

# AEDECON 3000

**Quantitative Methods in Agribusiness and Applied Economics  
Autumn 2024**

## Course Information

### Lectures

On-site classroom lectures  
Agricultural Administration 108  
Mondays & Wednesdays, 9:35-10:55am

### Instructor

Name: Professor Mario J. Miranda  
Email: [miranda.4@osu.edu](mailto:miranda.4@osu.edu)  
Phone Number: 614-292-6280  
Office Location: Agricultural Administration Building 335  
Office Hours: Tuesdays and Thursdays from 9 a.m.-5 p.m. and by appointment.

Preferred means of communication: The best time to talk to me about course content or other class issues is immediately after the conclusion of lecture. However, I also will generally be available to meet with you virtually via CarmenZoom between 9am and 5pm on Tuesdays and Thursdays by appointment, or on other days or in person if necessary. If you wish to meet, simply schedule a one-half hour Zoom chat and email me an invitation at least 3 hours before the desired meeting start time. At my earliest opportunity, I will confirm our meeting via email, unless it conflicts with another meeting, in which case I will get back to you to re-schedule. Questions pertaining to problem sets or potential errors in the Carmen gradebook should be directed to the teaching assistant first.

### Teaching Assistant

Name: Xiaoyi Fang  
Email: [fang.807@osu.edu](mailto:fang.807@osu.edu)  
Office Location: Agricultural Administration Building 229  
Office Hours: Monday & Friday, 11:30am-12:30pm, or by appointment.

### Course Prerequisites

MATH 1130, College Algebra for Business, and either AEDECON 2001, Principles of Food and Resource Economics, or ECON 2001, Principles of Microeconomics, or equivalent.



## Course Description

Quantitative methods and their applications to problems in agribusiness and applied economics.

## Course Learning Goals and Outcomes

Successful students will have the ability to formulate, solve, and analyze foundational problems in agribusiness and applied economics employing basic quantitative techniques. Students can meet the learning outcomes by attending all lectures, mastering the material covered in lectures, completing all assigned homework sets, and thoroughly preparing for the midterm and final examinations.

## How This Course Works

### Mode of Delivery

This course is taught in person. Students are expected to attend class each week during the scheduled meeting sessions.

### 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 3 hours per week of time spent on direct instruction in addition to 6 hours of homework to receive a grade of [C] average.

### Attendance and Participation Requirements

Attending lectures is critical to success in this class. Lectures provide a forum for interactive discussion of important concepts and methods covered in the course. During lectures, the instructor will randomly pose questions to students individually to test how effectively key concepts are being conveyed by the instructor and are being understood by students.

## Course Materials and Technologies

### Required Materials

No textbook is required. The overheads presented in lecture and posted on Carmen constitute the textual material for the course. A preliminary version of the lecture overheads for each

section of the course will be posted on Carmen no later than 24 hours prior to the start of coverage of that material. A final version of the lecture notes, with corrections, if any, will be posted on Carmen no later than 48 hours after the conclusion of coverage of that material.

## Required Equipment and Software

In order to take the course, you will need a personal computer with Microsoft Excel installed. Your installation of Excel should be able to load and run the Solver add-in. Instructions for loading Solver in Excel can be found by clicking [here](#). Unfortunately, the Excel Solver add-in is not supported for iPads. If you regularly use an iPad, you will need to secure access to an alternate personal computer, or otherwise use your iPad to access Microsoft Office On-Line, which is freely available through our university site license. You are expected to bring your portable computers and iPads to lecture, as we will occasionally perform short exercises in class with Excel. 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

Basic computer and web-browsing skills

## 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](http://go.osu.edu/it)
- Phone: [614-688-4357 \(HELP\)](tel:614-688-4357)
- Email: [servicedesk@osu.edu](mailto:servicedesk@osu.edu)

## Grading

### How Your Grade is Calculated

Your final course grade will be based on the following weights

Category	Percentage of Course Grade
Homework Assignments (top 5)	25%
Midterm Examination	30%
Final Examination	45%

### Course Assignments

Students will be assigned six (6) problem sets during the semester. Each problem set will be posted on Carmen no later than one week before it is due.

