

## ECMT461: Introduction to Economic Data Analysis

Term: Spring 2024

**Instructor:** Craig Schulman

Telephone numbers: 979 599-9229 (off-campus office), [979-324-5988](tel:979-324-5988) (mobile)

Email address: [cschulman@tamu.edu](mailto:cschulman@tamu.edu)

Office hours: I will hold virtual office hours via Zoom by appointment on Wednesdays.

**Schedule appointments by email.**

### Meeting times and location:

Lectures: Sections 901-904 Tuesday and Thursday 2:45 pm – 3:35 pm in CHEM 2102  
Sections 905-908 Monday and Wednesday 3:55 pm – 4:45 pm in CHEM 2102

Recitation: You must also attend the scheduled recitation session according to your section registration.

### Course Description:

This is the required course in economic statistics and data analysis for economics majors. It introduces students to the basic concepts of statistical description, probability theory, and statistical inference as they apply to economic analysis. It introduces data management, data handling, and data analysis, all with a focus on economic statistics. In particular, the course will emphasize hypothesis testing and, while introducing regression analysis, will stress statistical methods not typically covered in the Introduction to Econometrics. This is a writing intensive (W) course. As such, students must earn a passing grade on their term project report to earn a passing grade in the class.

Prerequisites: MATH 140, 151 or 171

### Student Learning Outcomes

Students will be able to:

- (1) Demonstrate understanding of various economic research methods on tests and the course project
- (2) Demonstrate understanding of introductory probability and statistics on tests and the course project
- (3) Demonstrate knowledge of economic data sources on tests and the course project
- (4) Gather and manipulate data in a spreadsheet, including graphical presentations (e.g., in Excel)
- (5) Perform econometric analysis of economic data using an econometric software program (e.g., Excel)
- (6) Use econometric methods applied to economic data to bring evidence to bear on an economic topic
- (7) Demonstrate an ability to write up the results of an econometric analysis in a professional manner

### Online class materials and resources

Class website: <http://people.tamu.edu/~cschulman/> I will post homework sets, lecture notes, study guides and other course information on this website.

CANVAS: Homework assignments, exams, and term project assignments will be submitted in Canvas.

MS Excel for Economic Data Analysis Videos: I have recorded a series to videos to introduce the basic and some more advanced aspects of using Excel for data analysis available here: [Excel Videos Link](#).

### Teaching Assistants: All TA Office Hours are via Zoom by email appointment.

TA	Email	Office Hours
Colin Hegarty	<a href="mailto:ckhegarty@tamu.edu">ckhegarty@tamu.edu</a>	10 am – 11 am Mon. & Wed.
Angda Li	<a href="mailto:angdali97@tamu.edu">angdali97@tamu.edu</a>	9 am – 11 am Wed.
Yitong Wang	<a href="mailto:wangyitong@tamu.edu">wangyitong@tamu.edu</a>	10 am – 11 am Tues. & Thurs
Yihong Xu	<a href="mailto:kaiserxu_96@exchange.tamu.edu">kaiserxu_96@exchange.tamu.edu</a>	1 pm – 3 pm Fri.

## Recitations:

461 – 901: Fri. 8 - 8:50 am in ALLN 1002	461 – 905: Fri. 8 - 8:50 am in LASB 146
461 – 902: Fri. 9 - 9:50 am in ALLN 1002	461 – 906: Fri. 9 - 9:50 am in LASB 146
461 – 903: Fri. 10 - 10:50 am in ALLN 1002	461 – 907: Fri. 10 - 10:50 am in LASB 146
461 – 904: Fri. 11 – 11:50 pm in ALLN 1002	461 – 908: Fri. 11 – 11:50 pm in LASB 146

## Lecture Notes and Resource Materials

I have compiled a detailed set of lecture notes that includes example problems and solutions; available on the class website: <http://people.tamu.edu/~cschulman/>. This will be the primary source for material for which you are responsible.

