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Course Syllabus  
University of Colorado, Boulder  
Introduction to Statistics with Computer Application  
Economics 3818-100  
Summer 2018

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Office Hours: T 1:45-3:15 p.m., TH 1:45-3:15p.m. and by appointment

Classroom: Hellems 241  
Class Meeting Time: M-F 9:15-10:50 a.m.

#### Required Textbook

**The Basic Practice of Statistics, 8<sup>th</sup> Edition**, by David Moore, William Motz, and Michael Fligner. The course uses the Sapling Learning system provided by the publisher. There is no charge for this service and it comes with free access to an online version of the book. The book, in bound and loose-leaf version, is also available at the bookstore if you want a hard copy.

#### Class Technology

##### **Sapling Learning System**

The course will use the Sapling Learning system for homework and some quizzes. I will provide you a sign-up code by email and you can establish your Sapling Learning account free of charge. You must use this system for homework and select quizzes.

**Clickers** - The class and sections will use clickers and therefore you will need to bring your clicker to every class and section.

**Hand Held Calculator** – You will need a calculator to do calculations in class, particularly during exams. You cannot use your phone or borrow your neighbor's calculator during exams. Graphing calculators that have built-in statistical functions are recommended, e.g. TI-83 or TI-84. You will need to be versed in using these calculators for exams.

**Excel** – Homework and recitation will involve the use of Microsoft Excel.

#### Class Support

For the summer, your main support sources are the professor, the teaching assistants, and the Sapling learning system. Through the book viewed on Sapling, there are also many practice problems with answers. These, combined with homework assignments will help you learn the material. If you are struggling, see the professor or teaching assistant for help. It is important for you to keep up, particularly since this is a summer session and we have a lot of material to cover.

## Course Overview

The purpose of this course is to introduce you to the principles of statistical reasoning and inference. To this end the ultimate goals of the course are for you to thoroughly understand the following concepts: basic probability including mathematical expectation, sampling distributions, hypothesis testing, and confidence intervals across multiple settings covered in the course. This foundational course is essential to your success in the study of economics. CU economics 4000-level courses require knowledge of basic statistical reasoning and understanding. Further our required econometrics courses build directly off of this course.

The course consists of five closely related parts. The first part of the course introduces ways to explore data using visual and numerical summary methods. The second part of the course provides an overview of how data is properly collected. The third part of the course introduces you to basic probability theory, major discrete and continuous probability distributions, and mathematical expectation. The fourth part of the course introduces you to sampling distributions, confidence intervals, and hypothesis testing. The fifth and final part of the course is all applied statistical inference including inference about the mean of a probability distribution, inference about differences in two population means, inference about a single proportion from a population, inference about differences in proportions from two populations, and inference about simple regression.

## Course Topics

Chapter 0 Getting Started

Chapter 1 Picturing Distributions with Graphs

Chapter 2 Describing Distributions with Numbers

Chapter 3 The Normal Distributions

Chapter 4 Scatterplots and Correlation

Chapter 5 Regression

Chapter 6 Two-Way Tables

Chapter 7 Exploring Data: Part I Review

Chapter 8 Producing Data: Sampling

Chapter 9 Producing Data: Experiments

Chapter 10 Data Ethics

Chapter 11 Producing Data: Part II Review

Chapter 12 Introducing Probability

Chapter 13 General Rules of Probability

Chapter 14 Binomial Distributions

Chapter 15 Sampling Distributions

Chapter 16 Confidence Intervals: The Basics

Chapter 17 Tests of Significance: The Basics

Chapter 18 Inference in Practice

Chapter 19 From Data Production to Inference: Part III Review

Chapter 20 Inference about a Population Mean

Chapter 21 Comparing Two Means

Chapter 22 Inference about a Population Proportion  
Chapter 23 Comparing Two Proportions  
Chapter 24 Inference about Variables: Part IV Review  
Chapter 26 Inference for Regression (no testing on this subject)

Prerequisites: 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-). Restricted to students with 22-180 units completed.

