University of Colorado - Boulder
Spring 2025
ECON 3818 - Introduction to Statistics with Computer Applications

Instructor: Dr. Shawn Swanson Email: shawn.swanson@colorado.edu
Office: ECON 14b Zoom: https://cuboulder.zoom.us/my/ask.shawn
In-person office hours: Tuesday and Thursday 12:50 – 1:50 PM in ECON 14b
Remote office hours: Wednesday 9:30 – 11:00 AM via Zoom

Section	Class Time	Room	Final	TA
3818-020	09:30 AM - 10:45 AM	MUEN E431	Tuesday, May 6, 4:30–7 PM	Rimjhim Saxena rimjhim.saxena@colorado.edu
3818-030	02:00 PM - 03:15 PM	ECON 117	Sunday, May 4, 4:30–7 PM	Sean Strunk sean.strunk@colorado.edu

Description

Statistics is an important subject in the study of economics, and a directly marketable skill. In this course we will cover the following concepts: visual and numerical exploration of data, basic probability theory and probability distributions, mathematical expectation, sampling distributions and their properties, properties of estimators, confidence intervals, hypothesis testing, applied statistical inference, correlation, regression analysis, and inference in regression analysis.

Prerequisites

Requires prerequisite courses of ECON 2010 and 2020 and either ECON 1088 or MATH 1081 or MATH 1300 or MATH 1310 or MATH 1330 or APPM 1340/1345 or APPM 1350 or FNCE 2010 (all minimum grade C-). Restricted to students with 22-180 units completed.

Required Textbook

The Basic Practice of Statistics + Achieve
By David Moore, William Notz, and Michael A Fligner

Attendance

Class attendance is necessary for success in this course and therefore mandatory. To give students an external commitment device, there will be in-class clicker questions.

If you miss a class for any reason, it is your responsibility to get notes from a classmate. If you still have questions after reviewing those notes, you should come to office hours with specific questions prepared. If you anticipate an EXTENDED absence, please notify me prior to missing any classes, assignments, or exams. There is no need to advise me of short day-to-day absences.

Canvas

I use Canvas extensively to keep this course organized and make announcements. Additionally, the problems sets and solutions will be available on Canvas as well. Grades will be posted on Canvas as soon as they are available.

Office Hours

Office hours are the best way to get extra help if needed. I would be happy to schedule a time outside of office hours if a scheduling conflict prevents you from coming during the assigned hours. Note that my Tuesday/Thursday office hours are held in-person in my office, while I hold the Wednesday hours remotely off-campus via Zoom.

Cheating

Don't do it. You will get caught, fail the course, and be reported to the Honor Code Council.

Electronic Device Policy

Please silence electronic devices during lectures. You are welcome to use electronic devices for note taking and accessing learning materials online. However, do not use electronic devices during class time for non-class activities (i.e. social media, etc.), or you will be asked to turn it off and put it away.

Communication Policy

Email will be my primary form of communication with the class:

- I will use your CU email address for class communications, so check your CU mailbox frequently.
- I will answer you as soon as possible. Please allow 24 hours for a response.
- Please refer to the syllabus to answer questions, before contacting me.
- Questions on course material are often more easily and thoroughly answered in person. Please use my office hours as your primary means of obtaining help with course material.
- Under no circumstances can I provide grades through email due to Family Educational Rights and Privacy Act (FERPA) regulations, since emails are not considered secure. Grades will be available on Canvas.

Grading

To provide you with flexibility throughout the semester for things such as illness, bereavement, etc., I will drop your lowest two homework assignments, lowest two quizzes, lowest two clickers, and lowest R assignment. There will be no makeup work or makeup exams in this class regardless of the reason. In fairness to everyone, there are no exceptions. Late assignments will not be accepted.

Your total grade in this course will be determined as follows:

- Clickers 10%
- Recitation 10%
- R exercises 10%
- Homework 10%
- Quizzes 10%
- Midterm 1 15%
- Midterm 2 15%
- Final 20%
- Extra Credit 3%

Recitation: Your grade in recitation account for 10% of your final grade. The materials provided in recitation are crucial for your success in this course. Your TA will determine your recitation grade.

Homework, quizzes, and R: On Canvas you will find 13 online homework assignments, 11 quizzes, and nine R exercises. We will work on several R exercises together in class on the days listed in the tentative schedule. On these days you will need to bring your laptop. R exercises and homework are due Fridays before 11:59 PM unless otherwise announced (No Exceptions).

Exams:
The exams will be completed on scantron forms, so bring a #2 pencil. There are 2 midterm exams, and while they are not explicitly cumulative, the material does naturally build upon itself. The final exam must be held per university policy. The University's final exam policy can be found here. Exams will be closed book, closed notes. Only basic scientific calculators will be permitted, no computers, cell phones, or graphing calculators. All exams will take place in the regular classroom unless otherwise noted. *There will be no makeup exams. If you provide appropriate documentation (e.g., illness, bereavement, university sanctioned event) at least 24 hours PRIOR to missing the exam your final exam will be appropriately reweighted, otherwise you will receive a zero for the exam.*

Extra credit:
There will be extra credit assignments found on Canvas that roughly correspond to each problem set. The extra credit grade will be calculated by adding 3% times your extra credit percentage score to your overall grade. Since it is added to your final grade, any extra credit can only increase you grade. Note that extra credit will not be reflected in the grade on Canvas until the end of the semester. All extra credit will close at 11:59 the evening before reading day.

