

ECON 3640-002 PROBABILITY & STATISTICAL INFERENCE

Spring 2019

Instructor:	Márcio Santetti	Time:	TH 12:25pm – 1:45pm
Email:	santetti.phd@outlook.com	Place:	GC 2675

Course Page:

1. [Canvas course page](#)

Office Hours: Before or after class, or by appointment via email.

Main References: In addition to our class notes, these are the most useful references to the covered topics:

- Gerald Keller, *Statistics for Management and Economics*, 10th edition, South-Western/Cengage, 2014.
- Dominick Salvatore and Derrick Reagle, *Schaum's outlines of Theory and Problems of Statistics and Econometrics*, 2nd edition, McGraw-Hill, 2002.
- **[Optional]** Robert Hogg and Elliot Tanis, *Probability and Statistical Inference*, Pearson Educational International, 2009.

Course Overview: This course is primarily designed to help undergraduate students in understanding the basic foundations of statistics. At first, we will study the fundamental concepts of descriptive statistics. Secondly, the focus is on probability theory and its connections with discrete and continuous distributions (e.g., Binomial, Poisson, Uniform, Normal, Chi-squared and F). Thirdly, our aim is to analyze statistical inference with respect to different parameters, such as population means and variances, by means of estimation techniques.

Prerequisites: College algebra, ECON 2010 and ECON 2020.

Course Outline: The course will be divided in three main sections: (i) descriptive statistics (until Midterm #1), (ii) probability theory and distributions (until Midterm #2), and (iii) statistical inference (until the Final exam, which will be comprehensive).

Course Outcomes:

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

1. Understand the main tools to statistically describe a sample/population, by means of quantitative measures and visual reports;
2. Comprehend the main components of probability theory, and how the latter is linked to real data sets and their respective probability distributions;
3. Perform estimation techniques that will allow you to describe an entire population by means of sample statistics, such as constructing confidence intervals and implementing hypothesis testing;
4. Build the elementary foundations to move on to more complex statistical applications, such as those seen in Econometrics and other applied areas of knowledge.

Grading Policy: Midterm #1 (30%) + Midterm #2 (30%) + Final exam (40%).
Additional points will be added to the final grade due to class attendance.

Extra credit: I personally like to engage students to participate in class and help to solve in-class problems. In exchange, they can get extra credit for exams. Therefore, many opportunities will be announced in class for extra credit.

Important Dates:

Midterm #1	Feb 7
Fall Break	March 10-17
Midterm #2	March 28
Final Exam	April 25, 10:30am-12:30pm

Letter Grade Distribution: The grading system follows these standards:

- Excellent, superior performance: A (90-100%), A- (85-89.9%)
- Good performance: B+ (80-84.9%), B (75-79.9%), B- (70-74.9%)
- Standard performance: C+ (65-69.9%), C (60-64.4%), C- (55-59.9%)
- Substandard performance: D+ (50-54.9%), D (45-49.9%), D- (40-44.9%)
- Unsatisfactory performance: E (0-39.9%)

Assignment and Exam Details:

- **Assignments:** I do not ask students to turn in any assignment during the semester. My approach is to give at least two problem sets regarding each part of the course, and give them freedom to work on them with no deadline. The idea is to allow students to apply the content learned in class on specific problems as a means to prepare for the exams. Therefore, you take your own time to work through the problems with no commitment of returning them to the instructor.
- **Midterms:** Midterms #1 and #2 will focus on the studied contents on descriptive statistics and probability theory, respectively. The second midterm is not comprehensive; therefore, it will refer only to the second part of the course.
- **Final Exam:** the final exam is comprehensive, asking students to work on problems referring to all three blocks of the course. However, the main focus obviously relies on the third and last part of the content.
- **Required material:** All exams are closed-book, with no notes or handouts allowed. Students can, and should, use a scientific calculator to perform quantitative assessments. I provide all necessary and useful formulas attached to each exam, so the time-consuming effort to memorize formulas is taken out of the equation. For Midterm #2 and the Final exam, a few probability tables will be required from each student, and they will be posted on Canvas and must be used in paper form.

