grade in this course and suspension or dismissal from the University.

If you have any questions about the above policy or what constitutes academic misconduct in this course, please contact me.

Other sources of information on academic misconduct (integrity) to which you can refer include:

- [Committee on Academic Misconduct](http://go.osu.edu/coam) (go.osu.edu/coam)
- [Ten Suggestions for Preserving Academic Integrity](http://go.osu.edu/ten-suggestions) (go.osu.edu/ten-suggestions)
- [Eight Cardinal Rules of Academic Integrity](http://go.osu.edu/cardinal-rules) (go.osu.edu/cardinal-rules)

Copyright for Instructional Materials

The materials used in connection with this course may be subject to copyright protection and are only for the use of students officially enrolled in the course for the educational purposes associated with the course. Copyright law must be considered before copying, retaining, or disseminating materials outside of the course.

Creating an Environment Free from Harassment, Discrimination, and Sexual Misconduct

The Ohio State University is committed to building and maintaining a community to reflect diversity and to improve opportunities for all. All Buckeyes have the right to be free from harassment, discrimination, and sexual misconduct. Ohio State does not discriminate on the basis of age, ancestry, color, disability, ethnicity, gender, gender identity or expression, genetic information, HIV/AIDS status, military status, national origin, pregnancy (childbirth, false pregnancy, termination of pregnancy, or recovery therefrom), race, religion, sex, sexual orientation, or protected veteran status, or any other bases under the law, in its activities, academic programs, admission, and employment. Members of the university community also have the right to be free from all forms of sexual misconduct: sexual harassment, sexual assault, relationship violence, stalking, and sexual exploitation.

To report harassment, discrimination, sexual misconduct, or retaliation and/or seek confidential and non-confidential resources and supportive measures, contact the Office of Institutional Equity:

1. Online reporting form at equity.osu.edu,
2. Call 614-247-5838 or TTY 614-688-8605,
3. Or Email equity@osu.edu

The university is committed to stopping sexual misconduct, preventing its recurrence, eliminating any hostile environment, and remedying its discriminatory effects. All university employees have reporting responsibilities to the Office of Institutional Equity to ensure the university can take appropriate action:

- All university employees, except those exempted by legal privilege of confidentiality or expressly identified as a confidential reporter, have an obligation to report incidents of sexual assault immediately.
- The following employees have an obligation to report all other forms of sexual misconduct as soon as practicable but at most within five workdays of becoming aware of such information: 1. Any human resource professional (HRP); 2. Anyone who supervises faculty, staff, students, or volunteers; 3. Chair/director; and 4. Faculty member.

Diversity

The Ohio State University affirms the importance and value of diversity of people and ideas. We believe in creating equitable research opportunities for all students and to providing programs and curricula that allow our students to understand critical societal challenges from diverse perspectives and aspire to use research to promote sustainable solutions for all. We are committed to maintaining an inclusive community that recognizes and values the inherent worth and dignity of every person; fosters sensitivity, understanding, and mutual respect among all members; and encourages each individual to strive to reach their own potential. The Ohio State University does not discriminate on the basis of age, ancestry, color, disability, gender identity or expression, genetic information, HIV/AIDS status, military status, national origin, race, religion, sex, gender, sexual orientation, pregnancy, protected veteran status, or any other bases under the law, in its activities, academic programs, admission, and employment.

To learn more about diversity, equity, and inclusion and for opportunities to get involved, please visit:

- <https://odi.osu.edu/>
- <https://odi.osu.edu/racial-justice-resources>
- <https://odi.osu.edu/focus-on-racial-justice>
- <https://cbasc.osu.edu/>

In addition, this course adheres to **The Principles of Community** adopted by the College of Food, Agricultural, and Environmental Sciences. These principles can be found at

<https://cfaesdei.osu.edu/about-us/cfaes-principles-community>. For additional information on Diversity, Equity, and Inclusion in CFAES, contact the CFAES Office for Diversity, Equity, and Inclusion (<https://cfaesdei.osu.edu/>). If you have been a victim of or a witness to harassment or discrimination or a bias incident, you can report it online and anonymously (if you choose) at <https://equity.osu.edu/>.

Your Mental Health

As a student you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance or reduce a student's ability to participate in daily activities. The Ohio State University offers services to assist you with addressing these and other concerns you may be experiencing.

If you or someone you know are suffering from any of the aforementioned conditions, you can learn more about the broad range of confidential mental health services available on campus via the Office of Student Life's Counseling and Consultation Service (CCS) by visiting ccs.osu.edu or calling 614-292-5766. CCS is located on the 4th floor of the Younkin Success Center and 10th floor of Lincoln Tower. You can reach an on-call counselor when CCS is closed at 614-292-5766 and 24 hour emergency help is also available 24/7 **by dialing 988 to reach the Suicide and Crisis Lifeline.**

For students in the College of Food, Agricultural, and Environmental Sciences, David Wirt, wirt.9@osu.edu, is the CFAES embedded mental health counselor on the Columbus campus. To contact David, please call 614-292-5766. Students should mention their affiliation with CFAES if interested in speaking directly with David.