Letter Grades:
Grades may be curved at the instructor's discretion. Your (curved) final course grade will automatically be increased up to 0.5% to meet any grade cutoff. No further grade adjustments are available under any circumstances. No exceptions. Letter grades will be assigned as follows:

Percentage	**Grade**	**Percentage**	**Grade**
94-100	A	73-76	C
90-93	A-	70-72	C-
87-89	B+	67-69	D+
83-86	B	63-66	D
80-82	B-	60-62	D-
77-79	C+	0-59	F

Course Resources and Recipe for Success

Because the class is inherently cumulative, it is essential to invest time early. This will make the rest of the semester much more manageable. Statistic is like lifting weights. I am your personal trainer. You can only reap the benefits if you do enough reps. I can't do that for you.

I want you to be successful in this course. I will do whatever I can to help you learn. Therefore, there are numerous resources for you to succeed.

Office Hours: This is an excellent opportunity to get additional clarification and get one-on-one instruction. I love working with students during office hours. It is among the most rewarding things I get to do as an instructor, so please take advantage. If a scheduling conflict prevents you from attending my office hours, I will be happy to schedule a time with you.

TA Office Hours: This is also an excellent opportunity to get additional clarification and get one-on-one instruction.

Econ Tutoring Lab: The Economics department provides a free tutoring lab. Information can be found on the department's website: https://www.colorado.edu/economics/undergraduate-program

Private Tutors: Private tutors are available for a fee. Information can be found on the department's website: https://www.colorado.edu/economics/undergraduate-program

There is a strong correlation between attendance and homework with a student's overall grade. The correlation coefficients are greater than 0.60. I would be remiss if I did not note that correlation does not imply causation. Nonetheless, imitating the approach of successful students is not a bad strategy. Take this course seriously. Use the available resources. Keep up with the course and do not fall behind.

Classroom Behavior

Students and faculty are responsible for maintaining an appropriate learning environment in all instructional settings, whether in person, remote, or online. Failure to adhere to such behavioral standards may be subject to discipline. Professional courtesy and sensitivity are especially important with respect to individuals and topics dealing with race, color, national origin, sex, pregnancy, age, disability, creed, religion, sexual orientation, gender identity, gender expression, veteran status, marital status, political affiliation, or political philosophy.

For more information, see the classroom behavior policy, the Student Code of Conduct, and the Office of Institutional Equity and Compliance.

Accommodation for Disabilities, Temporary Medical Conditions, and Medical Isolation

If you qualify for accommodations because of a disability, please submit your accommodation letter from Disability Services to your faculty member in a timely manner so that your needs can be addressed. Disability Services determines accommodations based on documented

disabilities in the academic environment. Information on requesting accommodations is located on the Disability Services website. Contact Disability Services at 303-492-8671 or DSinfo@colorado.edu for further assistance. If you have a temporary medical condition, see Temporary Medical Conditions on the Disability Services website.
If you have a temporary illness, injury or required medical isolation for which you require adjustment, *please notify me if you anticipate missing a week or more prior to missing any classes, assignments, or exams. There is no need to advise me of short day-to-day absences.*

Preferred Student Names and Pronouns

CU Boulder recognizes that students' legal information doesn't always align with how they identify. Students may update their preferred names and pronouns via the student portal; those preferred names and pronouns are listed on instructors' class rosters. In the absence of such updates, the name that appears on the class roster is the student's legal name.

Honor Code

All students enrolled in a University of Colorado Boulder course are responsible for knowing and adhering to the Honor Code. Violations of the Honor Code may include but are not limited to: plagiarism (including use of paper writing services or technology [such as essay bots]), cheating, fabrication, lying, bribery, threat, unauthorized access to academic materials, clicker fraud, submitting the same or similar work in more than one course without permission from all course instructors involved, and aiding academic dishonesty. Understanding the course's syllabus is a vital part in adhering to the Honor Code.
All incidents of academic misconduct will be reported to Student Conduct & Conflict Resolution: StudentConduct@colorado.edu. Students found responsible for violating the Honor Code will be assigned resolution outcomes from the Student Conduct & Conflict Resolution as well as be subject to academic sanctions from the faculty member. Visit Honor Code for more information on the academic integrity policy.