Your homework grade for the class will be based on the top five scores you receive on the six homework assignments. Although you may choose not to submit one homework assignment without penalty, you are strongly encouraged to complete all assignments in order to master the course material and adequately prepare for examinations.

Answers to problems sets are due at 11:59pm on the announced due date. Answers submitted late will suffer a 20% deduction for every day or portion thereof that they are late. Homework answers submitted more than 72 hours late will not be accepted. Exceptions to these rules will be considered on a case-by-case basis and will be granted only under exigent circumstances that can be supported by documentation if requested.

Homework assignment answers must be submitted via Carmen in electronic format (e.g., MS Word) or as a graphic image produced from a scan of handwritten answers, provided the answers are clearly legible.

## Examinations

A midterm examination will be administered during the regularly scheduled lecture period on Wednesday, October 18. The examination will cover material introduced in lectures and homework assignments through and including Wednesday, October 11.

A final examination will be administered in our regular classroom, Agricultural Administration Building 335, during Examination Week, on Monday, December 9, 10:00am-11:45am. The final examination will be comprehensive and cover material introduced in lectures and homework assignments during the entire semester.

## Grading Scale

Your final course grade will be determined as follows

Percentage	Grade	Percentage	Grade	Percentage	Grade
93-100	A	80-82.9	B-	67-69.9	D+
90-92.9	A-	77-79.9	C+	60-66.9	D
87-89.9	B+	73-76.9	C	<60	E
83-86.9	B	70-72.9	C-		

## Course Schedule

### Important Dates

First Lecture	Wednesday, August 21
Labor Day	Monday, September 2 – No lecture
Midterm Examination	Wednesday, October 16
Veterans Day	Monday, November 11
Thanksgiving Break	Wednesday, November 27 – No lecture
Last Lecture	Wednesday, December 4
Final Examination	Monday, December 9, 10:00-11:45am

### Course Topics

1. Basic Algebra
2. Graphs and Functions
3. Linear Algebra
4. Financial Mathematics
5. Derivatives and Optimization
6. Linear Programming



7. Integer Programming
8. Other Topics

## Other Course Policies

### 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](https://equity.osu.edu),
2. Call 614-247-5838 or TTY 614-688-8605,
3. Or Email [equity@osu.edu](mailto: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](https://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](mailto: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

Our inclusive environment allows for religious expression. Students requesting accommodations based on faith, religious or a spiritual belief system in regard to examinations, other academic requirements or absences, are required to provide the instructor with written notice of specific dates for which the student requests alternative accommodations at the earliest possible date. For more information about religious accommodations at Ohio State, visit [odi.osu.edu/religious-accommodations](https://odi.osu.edu/religious-accommodations).

The University Interfaith Council has a helpful, but non-exhaustive, [religious holiday calendar](#) to promote awareness and understanding of observances. For example, Ramadan the Muslim holy month observed through fasting, prayer and reflection coincides with the end of the semester and second-session classes, and students and instructors should be mindful of requests made for final projects and assignments.

## Weather or Other Short-Term Closing

Although Ohio State strives to remain open to ensure continuity of services to students and the public, extreme conditions can warrant the usage of the university's [Weather or Other Short-Term Closing Policy](#). Please [visit this webpage](#) to learn more about preparing for potential closings and planning ahead for winter weather.

## 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](mailto:slds@osu.edu); 614-292-3307; or [slds.osu.edu](https://slds.osu.edu).

## Disability Services Contact Information

- Phone: [614-292-3307](tel:614-292-3307)
- Website: [slds.osu.edu](http://slds.osu.edu)
- Email: [slds@osu.edu](mailto: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](http://go.osu.edu/canvas-accessibility) (go.osu.edu/canvas-accessibility)
- Streaming audio and video
- [CarmenZoom accessibility](http://go.osu.edu/zoom-accessibility) (go.osu.edu/zoom-accessibility)