Class Policies:

You can expect me to:

- Grade and provide feedback on exams until the class following an exam day;
- Reply to emails within 24 hours during the week and within 48 hours on weekends, holidays and break weeks;
- Be readily available to answer students on their doubts and general concerns, via email or immediately after class or at a specific time that works for both of us.

I expect you to:

- Come to class in time.

- Attend class. While it is not a component of your grade, attendance is expected at all classes; you will be responsible for all material covered in class. You are not required to let me know if you will be missing class. In the event you do miss class, you may check with another students to check his/her notes or directly with me, so the specific parts of one of the books will be recommended for you to read.
- Take the exams on the scheduled dates. No make-up exams will be allowed.
- Come to class prepared (having reviewed the previous class content) and respectfully participate in-class discussions and activities.
- Immediately notify me in the event of an emergency that prevents you from doing an exam or completing the course.
- Ask questions if any expectations or assignments are unclear.
- Be courteous of your instructor and fellow classmates when using technology. Always give speakers your full attention and make sure that any use of technology during class enhances your learning and does not distract you or others from course content.

Institutional Policies and Procedures:

Faculty and Student Responsibilities:

All students are expected to maintain professional behavior in the classroom setting, according to the Student Code, spelled out in the Student Handbook. Students have specific rights in the classroom as detailed in Article III of the Code. The Code also specifies proscribed conduct (Article XI) that involves cheating on tests, plagiarism, and/or collusion, as well as fraud, theft, etc. Students should read the Code carefully and know they are responsible for the content. According to Faculty Rules and Regulations, it is the faculty responsibility to enforce responsible classroom behaviors, beginning with verbal warnings and progressing to dismissal from class and failing grade. Students have the right to appeal such action to the Student Behavior Committee. "Faculty . . . must strive in the classroom to maintain a climate conducive to thinking and learning." PPM 8-12.3, B.

"Students have a right to support and assistance from the University in maintaining a climate conducive to thinking and learning." PPM 8-10, II. A.

Wellness Statement:

Personal concerns such as stress, anxiety, relationship difficulties, depression, cross-cultural differences, etc., can interfere with a students ability to succeed and thrive at the University of Utah. For helpful resources contact the Center for Student Wellness: www.wellness.utah.edu 801-581-7776.

Student Names & Personal Pronouns:

Class rosters are provided to the instructor with the students legal name as well as "Preferred first name" (if previously entered by you in the student profile section of your CIS account). While CIS refers to this as merely a preference, I will honor you by referring to you with the name and pronoun that feels best for you in class, on papers, exams, group projects, etc. Please advise me of any name or pronoun changes (and update CIS) so I can help create a learning environment in which you, your name, and your pronoun will be respected.

Academic Dishonesty:

The instructor of this course will take appropriate actions in response to Academic Dishonesty, as defined the Universitys Student Code. Acts of academic dishonesty include but are not limited to:

- Cheating: using, attempting to use, or providing others with any unauthorized assistance in taking quizzes, tests, examinations, or in any other academic exercise or activity. Unauthorized assistance includes:

Working in a group when the instructor has designated that the quiz, test, examination, or any other academic exercise or activity be done individually;

Depending on the aid of sources beyond those authorized by the instructor in writing papers, preparing reports, solving problems, or carrying out other assignments;

Substituting for another student, or permitting another student to substitute for oneself, in taking an examination or preparing academic work;

Acquiring tests or other academic material belonging to a faculty member, staff member, or another student without express permission;

Continuing to write after time has been called on a quiz, test, examination, or any other academic exercise or activity;

Submitting substantially the same work for credit in more than one class, except with prior approval of the instructor; or engaging in any form of research fraud.