Religious Accommodations

It is Ohio State's policy to reasonably accommodate the sincerely held religious beliefs and practices of all students. The policy permits a student to be absent for up to three days each academic semester for reasons of faith or religious or spiritual belief.

Students planning to use religious beliefs or practices accommodations for course requirements must inform the instructor in writing no later than 14 days after the course begins. The instructor is then responsible for scheduling an alternative time and date for the course requirement, which may be before or after the original time and date of the course requirement. These alternative accommodations will remain confidential. It is the student's responsibility to ensure that all course assignments are completed.

Weather or other short-term closing

Should in-person classes be canceled, I will notify you as to which alternative methods of teaching will be offered to ensure continuity of instruction for this class. Communication will be via CarmenCanvas.

ACCESSIBILITY ACCOMMODATIONS FOR STUDENTS WITH DISABILITIES

Requesting Accommodations

The university strives to maintain a healthy and accessible environment to support student learning in and out of the classroom. If you anticipate or experience academic barriers based on your disability (including mental health, chronic, or temporary medical conditions), please let me know immediately so that we can privately discuss options. To establish reasonable accommodations, I may request that you register with Student Life Disability Services. After registration, **make arrangements with me as soon as possible to discuss your accommodations so that they may be implemented in a timely fashion.**

If you are isolating while waiting for a COVID-19 test result, please let me know immediately. Those testing positive for COVID-19 should refer to the Safe and Healthy Buckeyes site for resources. Beyond five days of the required COVID-19 isolation period, I may rely on Student Life Disability Services to establish further reasonable accommodations. You can connect with them at slds@osu.edu; 614-292-3307; or slds.osu.edu.

Disability Services Contact Information

- Phone: [614-292-3307](tel:614-292-3307)
- Website: slds.osu.edu
- Email: slds@osu.edu
- In person: [Baker Hall 098, 113 W. 12th Avenue](#)

Accessibility of Course Technology

This online course requires use of CarmenCanvas (Ohio State's learning management system) and other online communication and multimedia tools. If you need additional services to use these technologies, please request accommodations as early as possible.

- [CarmenCanvas accessibility](https://go.osu.edu/canvas-accessibility) (go.osu.edu/canvas-accessibility)
- Streaming audio and video
- [CarmenZoom accessibility](https://go.osu.edu/zoom-accessibility) (go.osu.edu/zoom-accessibility)

Course Schedule

Refer to the CarmenCanvas course for up-to-date due dates.

Week of..	Monday Tues	Wednesday Thurs	Fri (Lab)
Jan. 8	<u>Begin Section A:</u> Intro (Ch. I)	Descriptive Statistics (Ch. II)	Excel Basics & Descriptive Statistics
Jan 15	No Class MLK Day	Descriptive Statistics (Ch. III-IV)	Excel Data Cleaning and Management
Jan 22	Teams Announced Team Building <i>and</i> Descriptive Statistics (Ch. III-IV)	Probability (Ch. V)	Excel Data Cleaning and Management (cont)
Jan. 29	<i>Section A Review</i>	**Section A Exam **	Excel Pivot Tables <i>Last day to drop course without receiving W</i>
Feb. 5	<u>Begin Section B:</u> Sampling & Normal Distribution (Ch. VI, VII & IX)	Confidence Intervals (Ch. IX)	Open Lab: Group Deliverable #1 work **Due: Midnight **
Feb. 12	Confidence Intervals (Ch. X)	Calculating Required Sample Sizes	Excel Confidence Interval
Feb. 19	Hypothesis Testing (Ch. XI)	Hypothesis Testing (Ch. XII)	Excel Hypothesis Testing
Feb. 26	Hypothesis Testing (Ch. XII)	Analysis of Variance (Ch. XV, 1-5)	Open Lab: Group Deliverable #2 work **Due: Midnight**
Mar. 4	<i>Section B Review</i>	**Section B Exam** <i>Section B Review</i>	TBD
Mar. 11	No Class Spring Break	No Class Spring Break	No Lab Spring Break
Mar. 18	<u>Begin Section C:</u> Regression (Ch.XIV)	Regression (Ch.XIV)	Excel ANOVA
Mar. 25	Chi-Square Tests (Ch. XVII)	Chi-Square Tests (Ch. XVII)	Excel Regression
Apr. 1	More Regression	Transformations (Ch. XVI)	Excel Chi-Square
Apr. 8	Effect Sizes /Catch-Up (Ch. XIX/TBD)	Review Section C	Open Lab Group Deliverable #3 work **Due: Midnight **
Apr. 15	**Section C Exam**	<i>Review for Excel Final</i>	**Excel Competency Final – In Lab**
Apr. 22	<i>Review for Final Last Day of Class</i>		
****FINAL EXAM****			
Thursday, Apr 25 • Location Hitchcock 446 • 10:00 AM – 11:45 AM			