#### Evaluation

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|------------------|-----|
| Homework         | 15% |
| Recitation       | 10% |
| In-class Clicker | 5%  |
| Midterm 1        | 20% |
| Midterm 2        | 20% |
| Final            | 30% |

#### Important Dates

June 4 – First Day of Class  
June 13 – Midterm 1  
June 25 – Midterm 2  
July 4 – Independence Day Holiday  
July 6 – Last Day of Class and Final Exam

#### Attendance Policy

Daily attendance will be taken for each class. You must attend a minimum of 80% of the lectures in order to pass the course and separately the recitation. If you miss more than 20% of the lectures, you will receive an automatic F in the course. If you miss more than 20% of the recitations, you receive a zero for the recitation grade. Attendance will be recorded through clicker responses in class.

#### ACCOMMODATION FOR DISABILITIES

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](http://WWW.COLORADO.EDU/DISABILITYSERVICES/STUDENTS) (WWW.COLORADO.EDU/DISABILITYSERVICES/STUDENTS). CONTACT DISABILITY SERVICES AT 303-492-8671 OR [DSINFO@COLORADO.EDU](mailto:DSINFO@COLORADO.EDU) FOR FURTHER ASSISTANCE. IF YOU HAVE A TEMPORARY MEDICAL CONDITION OR INJURY, SEE [TEMPORARY MEDICAL CONDITIONS](#) UNDER THE STUDENTS TAB ON THE DISABILITY SERVICES WEBSITE AND DISCUSS YOUR NEEDS WITH YOUR PROFESSOR.

#### RELIGIOUS HOLIDAYS

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. In this class, *{{insert your procedures here}}*

See the [campus policy regarding religious observances](#) for full details.

#### CLASSROOM BEHAVIOR

Students and faculty each have responsibility for maintaining an appropriate learning environment. 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. Class rosters are provided to the instructor with the student's legal name. I will gladly honor your request to address you by an alternate name or gender pronoun. Please advise me of this preference early in the semester so that I may make appropriate changes to my records. For more information, see the policies on [classroom behavior](#) and the [Student Code of Conduct](#).

#### SEXUAL MISCONDUCT, DISCRIMINATION, HARASSMENT AND/OR RELATED RETALIATION

The University of Colorado Boulder (CU Boulder) is committed to maintaining a positive learning, working, and living environment. CU Boulder will not tolerate acts of sexual misconduct, discrimination, harassment or related retaliation against or by any employee or student. CU's Sexual Misconduct Policy prohibits sexual assault, sexual exploitation, sexual harassment, intimate partner abuse (dating or domestic violence), stalking or related retaliation. CU Boulder's Discrimination and Harassment Policy prohibits discrimination, harassment or related retaliation based on race, color, national origin, sex, pregnancy, age, disability, creed, religion, sexual orientation, gender identity, gender expression, veteran status, political affiliation or political philosophy. Individuals who believe they have been subject to misconduct under either policy should contact the Office of Institutional Equity and Compliance (OIEC) at 303-492-2127. Information about the OIEC, the above referenced policies, and the campus resources available to assist individuals regarding sexual misconduct, discrimination, harassment or related retaliation can be found at the [OIEC website](#).

#### HONOR CODE

All students enrolled in a University of Colorado Boulder course are responsible for knowing and adhering to [the academic integrity policy](#). Violations of the policy may include: plagiarism, cheating, fabrication, lying, bribery, threat, unauthorized access to academic materials, clicker fraud, resubmission, and aiding academic dishonesty. All incidents of academic misconduct will be reported to the Honor Code Council ([honor@colorado.edu](mailto:honor@colorado.edu); 303-735-2273). Students who are found responsible for violating the academic integrity policy will be subject to nonacademic sanctions from the Honor Code Council as well as academic sanctions from the faculty

member. Additional information regarding the academic integrity policy can be found at the [Honor Code Office website](#).