

Applied Quantitative Methods I Syllabus

AEDECON 6110 Autumn 2024

Course Information

- **Course times and location:** Lectures: Mondays and Wednesdays 12:45pm-2:05pm in 246 Ag Admin, Labs: Fridays 1:50-3:40pm in 005 Ag Admin Building
- **Canvas Zoom link:** <https://go.osu.edu/aedecon6110> or <https://osu.zoom.us/j/94050513675?pwd=SzE2ZW42M1N2eGZsY2srZk9GMUdUZz09>
- **Credit hours:** 4
- **Mode of delivery:** In-person

Instructor

- **Name:** Dr. Ani Katchova
- **Email:** katchova.1@osu.edu
- **Phone Number:** 614-292-6229
- **Office location:** 220 Agricultural Administration Building
- **Office hours:** Wednesdays 2:05 pm – 2:30pm in 246 Ag Admin, check CarmenCanvas calendar for additional office hours.
- **Preferred means of communication:**
 - My preferred method of communication for questions is **email**.
 - 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:** Vishavdeep Sharma
- **Email:** sharma.1094@osu.edu
- **Office hours:** check CarmenCanvas for office hours



Course Prerequisites

4001 (500) or Econ 4001 (501), and 2005 (205) or Stat 1430 (133). Not open to students with credit for 701

Course Description

Application of econometric and time series method to the analysis of problems in agricultural, environmental, and development economics.

Learning Outcomes

By the end of this course, students should successfully be able to:

- Identify and explain regression econometric models and their assumptions
- Select and estimate an appropriate econometric model
- Explain and interpret econometric model results



How This Course Works

Mode of delivery: This course is in-person. We have lectures and lab sessions each week. Your attendance in the lecture and lab sessions is strongly encouraged. We will try our best to have the lectures and labs available synchronously on zoom and we plan to record them so that they are viewable asynchronously after the class sessions. The rest of your work is found in Carmen and can be completed around your own schedule during the week.

Pace of activities: Students are expected to keep pace with deadlines but may schedule their efforts freely within that time frame.

Credit hours and work expectations: This is a 4 credit-hour course. According to [Ohio State bylaws on instruction](https://go.osu.edu/credithours) (go.osu.edu/credithours), students should expect around 4 hours per week of time spent on direct instruction in addition to 8 hours of homework to receive a grade of A average.

Attendance and participation requirements: Research shows regular attendance and participation is one of the highest predictors of success. With that in mind, I have the following expectations for everyone's attendance and participation:

- **Attendance of lectures and labs:** Your attendance to lectures and labs is strongly encouraged.
- **Participation:** Your participation in class asking questions or answering questions is encouraged but not required.
- **Office hours:** Office hours for the Instructor and Teaching Assistant are optional. You may attend them if you have questions about the material or homework.



Course Materials, Fees and Technologies

Required Materials and/or Technologies

- Students are required to download and install R: <https://www.r-project.org/> and R-studio <https://www.rstudio.com/products/rstudio/>. They are available for free.

Recommended/Optional Materials and/or Technologies

- Wooldridge, Jeffrey M. Introductory Econometrics: A Modern Approach, 7th ed., Cengage Learning, 2019. (older editions are also fine)

Required Equipment

- **Computer:** current Mac (MacOS) or PC (Windows 10) with high-speed internet connection.
- **Webcam:** built-in or external webcam, fully installed and tested (optional)
- **Microphone:** built-in laptop or tablet mic or external microphone (optional)
- **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](https://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](https://go.osu.edu/office365help) (go.osu.edu/office365help) help article for full instructions.