Additional resources that you may find helpful:

There are several introductory statistics texts available as part of the “Open Textbook Library,” available at this link: <https://open.umn.edu/opentextbooks/subjects/statistics>

For Microsoft Excel, there are several texts available as free full text electronic books through the A&M Library website. An extensive reference is *Microsoft Excel 365 Bible*, by Michael Alexander and Dick Kusleika.

On writing economics, Deirdre McCloskey, *Economical Writing*. Waveland Press, 1994.

Software: You will be required to have access to Microsoft Excel, widely available on campus via the Open Access Labs (see <http://oal.tamu.edu/>). The Microsoft Office Suite of programs that includes Excel is also available to students at no charge through the A&M Computing Center: <https://software.tamu.edu>

**Your E-mail Address:** Every student must have a functioning TAMU e-mail address, and you must be reachable through that address. Your TAMU e-mail address must be the address that accompanies the official TAMU on-line class roll.

## Course Policies:

### Grading:

Homework Assignments	20%	Exams (combined)	45%	Research Paper	35%
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Grades will be distributed as follows: A: 90%-100%; B: 80%-89.99%; C: 70%-79.99%; D: 60%-69.99%; F: below 60%. **NOTE: Grade “point totals” shown in CANVAS are not weighted.**

**Important! →** While the research paper carries only 35% of the total grade, you are required to obtain a passing grade on the research paper to receive a passing grade for the course, regardless of your score in the rest of the course. **If you fail the paper, you will fail the course.**

Please do not ask me about extra credit or extra work to improve your grade. None will be given.

## Homework Assignments:

- There will be problem sets assigned almost every week. These assignments are designed to help you learn the material and prepare for the exams. I’ll post the problem sets and their solutions on the course website. The problem sets will also help you learn to handle and manipulate data and to employ spreadsheets (e.g. Excel) to aid in data management and data analysis – skills that will be important for your research project.
- The two lowest scoring problem sets will not be counted in computing your final homework grade. This is to allow you some flexibility throughout the semester.
- Because I will post solutions shortly after assignments are due, late homework will not be accepted for any reason. If you have a University-approved excuse an alternative make-up assignment or another arrangement can be provided, or you will simply count the missing assignment as one of your two dropped grades.

## Exams:

- The exams will be structured in an Excel type worksheet app administered on-line through Canvas. Anything covered in lecture, recitation section, homework, or the readings is fair game. My lectures and the recitation sections will help you identify the material that I consider to be the most important, but you must do the readings and homework assignments to be fully prepared for the exams. You will be required to download and install the Respondus LockDown browser for the exams and have a webcam equipped PC. Instructions are available on the class website.
- All exams will be open note/book, but any notes must be in hard copy format.
- No make-up exams will be given without a university-approved and documented excuse. Student Rule 7 governs attendance policy and excused absences. Non-excused absences will result in a zero for that portion of your grade.
  - **Exam #1, Thursday, Feb. 15 – Make-up Exam, Tuesday, Feb. 20**
  - **Exam #2, Thursday, Mar. 21 – Make-up Exam, Tuesday, Mar. 26**
  - **Exam #3, Tuesday, Apr. 23 – Make-up Exam, Thursday, Apr. 25**
- There will be no formal lecture on the regularly scheduled exam days, and you will have any two-hour window of your choice on those days to take the exam.
- If you think there has been a mistake in the grading of your exam, please contact me no later than one week after the exam is returned. I reserve the right to re-grade the whole work, meaning that you may lose points (since mistakes can happen in both directions).

## Research Paper:

- The research paper is one of the major requirements of this writing-intensive course. This assignment is by far the most difficult aspect of the course for most students. To reduce the amount of frustration and uncertainty associated with the project, I have compiled a group of datasets of different types that you can use as the focus of your project. A key aspect of the assignment is that your project should include many of the analytical tools covered in class.
- Each student will write a proposal, an initial version of the report, and a final version of the paper incorporating the material in the first draft, after revisions, plus a description of the results of the study, an interpretation of the results, and a conclusion.
- Your submissions for the project will be done electronically through **Turnitin** in Canvas. You will receive comments on your drafts of each submission (proposal, initial version of the paper, and final version of the paper) and are expected to revise the paper after considering the edits and comments provided to you.