- Falsification: altering or fabricating any information or citation in an academic exercise or activity.
- Plagiarism: representing, by paraphrase or direct quotation, the published or unpublished work of another person as one's own in any academic exercise or activity without full and clear acknowledgment. It also includes using materials prepared by another person or by an agency engaged in the sale of term papers or other academic materials.

Sexual Harassment:

Title IX of the Education Amendments of 1972 prohibits sex discrimination against any participant in an educational program or activity that receives federal funds. The act is intended to eliminate sex discrimination in education. Title IX covers discrimination in programs, admissions, activities, and student-to-student sexual harassment. It is the policy of the University of Utah to maintain an academic and work environment free of sexual harassment for students, faculty, staff and participants. A claim under this policy may be brought by any faculty, staff member, student or participant based on the conduct of any University employee or student that is related to or in the course of University business. A claim may also be brought by an administrator acting on behalf of the University. The Office of Equal Opportunity and Affirmative Action (OEO/AA) will handle all alleged sexual harassment matters pursuant to the Procedures set forth in Policy 5-210.

Any student, staff, faculty member, or participant in university services or activities who believes that there is or has been sexual harassment should contact any of the following:

- the cognizant academic chair of the department or the dean of the college within which the conduct occurred;
- the immediate supervisor or director of the operational unit within which the conduct occurred;
- the Human Resources Division (Address: 420 Wakara Way, Suite 105, Salt Lake City, Utah 84108; Phone: 801-581-2169; TDD: 801-585-9070);
- directors or deans of Student Affairs and Services (Associate Dean - SW 108; Phone: 801-581- 8828);
- or the Office of Equal Opportunity and Affirmative Action (201 South Presidents Circle, John Park Building, Room 135, Salt Lake City, Utah 84112; Phone/TDD: 801-581-8365).

Once informed, the supervisor, chair or dean shall consult with OEO/AA. Similarly, OEO/AA shall advise as appropriate the cognizant dean, staff director or administrator of any complaints of sexual harassment OEO/AA receives concerning a member of the faculty, staff or student body.

Withdrawal Policy and “I” Grade Policy:

Failure to withdraw from school results in a E or EU grade being recorded in all classes. Students may officially withdraw (*W*) from a class or all classes after the drop deadline through the midpoint of a course. A *W* grade is recorded on the transcript and appropriate tuition/fees are assessed. The grade of *W* is not used in calculating the students GPA.

An Incomplete grade can be given for work not completed due to circumstances beyond your control. You must be passing the course and have completed at least 80% of the required coursework. Arrangements must be made between you and the instructor concerning the completion of the work. You may not retake a course without paying tuition. If you attend class during a subsequent term, in an effort to complete the coursework, you must register for the course. Once the work has been completed, the instructor submits the grade to the Registrars Office. The *I* grade will change to an *E* if a new grade is not reported within one year. A written agreement between you and the instructor may specify the grade to be given if the work is not completed within one year. Copies of the agreement are kept by the instructor and the academic department.

Americans with Disabilities Act (ADA) Statement:

The University of Utah seeks to provide equal access to its programs, services and activities for people with disabilities. If you will need accommodations in the class, reasonable prior notice needs to be given to the Center for Disability Services, 162 Olpin Union Building, 581-5020 (V/TDD). CDS will work with you and the instructor to make arrangements for accommodations. All written information in this course can be made available in alternative format with prior notification to the Center for Disability Services.

Additionally, the University endeavors to provide reasonable accommodations and to ensure equal access to qualified persons with disabilities. Inquiries concerning perceived discrimination or requests for disability accommodations may be referred to the University's Title IX/ADA/Section 504 Coordinator: Director, Office of Equal Opportunity and Affirmative Action, 201 South Presidents Circle, Rm. 135, Salt Lake City, UT, 84112. 801-581-8365 (voice/tdd), 801-585-5746 (fax). www.oeo.utah.edu.