CarmenCanvas Access

You will need to use [BuckeyePass](https://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](https://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)
- [CarmenZoom virtual meetings](https://go.osu.edu/zoom-meetings) (go.osu.edu/zoom-meetings)
- [Recording a slide presentation with audio narration and recording, editing and uploading video](https://go.osu.edu/video-assignment-guide) (go.osu.edu/video-assignment-guide)

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



Grading and Faculty Response

How Your Grade is Calculated

Assignment Category	Points
Homework assignments (4 at 12.5 points each)	50
Exam 1	25
Exam 2	25
Total	100

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

Descriptions of Major Course Assignments

Homeworks:

Description: Four homework assignments will be made available through Carmen throughout the semester, which will include model overview questions and software application questions. All parts of this homework are meant to be done independently by the student without collaboration with other students in the class. They must be submitted through Carmen by the due date and time. The Turnitin tool on Carmen will be used to ensure students do not plagiarize their classmates' work.

Exams:

Description: Two take-home, unproctored exams will be held throughout the semester. These exams require that students apply concepts that have been taught throughout the course through the date of the exam being given. Both exams are meant to be completed independently by the student without collaboration with other students in the class. Students will be allowed to use materials from the class as they complete the exam. The exams will be posted via Carmen at a time specified in class and must be submitted through Carmen by the due date and time. There will be no final, cumulative exam.

Academic integrity and collaboration: Your written homework assignments and exams must be your own original work. 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 to proofread your assignments before you turn them in but no one else should revise or rewrite your work.



Homework assignments must be completed on your own. You may use external sources (including but not limited to notes, textbooks, websites). You may discuss your homework assignment with your classmates, but you are expected to submit an assignment that is your own work and distinct from that of your classmates.

Exams must be completed on your own. You may use external sources (including but not limited to notes, textbooks, and websites), but may not discuss your exam with other people.

Late Assignments

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.

Work (homework assignments and exams) submitted within 24 hours after the deadline will receive a grade penalty of 5% of the total points except in documented emergencies (illness, family emergency, etc.). Work submitted after 24 hours past the deadline will receive zero points (0). Students who will or have missed assignments should contact their instructor to discuss any missed assignments. The instructor will make accommodations for students with documented emergencies or illness. Acceptable forms of documentation include, but are not limited to, a doctor's note, a funeral pamphlet, etc.

Instructor Feedback and Response Time

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**.
- **Class announcements:** I will send all important class-wide messages through the Announcements tool in CarmenCanvas. Please check [your notification preferences](http://go.osu.edu/canvas-notifications) (go.osu.edu/canvas-notifications) to ensure you receive these messages.
- **Grading and feedback:** For homework assignments and exams, I will try to provide feedback and grades within **seven days**.

Grading Scale

93–100: A
 90–92.9: A-
 87–89.9: B+
 83–86.9: B
 80–82.9: B-
 77–79.9: C+



73–76.9: C
70–72.9: C-
67–69.9: D+
60–66.9: D
Below 60: E

Other Course Policies

Discussion and Communication Guidelines

The following are my expectations for how we should communicate as a class. Above all, please remember to be respectful and thoughtful.

- **Writing style:** While there is no need to participate in class discussions as if you were writing a research paper, you should remember to write using good grammar, spelling, and punctuation. A more conversational tone is fine for non-academic topics.
- **Tone and civility:** Let's maintain a supportive learning community where everyone feels safe and where people can disagree amicably. Remember that sarcasm doesn't always come across online.
- **Citing your sources:** When we have academic discussions, please cite your sources to back up what you say. For the textbook or other course materials, list at least the title and page numbers. For online sources, include a link.
- **Backing up your work:** Consider composing your academic posts in a word processor, where you can save your work, and then upload into the Carmen.
- **Synchronous sessions:** If you attend sessions via Zoom, I ask you to use your real name and a clear photo of your face in your Carmen profile. During our full-group lecture time, you may turn your camera off if you choose. When in breakout rooms or other small-group discussions, having cameras and mics on as often as possible will help you get the most out of activities. You are always welcome to use the [free, Ohio State themed virtual backgrounds](http://www.osu.edu/downloads/zoom-backgrounds.html) (www.osu.edu/downloads/zoom-backgrounds.html). Remember that Zoom and the Zoom chat are our classroom space where respectful interactions are expected.]