## Important Project dates:

- **February 23:** Proposal due via **Turnitin** in Canvas
- **March 5: April 5:** Initial Partial version of the paper due via **Turnitin** in Canvas
- **May 3:** Final version of the paper due via **Turnitin** in Canvas
  
- The purpose of the Proposal and Initial Partial versions of the project are to allow me and your TAs to provide feedback and thereby try to keep you on a path to a successful final project. The Proposal and Initial Partial versions will count 10% each of your final term project grade. Late submissions will be penalized 2 percent for each calendar day late. Applies to proposal, initial version, and final version of paper!
- A formal statement of the project assignment including the format of the proposal, requirements for each draft and the grading rubric that will be used to evaluate your project will be posted to the class website.
- Help for Writing: There are many resources available to assist you in developing your writing skills. Class time will be devoted to writing instruction. Throughout the semester, you may consult with me or your TAs if you need advice or assistance. You are strongly encouraged to meet with the TAs before and/or after the first two submissions.

## Other resources:

- <http://writingcenter.tamu.edu/>
- <http://www.economics.harvard.edu/files/WritingEconomics.pdf>

- <http://lupus.econ.duke.edu/ecoteach/undergrad/manual.pdf>
- [http://www.economicnetwork.ac.uk/archive/lse\\_writing/](http://www.economicnetwork.ac.uk/archive/lse_writing/)

### **General Course Expectations:**

- I will not enforce a formal attendance policy, but the best grades are historically earned by those who are active, engaged, and in class. If you miss a class, it is your responsibility to catch up with the material. Ask your fellow classmates for notes. If you cannot attend several classes, it is a good idea to email or talk to me and your section TA as soon as you can.
- Recitation sections: Your TAs will introduce reinforcement material in recitation, so attendance in recitation is as important as attendance at lecture.
- As a courtesy to me and to your fellow students, please arrive on time and turn off your cell phones. If you absolutely must leave a class early, let me know in advance to minimize distractions. Please do not read newspapers, social media, or other material unrelated to the subject matter of the day. Please do not sleep in class or litter.

### **AMERICANS WITH DISABILITIES ACT (ADA) POLICY STATEMENT**

Texas A&M University is committed to providing equitable access to learning opportunities for all students. If you experience barriers to your education due to a disability or think you may have a disability, please contact the Disability Resources office on your campus (resources listed below) Disabilities may include, but are not limited to attentional, learning, mental health, sensory, physical, or chronic health conditions. All students are encouraged to discuss their disability related needs with Disability Resources and their instructors as soon as possible. If you believe you have a disability requiring an accommodation, please contact Disability Services, located in the Student Services Building or call 979-845-1637. For additional information, visit <http://disability.tamu.edu>.

### **Title IX and Statement on Limits to Confidentiality**

Texas A&M University and the College of Liberal Arts are committed to fostering a learning environment that is safe and productive for all. University policies and federal and state laws provide guidance for achieving such an environment. Although class materials are generally considered confidential pursuant to student record policies and laws, University employees — including instructors — cannot maintain confidentiality when it conflicts with their responsibility to report certain issues that jeopardize the health and safety of our community. As the instructor, I must report (per Texas A&M System Regulation 08.01.01) the following information to other University offices if you share it with me, even if you do not want the disclosed information to be shared:

- Allegations of sexual assault, sexual discrimination, or sexual harassment when they involve TAMU students, faculty, or staff, or third parties visiting campus.

These reports may trigger contact from a campus official who will want to talk with you about the incident that you have shared. In many cases, it will be your decision whether or not you wish to speak with that individual. If you would like to talk about these events in a more confidential setting, you are encouraged to make an appointment with Counseling and Psychological Services (<https://caps.tamu.edu/>).

Students and faculty can report non-emergency behavior that causes them to be concerned at <http://tellsomebody.tamu.edu>.

