

ECON-3818-020 - Introduction to Statistics with Computer

TA's Office Hours: Tuesdays from 10:00 AM - 2:00 PM.

You can attend your TA's office hours by clicking on the link below:

<https://cuboulder.zoom.us/j/2519570627>

Prerequisites: To enroll in this course, students must have completed Econ 2010 and Econ 2020 and either Econ 1088 or Math 1081 or Math 1300 or Math 1310 or APPM 1350 (all minimum grade C-).

Class Technology:

- R Programming: This course provides practical hands-on training in using statistical software for empirical economics analysis. We will be using R (an open source programming language for statistical analysis and graphics).
- Achieve Learning System: The course will use the Macmillan Publishing, Achieve learning system for homework, and some quiz assignments. There are instructions to sign up for Achieve through Canvas found in the "To Do Before Class Starts Module".
- Clickers: The class and recitation sections will use clickers. Answers to clickers questions will be used for class attendance and will be a part of your grade. You will need to sign up for iClicker Reef.

Textbook:

- The Basic Practice of Statistics, 9th Edition, by David Moore, William Motz, and Michael Fligner. The course will use MacMillan Publishing's Achieve homework system that comes with an electronic version of the book embedded in the system. You will sign up for the Basic Practice of Statistics Achieve System (\$2.35 before tax) through Canvas.

Attendance: Classes are interactive, and you will get the most out of this course by attending each class meeting. I will randomly take attendance at the beginning, middle, or the end of the class. You will be allowed up to 9 absences without penalty. Students with more than 9 absences (three weeks of class throughout the semester) will fail the course. Note that there are no additional absences available for "standby" or "excused" reasons (illness, family emergency, transportation problem, etc.).

Canvas website: Please make sure to check Canvas regularly for lecture notes, problem sets, announcements, and other updates regarding the course.

Problem Sets: There will be a number of problem sets. You may work with a partner and turn in a single document. The problem sets consist of multiple choices, coding in R, statistical reasoning and inference, and etc.. You are encouraged to form study groups of two. Each group should submit their answers, code, results, analysis, and interpretation only one copy. Assignments should be submitted on Canvas by the due dates. There will be incentives to turn in your assignment on time. I will apply a 20% penalty to an assignment turned in after the deadline, for delays of at most 24 hours. As an extra chance your lowest problem set grade will be dropped. You could change your partner if you feel your group isn't as productive as you expected.

Final Research Paper: The goal of this project is to give you the opportunity to apply your knowledge over a real world data set and practice the principles of statistical reasoning and inference. For example, in your paper you would need to describe your data with graphs and numbers, define the hypotheses, perform simple linear regression models over your data set, test your hypotheses, and do inference analysis. You are highly encouraged to form study groups of two. You will write a paper on a topic of interest to you focusing on analysis of relevant data. You should submit your codes, results, figures, tables, analysis, and

Important Dates	Midterm, Research Paper, & Presentations
Midterm Exam	3/7 and 3/9
Project Meetings	3/14, 3/16, and 3/18
Spring Break	3/21 to 3/25
Research Paper Due	4/16, by 11:59 pm
Research Paper Presentations	04/18 to 04/27

Tentative Course Outline:

Tentative Schedule	Resource: The Basic Practice of Statistics, 9th Edition, by David Moore, William Motz, and Michael Fligner.
R Tutorial	Introduction to R
Chapter 0	Getting Started
Chapter 1 & R Tutorial	Picturing Distributions with Graphs
Chapter 2 & R Tutorial	Describing Distributions with Numbers
Chapter 3 & R Tutorial	The Normal Distributions
Chapter 4 & R Tutorial	Scatterplots and Correlation
Chapter 5 & R Tutorial	Regression
Chapter 6	Two-Way Tables
Chapter 8	Sampling
Chapter 9	Experiments
Chapter 12	Introducing Probability
Chapter 13	General Rules of Probability
Chapter 14	Binomial Distributions & Mathematical Expectation
Chapter 15	Sampling Distributions

University Policies:

Classroom Behavior: Both students and faculty are responsible for maintaining an appropriate learning environment in all instructional settings, whether in person, remote or online. Those who fail 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, political affiliation or political philosophy. For more information, see the policies on [classroom behavior](#) and the [Student Code of Conduct](#).

Requirements for COVID-19: As a matter of public health and safety due to the pandemic, all members of the CU Boulder community and all visitors to campus must follow university, department and building requirements, and public health orders in place to reduce the risk of spreading infectious disease. Required safety measures at CU Boulder relevant to the classroom setting include:

- maintain 6-foot distancing when possible,

- wear a face covering in public indoor spaces and outdoors while on campus consistent with state and county health orders,

- clean local work area,

- practice hand hygiene,

- follow public health orders, and

- if sick and you live on campus, do not come onto campus (unless instructed by a CU Healthcare professional), or if you live on-campus, please alert

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 policy may include: plagiarism, 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. All incidents of academic misconduct will be reported to the Honor Code (honor@colorado.edu; 303-492-5550). Students who are found responsible for violating the academic integrity policy will be subject to nonacademic sanctions from the Honor Code as well as academic sanctions from the faculty member. Additional information regarding the Honor Code academic integrity policy can be found at the [Honor Code O ce website](#).

Sexual Misconduct, Discrimination, Harassment and/or Related Retaliation: The University of Colorado Boulder (CU Boulder) is committed to fostering a positive and welcoming learning, working, and living environment. CU Boulder will not tolerate acts of sexual misconduct (including sexual assault, exploitation, harassment, dating or domestic violence, and stalking), discrimination, and harassment by members of our community. Individuals who believe they have been subject to misconduct or retaliatory actions for reporting a concern should contact the Office of Institutional Equity and Compliance (OIEC) at 303-492- 2127 or cureport@colorado.edu. Information about the OIEC, university policies, [anonymous reporting](#), and the campus resources can be found on the [OIEC website](#). Please know that faculty and instructors have a responsibility to inform OIEC when made aware of incidents of sexual misconduct, discrimination, harassment and/or related retaliation, to ensure that individuals impacted receive information about options for reporting and support resources.

Religious Observances: Campus policy regarding religious observances requires that faculty make every effort to deal reasonably and fairly with all students who, because of religious obligations, have conflicts with scheduled exams, assignments or required attendance. See [campus policy regarding religious observances](#) for full details.