Sexual Misconduct, Discrimination, Harassment and/or Related Retaliation

CU Boulder is committed to fostering an inclusive and welcoming learning, working, and living environment. University policy prohibits protected-class discrimination and harassment, sexual misconduct (harassment, exploitation, and assault), intimate partner abuse (dating or domestic violence), stalking, and related retaliation by or against members of our community on- and off-campus. The Office of Institutional Equity and Compliance (OIEC) addresses these concerns, and individuals who have been subjected to misconduct can contact OIEC at 303-492-2127 or email CUreport@colorado.edu. Information about university policies, reporting options, and support resources including confidential services can be found on the OIEC website.

Please know that faculty and graduate instructors must inform OIEC when they are made aware of incidents related to these policies regardless of when or where something occurred. This is to ensure that individuals impacted receive outreach from OIEC about resolution

options and support resources. To learn more about reporting and support for a variety of concerns, visit the Don't Ignore It page.

Religious Accommodations

Campus policy requires faculty to provide reasonable accommodations for students who, because of religious obligations, have conflicts with scheduled exams, assignments or required attendance. Please communicate the need for a religious accommodation in a timely manner. In this class, please notify me two weeks prior to missing any lectures, coursework, or exams.

See the campus policy regarding religious observances for full details.

Mental Health and Wellness

The University of Colorado Boulder is committed to the well-being of all students. If you are struggling with personal stressors, mental health or substance use concerns that are impacting academic or daily life, please contact Counseling and Psychiatric Services (CAPS) located in C4C or call (303) 492-2277, 24/7.

Free and unlimited telehealth is also available through Academic Live Care. The Academic Live Care site also provides information about additional wellness services on campus that are available to students.

Tentative Course Schedule:

Week	Tentative Course Outline	Due Dates
Week 1 (1/13-1/17)	• Introduction • Chapter 1 Picturing Distributions with Graphs • Chapter 2 Describing Distribution with Numbers	• Practice Assignment
Week 2 (1/20-1/24)	• **MLK Day (No Class 1/20)** • Chapter 12 Introduction to Probability • Chapter 13 General Rules of Probability	• HW1 (Ch 1,2)
Week 3 (1/27-1/31)	• **R Day 1 (Tuesday, 1/28 – Bring laptop)** • Chapter 14 Binomial Distributions • Chapter 3 The Normal Distributions	• HW2 (Ch12,13) • Quiz1 (Ch 1,2) • R1, R2
Week 4 (2/3-2/7)	• Distribution • Expectation • Variance	• HW3 (Ch 3,14) • Quiz2 (Ch 12,13)
Week 5 (2/10-2/14)	• **R Day 2 (Tuesday, 2/11 – Bring laptop)** • Chapter 8 Producing Data: Sampling • Chapter 9 Producing Data: Experiments	• R3 • HW4 (D,E,V) • Quiz3 (Ch 3,14)
Week 6 (2/17-2/21)	• Chapter 15 Sampling Distributions • Estimation • **R Day 3 (Tuesday, 2/18 – Bring laptop)**	• HW5 (Ch 8,9) • Quiz4 (Ch D,E,V) • R4
Week 7 (2/24-2/28)	• Midterm Review • **MT1 (Thursday, 2/27)**	
Week 8 (3/3-3/7)	• **R Day 4 (Tuesday, 3/4 – Bring laptop)** • Chapter 16 Confidence Intervals: The Basics • Chapter 17 Tests of Significance: The Basics	• HW6 (E,15) • HW7 (16) • Quiz5 (Ch 8,9)
Week 9 (3/10-3/14)	• Chapter 18 Inference in Practice • **R Day 5 (Tuesday, 3/11 – Bring laptop)** • Chapter 20 Inference about a population mean	• R5 • HW8 (Ch 17) • Quiz6 (Ch 15,16)
Week 10 (3/17-3/21)	• Chapter 20 Inference about a population mean • Chapter 21 Comparing Two Means	• R6 • HW9 (Ch 18) • Quiz7 (Ch 17)
Week 11 (3/24-3/28)	• **Spring Break (No classes)** • **Woot! Woot!**	
Week 12 (3/31-4/4)	• Chapter 6 Two Way Tables • Chapter 4 Scatter Plots • Chapter 5 Regressions	• HW10 (Ch 20,21) • Quiz8 (Ch 18) • R7
Week 13 (4/7-4/11)	• Midterm Review • **MT2 (Thursday, 4/10)**	
Week 14 (4/14-4/18)	• Chapter 5 Regressions • Chapter 26 Inference for Regressions	• HW11 (Ch 4,6) • Quiz9 (Ch 20,21)
Week 15 (4/21-4/25)	• Chapter 26 Inference for Regressions • **R Day 6 (Tuesday, 4/22 – Bring laptop)**	• HW12 (Ch 5) • Quiz10 (Ch4,6) • R8
Week 16 (4/28-5/2)	• Review • **Reading Day (No class 5/2)**	• R9 • HW13 (Ch 26) • Quiz11 (Ch 5)

HW and Quizzes are due Friday 11:59 PM unless otherwise announced.

R-exercises are due Tuesday in recitation.

****Note, week 16 assignments are due Thursday 11:59 PM due to reading day.***