AEDE 4002.01
Econometric Applications in Agribusiness and Applied Economics

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Class Hours: Tuesday and Thursday 11:10am - 12:30pm, Hopkins Hall 250
Lab Hours: Friday 11:30am - 12:25pm, Agriculture Admin Bldg 005

Prof. Office Hours: Tuesday 4-5pm, Thursday 1-2pm, & by apt, Agriculture Admin Bldg 329
TA Office Hours: Wednesdays 2:00pm - 3:00pm, Agriculture Admin Bldg 227

Course Description

This course offers an introduction to statistics and econometrics for applied economics and agribusiness students. We will cover descriptive and inferential statistics with special attention to the role of statistics in the media and the role of data analysis in (agri-)business settings. The course emphasizes comprehension, application, and communication of statistical findings.

Course objectives

At the completion of this course, you will be able to:

- interpret and explain relationships in data using graphics and statistics
- explain relevance of probability and sampling distributions to datasets and statistics
- calculate measures of central tendency and dispersion for a variable
- differentiate between normal distributions and non-normal distributions, and choose statistics that are appropriate to each distribution
- calculate and interpret the correlation between two variables, by hand and in excel
- use confidence intervals and hypothesis tests to make inferences about population means
- understand and explain the concepts of bivariate and multivariate regression
- formulate regression models, fit the models to data in excel, and interpret the results

Required materials

- Making Sense of Data Through Statistics 2nd Ed, Nevo

  A pdf version of this text is available online at www.ldpress.com for $19.95

- Additional readings, assignments, and lecture slides will be made available via Carmen

Course Structure

Overview of expectations, assignments, and exams

We'll generally cover a chapter of Nevo each week, sometime in addition to an assigned reading posted on Carmen. Your classmates and I expect you to come to class prepared, meaning that you will have read the week's assigned readings in advance of our class on Tuesday each week. I will generally also post the week's lecture slides to Carmen by Monday night, so that you can download the slides in advance of lecture for review or to aid with note-taking.

We'll have two exams and a series problem of sets over the course of the semester. Pop quizzes may appear without notice; these will be used to assist me in assessing your preparation for and comprehension of course material. Problem sets will be assigned on Tuesdays and will be due the following Tuesday. They will reflect course material being taught during the week of assignment, and will include conceptual questions, calculations that must be done by hand, and statistics that will be estimated in excel. Exam questions will closely reflect problem set questions. Your ability to answer problem set questions is therefore the best predictor of your exam performance.

I encourage you to work in groups of 2-4 to complete your problem sets, with the cautionary note that free riders end up suffering during exams. In fact, I will help you to form these groups, since there will inevitably be heterogeneity in your social connectedness. However, you must each turn in individual homework assignments, with group members identified at the top.

Lab sections

The class TA Amelia Li will teach labs every Friday, focusing on the problem set most recently assigned. Amelia will do a few things during these labs: she will review relevant material from class, she will teach the excel skills necessary to complete the homework assignment, and she will help you to understand and tackle the actual questions in the problem set.

A note on participation

You will gain participation points for attendance, participation in class, and participation in labs. By participation, I mean a range of things: honest questions when you are confused, answers to questions that I ask, helping your classmate during a lab section, coming to my office hours or the office hours of Amelia, working well in sub-groups if we split up during class for an exercise, etc. It is important to note that participation is difficult for some students because it means speaking up when they might rather not. For other students, it is difficult to allow others to speak up when they feel sure they know the answer. As a general rule, "good participation" involves respect for your fellow classmates, for your professor, and for your TA.

Statistics in the media

You may also gain participation points by contributing examples of data and statistics in the media. This is a conversation that we'll continue through-out the class; I will bring in a few examples, but I'll rely on you to identify others. You are welcome to identify examples of statistics being used well, being used badly, or examples that you feel neutral about. When you identify such an example, you will post it on the Carmen discussion board forum created for this purpose, and I'll encourage but not require you to also mention it in class.

Grading

Your course grade will be a weighted average of the following aspects of the course:

- Participation (in class, labs, office hours, through media examples) 5%
- Problem sets and pop quizzes 50%
- Midterm 20%
- Final 25%

Letter grades will be assigned according to your weighted average for the course.

Late assignments

Amelia and I will accept late problem sets without penalty so long as a new due date was arranged in communication with one of us 48 hours in advance of the original due date. Problem sets submitted after the due date without prior communication will receive a grade of zero.