### **STATEMENT ON MENTAL HEALTH AND WELLNESS**

Texas A&M University recognizes that mental health and wellness are critical factors that influence a student's academic success and overall wellbeing. Students are encouraged to engage in proper self-care by utilizing the resources and services available from Counseling & Psychological Services (CAPS). Students who need someone to talk to can call the TAMU Helpline (979-845-2700) from 4:00 p.m. to 8:00 a.m. weekdays and 24

hours on weekends. 24-hour emergency help is also available through the National Suicide Prevention Hotline (800-273-8255) or at [suicidepreventionlifeline.org](http://suicidepreventionlifeline.org).

### **STUDENT LEARNING OUTCOMES**

Texas A&M University has identified student learning outcomes that describe our institutional commitment to your education goals. These include the ability to demonstrate critical thinking, effective communication, and social, cultural, and global competence. Please see

[http://provost.tamu.edu/essentials/pdfs/copy\\_of\\_UndergraduateLearningOutcomesFinal.pdf/view](http://provost.tamu.edu/essentials/pdfs/copy_of_UndergraduateLearningOutcomesFinal.pdf/view)

### **ACADEMIC INTEGRITY**

Note that plagiarism is a type of academic dishonesty and will not be tolerated. Students caught plagiarizing will receive an F on their paper and will fail the course.

For additional information on the Aggie Honor Code and academic integrity, please visit:  
<http://aggiehonor.tamu.edu>

***“An Aggie does not lie, cheat, or steal or tolerate those who do.*”**

## Course Topics, Calendar of Activities, Major Assignment Dates

This schedule may be revised as circumstances dictate. I will keep you informed if we deviate from the schedule. **Note the Recitation Schedule on the next page.**

### Lecture Schedule

Week of	Tuesday	Thursday
1/15/2024	<b>SNOW/ICE Day</b>	Introduction
1/22/2024	Excel, Sampling and Data	Measures of Central Tendency, Order Statistics
1/29/2024	Term Project Overview	Measures of Variability; Probability and Probability Distributions
2/5/2024	Probability Distributions	Sampling Distributions and the Central Limit Theorem
2/12/2024	Review for Exam 1	Exam #1
2/19/2024	Single Sample Confidence Intervals	Single Sample Hypothesis Tests
2/26/2024	Two Sample Confidence Intervals	Two Sample Confidence Intervals
3/4/2024	Two Sample Hypothesis Tests	Two Sample Hypothesis Tests
3/11/2024	<b>SPRING BREAK</b>	
3/18/2024	Review for 2nd Exam	Exam #2
3/25/2024	Term Project Examples	ANOVA
4/1/2024	Bivariate Regression and Correlation analysis	Bivariate Regression and Correlation analysis
4/8/2024	Multi-Group Tests	Non-parametric Tests
4/15/2024	Non-parametric Tests	Review for 3rd Exam
4/22/2024	Exam #3	Term Project Q&A
4/29/2024	<b>Redefined Day:</b> Attend Friday Recitations	No Class

**Recitation Schedule**

Week of	Friday Recitation	Assignments Due in Canvas on Friday
1/15/2024	Excel Basics	None
1/22/2024	Introduction of Project data sets, project outline. More Excel with a view to Homework #1	Homework #1
1/29/2024	Probability Problems	None
2/5/2024	Probability Problems, Exam Review	Homework #2
2/12/2024	Project Proposal Discussion	None
2/19/2024	Single Sample Confidence Intervals and Hypothesis Tests.	<b>Proposals due via Canvas.</b> Homework #3
2/26/2024	Two Sample Confidence Intervals	Homework #4
3/4/2024	Two Sample Hypothesis Tests	Homework #5
3/11/2024	<b>SPRING BREAK</b>	
3/18/2024	Feedback on Proposals	None
3/25/2024	Reading Day, No Classes	Homework #6
4/1/2024	ANOVA, Discuss 2nd Writing Assignment	<b>2nd Writing Assignment due via Canvas.</b> Homework #7
4/8/2024	Regression and Correlation	Homework #8
4/15/2024	Multi-Group and Non-parametric Tests	Homework #9
4/22/2024	Term Project Q&A	None
4/29/2024	<b>Redefined Day:</b> Attend "Friday" Recitations on Tuesday 4/30	<b>Final Projects Due in Canvas on Friday May 3rd</b>