

Instructor: Herb Newhouse (hnewhouse@ucsd.edu)
Lectures: MWF 9:00 – 9:50 am

Course webpage: <https://canvas.ucsd.edu/>
Discussions: W 7:00 – 7:50 pm

TAs: Aleksandr Levkum (alevkun@ucsd.edu) and Julian Martinez Iriarte (yum024@ucsd.edu)
The instructor and TA office hours will be held online. Further information will be posted on Canvas.

This course examines how economic agents make decisions under conditions of uncertainty. It examines the various ways in which economists represent the phenomenon of uncertainty, the fundamental principles of choice under uncertainty, the concepts and measurement of “risk” and “risk aversion,” and the analysis of how these features influence economic behavior. In the process of presenting this material, we will examine laboratory methods for eliciting and testing hypotheses about attitudes toward risk, the representation and elicitation of uncertain beliefs, intertemporal choice under uncertainty, psychological evidence and other “paradoxes” that attack the standard economic approach, and current research in light of this evidence.

Prerequisites:

Econ 100A and Econ 120A or ECE 109 or Math 180A or Math 183 or Math 186.

Planned structure:

The topics covered in this course will be presented in a hybrid format, with flexible use of the classroom time and lectures delivered online. The first lecture will be primarily organizational and administrative. I will also provide you with quick overview about the material we will cover during the second lecture.

Before each lecture, I will ask you to watch the appropriate parts of podcasts from former classes. During that time, I encourage you to fill in the incomplete PowerPoint notes that will be available on Canvas.

At the start of each lecture, I will briefly review the material that was covered in the podcast. During this review you will have the opportunity to ask questions. You will then be given problems to work. You will have the opportunity to ask a TA or me for help with the problems. We will then go over the problems and finish with a quick overview about the material we will cover during the next lecture.

Lectures, discussion sections and review sessions will be recorded.

Grading:

My prediction of how I will assess you in this course is:

Grades are based on completing a weekly checklist (5%), a week two use of technology quiz (2%) and exams (93%). The weekly checklist is on Canvas. Your score will be based on the percentage of weekly checklists you complete. Your lowest two weeks will be dropped. There will be four exams. Your lowest score will be dropped.

Note: If you miss a weekly checklist or exam because of illness, your score for that assignment will be a zero. That assignment will use up one of your drops for that category. I suggest treating all assignments as if they will count towards your final grade.

Exams will be held during our normal class or final exam times. Midterm 1 will be held on Monday, October 19th. Midterm 2 will be held on Wednesday, November 4th. Midterm 3 will be held on Monday, November 23rd. The final exam will be held on Wednesday, December 16th during some time period between 8:00 and 11:00 am. If you know in advance that you cannot make an exam, please let me know as soon as possible.

You are only permitted to use pens and pencils, a straight edge and a **single** note sheet during each exam. Calculators are **not** permitted. The note sheet can be any physical size up to 8.5” by 11”. It may **only** have

handwritten notes on both sides. Typed or mechanically reproduced notes are not permitted. Do **not** attach anything to your note sheet.

While I will do what I can to keep to the predicted assessments for this course, the evolving situation may make it necessary for me to make changes.

Academic dishonesty:

I take academic dishonesty seriously. Any student found guilty of academic dishonesty will most likely earn a failing grade for the course. In addition to this sanction, the Council of Deans of Student Affairs will also impose a disciplinary penalty. For a review of UCSD policy, please see <http://www-senate.ucsd.edu/manual/appendices/app2.htm>.

We will likely use Zoom/Respondus Monitor for proctoring this quarter. These programs use video and audio recording or other personal information capture for the purpose of facilitating the course and/or test environment. UC San Diego does not allow vendors to use this information for other purposes. Recordings will be deleted when no longer necessary. However, if cheating is suspected, the recording may become part of the student's administrative disciplinary record. Finally, I reserve the right to give an oral test if I feel it is necessary to uphold academic integrity.

Regrade requests:

Regrade requests may be submitted via Gradescope during the weeklong regrade period. The regrade period will probably begin a day or two after the exam results are made available to the class. Please do not contact the instructor or any of the TAs regarding the grading of an exam or the grading for the course before the regrade period begins. If your TA agrees with your request, your score for that question will be corrected. If your TA disagrees with your request, you will lose 1 point for each midterm question and 2 points for each final exam question.

Optional Reference:

Intro to Decision Theory by Peterson. Additional references will be given in some sets of notes. These references are not required but may help your understanding of the material.

Problem Sets:

Problem sets will be available online. We will go over these questions in office hours and in the discussion sections. Your best practice for the exams is to try these questions yourself first.

Preliminary Course Outline:

1. Introduction: Aspects of Decision Making Under Uncertainty
 - a. Positive decision theory vs. normative decision theory.
 - b. The representation of uncertainty.
 - c. Criteria for choice under uncertainty
2. Preliminary Concepts in Probability Theory
 - a. Probability distributions and cumulative distribution functions.
 - b. Expected value, variance and skewness.
 - c. Concave functions, convex functions.
 - d. Conditional probability and Bayes' Law.
 - e. Compound lotteries and probability mixtures.
3. Expected Utility Risk Preferences
 - a. Expected utility preferences over lotteries.
 - b. The axioms of expected utility theory.

- c. The expected utility representation theorem.
- 4. Risk and Risk Aversion
 - a. Certainty equivalents, risk premiums and attitudes toward risk.
 - b. The Arrow-Pratt characterization of comparative risk aversion.
 - c. Comparative risk and the theory of stochastic dominance.
 - d. Comparative statics of risk and risk aversion.
- 5. Techniques for Assessing Risk Preferences and Beliefs
 - a. Methodological issues and basic techniques.
 - b. Assessing von Neumann-Morgenstern utility functions.
- 6. Prospect Theory
- 7. Updating Beliefs
- 8. Subjective Uncertainty (time permitting)