Academic Integrity Policy

See [Descriptions of Major Course Assignments](#) for specific guidelines about collaboration and academic integrity in the context of this online class.

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](http://studentconduct.osu.edu) (studentconduct.osu.edu), 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 are 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. No public posting or dissemination of class materials is allowed.

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>
- <http://mcc.osu.edu/>

In addition, this course adheres to **The Principles of Community** adopted by the College of Food, Agricultural, and Environmental Sciences. These principles are located on the Carmen site for this course; and can also be found at <https://go.osu.edu/principlesofcommunity>. For additional information on Diversity, Equity, and Inclusion in CFAES, contact the CFAES Office for Diversity, Equity, and Inclusion (<https://equityandinclusion.cfaes.ohio-state.edu/>). If you have been a victim of or a witness to 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 Counseling and Consultation Services (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 through the 24/7 National Suicide Prevention Hotline at 1-(800)-273-TALK or at suicidepreventionlifeline.org

David Wirt, wirt.9@osu.edu, is the CFAES embedded mental health counselor. He is available for new consultations and to establish routine care. To schedule with David, please call 614-292-5766. Students should mention their affiliation with CFAES when setting up a phone screening.

Accessibility Accommodations for Students with Disabilities

Requesting Accommodations

The university strives to make all learning experiences as accessible as possible. 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 \(SLDS\)](#). After registration, make arrangements with me as soon as possible to discuss your accommodations so that they may be implemented in a timely fashion. In light of the current pandemic, students seeking to request COVID-related accommodations may do so through the university's [request process](#), managed by Student Life Disability Services.

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.

Date	Lectures	Labs	Assignments
Aug 21	Syllabus and course overview 1 Econometrics and Economic Data		
Aug 23		0 Introduction to R R markdown	
Aug 26	2 Simple regression model		
Aug 28	2 Simple regression model		
Aug 30		1 Economic Data 2 Simple Regression Model	
Sept 4	3 Multiple regression model		
Sept 6		2 Simple Regression Model	
Sept 9	3 Multiple regression model		
Sept 11	4 Regression Inference		
Sept 13		3 Multiple Regression Model	HW 1 due (topics 1-2)
Sept 16	4 Regression Inference		
Sept 18	5 OLS Asymptotics		
Sept 20		4 Regression Inference	
Sept 23	6 Reg Variable Transformation		
Sept 25	7 Reg Indicator Variables		
Sept 27		5 Asymptotics 6 Reg Variable Transformations	HW 2 due (topics 3-4)
Sept 30	9 Regression Specification		
Oct 2	Review for exam		
Oct 4		7 Indicator Variables	



		9 Regression Specification	
Oct 7	Exam 1		Exam 1 due at 2:05pm (25 points)
Oct 9	-	-	
Oct 14	8 Heteroscedasticity		
Oct 16	13 Panel data models		
Oct 18		9 Regression Specification 8 Heteroscedasticity	
Oct 21	13 Panel data models 14 Panel data models		
Oct 23	14 Panel data models		
Oct 25		13 Panel data models	
Oct 28	14 Panel data models		
Oct 30	15 IV		
Nov 1		14 Panel data models	HW3 due (topics 6,7,9)
Nov 4	15 IV 16 Simultaneous equations		
Nov 6	17 Probit and logit		
Nov 8		15 IV 16 Simultaneous Equations	
Nov 11	-		
Nov 13	17 Probit and logit		
Nov 15		17 Probit and Logit	
Nov 18	18 Propensity score models		
Nov 20	18 Propensity score models		
Nov 22		18 Propensity score models	HW4 due (topics 8, 13,14,15)
Nov 25	Review for exam		
Dec 2	Review for exam		
Dec 4	Exam 2		Exam 2 due at 2:05pm (25 points)