Emergencies and other extenuating circumstances affecting your ability to turn in your work on time will be considered on a case-by-case basis. Overall, communication with me in advance of the due date will be rewarded, while lack of communication is likely to result in a zero.

Attendance

Your regular attendance in class is expected. If you anticipate a conflict with an exam you must reach out to me as soon as possible but no later than 48 hours prior to make alternative arrangements. Should you be absent for an exam without having made prior arrangements you will receive a zero. As with late assignments, emergencies and other extenuating circumstances will be considered on a case-by-case basis.

Institutional Policies and Resources

Academic integrity and honesty

Students are required to comply with the Code of Student Conduct; this includes proper attribution of all sourced materials.

Academic accessibility

OSU is committed to providing access to the educational experience to students with disabilities and health conditions that impact learning. If you have received a letter from the Office of Student Life Disability Services, which outlines the academic accommodations to which you are entitled, you must meet with me to review that letter and discuss how your learning needs intersect with the course expectations. If you suspect that you have a learning need that could benefit from academic accommodations, you should contact the Office of Student Support Services, who can help you learn more about how to proceed in this instance as well.

Title IX and sexual misconduct

At Ohio State University, we strive to foster relationships based upon mutual respect, honesty, integrity, and trust. As such, we are committed to providing an educational, living, and working environment free from all forms of harassment and discrimination for all members of our community. The university prohibits all forms of sexual or gender-based discrimination, harassment or misconduct, including sexual harassment, sexual violence, relationship violence, stalking, or violations of consent.

If you or someone you know has experienced sexual misconduct, you may find information about resources and contact information OSU's Sexual Misconduct Policy. For instance, on-campus confidential resources are available, including the counselors at the Counseling and Consultation Service (614-292-5766) and attorneys at Student Legal Services (614-247-5853). More information about on- and off-campus confidential resources, as well as medical treatment, law enforcement, and other support services, may be found at the Student Advocacy Center.

Emotional and mental support

The Counseling and Consultation Service provides support for students suffering emotionally and mentally. Any students can schedule an appointment with a counselor by calling 614-292-5766 during business hours. On most Thursdays you can also drop into "Let's Talk" for a free, informal and confidential mental health consultation called with a staff member from Counseling and Consultation Service, from 6-8 PM in the Multicultural Room at the Ohio Union. No appointment or paperwork is needed, and services are available in Mandarin Chinese, Cantonese Chinese, Korean, Hindi, and Spanish. Consultation dates are listed on the "Let's Talk" website.

General Schedule

This schedule is subject to slight changes as the semester progresses. Exam dates are noted in **bold**. Problem sets will be given on a weekly basis: distributed on Tuesdays and due the following Tuesday. Pop quizzes will be based on non-optional readings.

Week 01 (Jan 8,10, 11), 01/08 - 01/12: Introduction to data, statistics, and data visualization

- *Read* Nevo Chapter 1 units 1 and 2, Chapter 2 units 1-4.
- *Optional* Caldwell's 4 fundamental concepts, concept 1 and 2

Week 02 (Jan 15, 17, 18), 01/15 - 01/19: Measures of centrality and variation

- *Read* Nevo Chapter 3
- *Read* "Friends you can count on" by Strogatz
- *Optional* Caldwell's 4 fundamental concepts, concepts 3 and 4

Week 03 (Jan 22, 24, 25), 01/22 - 01/26: Probability distributions and correlation

- *Read* Nevo Chapter 5 unit 1, Chapter 6 unit 1
- *Optional* "Chances are" by Strogatz

Week 04 (Jan 29, 31, Feb 1), 01/29 - 02/02: Introduction to hypothesis testing

- *Read* Nevo Chapter 7 units 1-3

Week 05 (Feb 5, 7, 8), 02/05 - 02/09: Hypothesis testing II

- *Read* Nevo Chapter 8 units 1-2, Chapter 10 unit 3
- Class on the 7th will include a lab component.
- **Lab on the 8th will be the midterm.**

Week 06 (Feb 12, 14, 15), 02/12 - 02/16: Introduction to Regression

- *Read* Nevo Chapter 13

Week 07 (Feb 19, 21, 22), 02/19 - 02/23: Regression II

- *Read* To be announced
- *Note* Lab on the 22 will be a review of the class