



**Econ 3640-090/290 Probability and Statistical Inference for Economists**

Fall 2023, 3 credit hours

Online

**Instructor:** Ari Fenn

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**Office Hours:** Online by appointment.

## 1 Course Description

This course will expose students to the statistical tools of an economist. These include summarizing data both graphically and numerically, basic probability, inference, and hypothesis testing.

## 2 Learning Objectives

To show mastery of the subject by the end of the semester, the student will be able to:

1. Conduct basic analysis of data:
  - (a) Examining a data set and constructing graphical and numerical summaries;
  - (b) Applying tools of statistical inference based on point and interval estimation and testing hypotheses;
  - (c) Critically evaluating statistical results and communicating the implications in simple language to a general audience;
2. Understanding the difference between correlation and causation.

## 3 Teaching and Learning Methods

Instruction will consist of videos available on Canvas. The posted videos and the required reading will be the basis for the weekly quizzes, the midterm, and the final.

## 4 Prerequisites

Econ 2010(BUS 2010),2020 and Math 1090

## 5 Required Text

This course uses *Practice of Statistics for Business and Economics*, 5<sup>th</sup> edition by Layth C. Alwan, Bruce A. Craig, and George P. McCabe. This book is included with the course on Canvas Inclusive Access. Supplemental readings and materials will be posted on Canvas as needed.

## 6 Computer Software

This course will use R [here](#) and R Studio [here](#). If your computer does not support R and R Studio, the university provides access to virtual machines through Citrix and is available [here](#).

## 7 Grading

Grades will be determined by the following components: weekly quizzes, a midterm exam, and a final exam.

Grade Weights

Category	Percentage of Grade
Quizzes	30
Midterm	35
Final	35

### 7.1 Quizzes

There will be weekly quizzes. These quizzes are due at 11:59 p.m. on the week they are assigned. The quizzes are multiple-choice and will be completed on Canvas. There is one attempt per quiz, and once started, there will be one hour allotted to complete the quiz. I will accept late quizzes up to ten days after the initial due date. Each day that a quiz is late, the maximum points available will decrease by ten percentage points, e.x. a one-day late quiz with a score of 100% will be worth 90%. The purpose of these quizzes is to ensure that content is being interacted with weekly.

### 7.2 Midterm

There will be one midterm. This midterm will be a mix of multiple-choice questions that will be completed on Canvas and long-format questions which will be uploaded to Canvas. There will be two hours allowed for the multiple-choice section of the test, which will open on Monday, October 2, 2023, at 12:00 a.m. and close on Sunday, October 8, 2023 at 11:59

p.m. Only **ONE** attempt is allowed for the multiple choice section; ensure you have two hours to dedicate to completing the questions. The long-format section of the midterm will be released on Monday, October 2, 2023, at 12:00 a.m. and is due by Sunday, October 8, 2023 at 11:59 p.m.

### 7.3 Final

The final will be comprehensive but with extra emphasis placed on chapters covered after the midterm. The final will be in the same format as the midterm. The final will open on Friday, December 8, 2023 at 12:00 a.m., and must be completed by Friday, December 15, 2023 at 11:59 p.m.

### 7.4 Grading Scheme

Letter Grade Range

Letter Grade	Percentage Points	University Defined Performance
A	$\geq 93$	Excellent performance, superior achievement
A-	92.99 - 90.00	
B+	89.99 - 88.00	Good performance, substantial achievement
B	87.99 - 82.00	
B-	81.99 - 80.00	
C+	79.99 - 76.00	Standard performance and achievement
C	75.99 - 69.00	
C-	68.99 - 65.00	
D+	64.99 - 61.00	Substandard performance, marginal achievement
D	60.99 - 54.00	
D-	53.99 - 50.00	
E	$\leq 49.99$	Unsatisfactory performance and achievement

## 8 Schedule

### Class Schedule

Date	Topic	Reading
8/21	Introduction, Examining Distributions	A <sup>a</sup> 1
8/28	Examining Relationships	A 2
9/1	<b>**Last Day to Drop**</b>	
9/4	Producing Data	A 3
9/11	Probability	A 4.1 & 4.2
9/18	Probability cont'd	A 4.3
9/25	Random Variables	A 5.1 & A 5.2
10/2	Midterm	
10/9	Fall Break	
10/16	Distributions	A 5.3 & A 5.4
10/20	<b>***Last Day to Withdraw***</b>	
10/23	Sampling Distributions	A 6
10/30	Introduction to Inference	A 7
11/6	Inference for Means	A 8
11/13	One-Way ANOVA	A 9
11/20	Inference for Proportions	A 10
11/27	Inference for Categorical Data	A 11
12/4	Non-Parametric Tests	A 17
12/11	Final (Released 12/8/23)	

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<sup>a</sup>Alwan, Craig, and McCabe

## 9 Course Policies

### Communication

My preferred method of communication is through Canvas. Since I am an adjunct and work a traditional work schedule, it will be hard for me to answer emails during regular business hours. I will try to respond to messages as close to 5:00 p.m. Mountain Time as possible. In the event of an emergency, please use my Umail with the subject "Econ 3640: Urgent".

### Online Test Taking Policies

The tests and quizzes are online through Canvas. Therefore, they are inherently open book and open notes, though the time limits encourage studying before taking the quizzes or tests. I would prefer you did not work with classmates, though I cannot stop anyone from doing this.

## **Distribution of Course Materials**

I ask that students do not distribute lectures, test questions, quiz questions, or any other course material without my prior written consent.

## **10 University Policies and Additional Resources**

### **The Americans with Disabilities Act**

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 this class, reasonable prior notice needs to be given to the Center for Disability Services, 162 Olpin Union Building, (801) 581-5020. CDS will work with you and the instructor to make arrangements for accommodations. All written information in this course can be made available in an alternative format with prior notification to the Center for Disability Services.

### **Addressing Sexual Misconduct**

Title IX makes it clear that violence and harassment based on sex and gender (which includes sexual orientation and gender identity/expression) is a civil rights offense subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, color, religion, age, status as a person with a disability, veteran's status or genetic information. If you or someone you know has been harassed or assaulted, you are encouraged to report it to the Title IX Coordinator in the Office of Equal Opportunity and Affirmative Action, 135 Park Building, 801-581-8365, or the Office of the Dean of Students, 270 Union Building, 801-581-7066. For support and confidential consultation, contact the Center for Student Wellness, 426 SSB, 801-581-7776. To report to the police, contact the Department of Public Safety at 801-585-2677(COPS).

### **Faculty and Student Responsibilities**

All students are expected to maintain professional behavior in the classroom setting, according to the Student Code (Policy 6-400), 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 (Policy 6-316), it is the faculty responsibility to enforce responsible classroom behaviors, beginning with verbal warnings and progressing to dismissal from class and a failing grade. Students have the right to appeal such action to the Student Behavior Committee.

## **Student Academic Conduct**

Student Academic Conduct: In order to ensure that the highest standards of academic conduct are promoted and supported at the University, students must adhere to generally accepted standards of academic honesty, including but not limited to refraining from cheating, plagiarizing, research misconduct misrepresenting one's work, and/or inappropriately collaborating. Complete policies available at: <https://regulations.utah.edu/academics/guides/students/index.php>

## **Student Wellness**

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

## **Safety Statement**

The University of Utah values the safety of all campus community members. To report suspicious activity or to request a courtesy escort, call campus police at 801-585-COPS (801-585-2677). You will receive important emergency alerts and safety messages regarding campus safety via text message. For more information regarding safety and to view available training resources, including helpful videos, visit <https://safeu.utah.edu/>.