

ECON 2100: Introduction to Business Statistics

Seattle University
Spring 2020

Overview

Any given day, we are inundated with information that we must use to make decisions. Introduction to Business Statistics will help you understand the basic procedures to make sense of data used in the business world. We will begin by describing and visualizing data and then begin to make valid statistical inferences from data.

Prerequisites for this course include successful completion of a course in calculus (MATH 1130, 1331, 1334, or the equivalent) and sophomore standing.

Objectives

Through the successful completion of course work, students will:

- Understand the fundamental concepts of statistics;
- Describe and analyze qualitative and quantitative data;
- Apply basic probability rules and an understanding of unconditional, conditional, and joint probabilities;
- Use Microsoft Excel to generate statistical results;
- Critically evaluate and interpret statistical findings;
- Use of statistics in the analysis of business and economic issues;
- Communicate the results of statistical analysis accurately and concisely;
- Appreciate the complexity of statistical analysis.

Instructor Information

Emily A. Finchum-Mason

Zoom Meeting ID: 321-548-1591

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“Office Hours”: Monday & Wednesday by appointment. *Email me three times in that window that works for you, I will choose the one that works for me.*

Course Logistics

Class Days/Times: MWF from 2-3:30pm via Zoom (linked on Canvas)

Course Videos - Asynchronous Learning Component

A lot of the basic concepts are going to be available as pre-recorded video. You can watch it at your own speed and even rewatch as necessary. Use these videos to generate questions that you will bring to class.

Class Sessions - Synchronous Learning Component

We will not spend a lot of time in our synchronous class sessions doing lectures. Sometimes, I will cover more complex concepts, but this will never take the whole class session. What I want you to be able to do is to bring questions that the videos and readings raise in your mind and ask them via Zoom. Sometimes, we will have in-class projects where I will divide you into Zoom breakout rooms and have you work on a problem in Excel and present your findings to the class in a group debrief. All in-class sessions will be recorded and posted to Canvas for those who are unable to attend on a particular day.

Textbook(s):

- [Understanding Business Statistics](#) by Ned Freed, Stacey Jones, & Timothy Berquist (ebook rental available for only \$33 from VitalSource)
- [Online Statbook](#) by David M. Lane (completely free resource)

Course Communication

Canvas will be the sole source of communications, class resources, grade updates, and assignment feedback. Please sign up for Canvas notifications as soon as possible to keep yourself abreast of new resources. There is a video posted that will help you get acclimated to how things are organized on Canvas also.

Course Grading

Activities	Percent of Grade
Quizzes (<i>best 5 of 7</i>)	15%
Weekly Problem Sets	20%
Exams	30%
Memos (<i>two total</i>)	30%
Participation (<i>including in-class sessions & through online discussions, demonstrating engagement in the course</i>)	5%

Quizzes

Quizzes are nothing more than an accountability mechanism - an incentive for you to do the practice problems and be able to demonstrate your mastery of the course work. There will be seven quizzes given, but I will drop your two lowest scoring quizzes. Quizzes will generally happen on Fridays and will be open on Canvas for 24 hours. There will not be a quiz in Week 1 or Week 10.

Updates on quizzes (as of 4/13/2020):

- Quizzes will generally cover material learned in the previous week (i.e. the quiz that occurs in Week 2 will cover Week 1 content)
- Quiz 1 (which opens on 4/17) will be available for 48 hours instead of the usual 24 so that everyone has a chance to get acclimated to this process
- Quizzes will contain material that we have covered in problem sets or in video lectures
- You may use notes on all assessments in this course
- Assessments will be timed (just as a matter of security) - timing varies according to quiz, but the amount of time

that you will be allotted will be very clearly stated.

Weekly Problem Sets

Practicing these skills is essential for success in this course. You will not learn statistics unless you practice. These assignments are primarily textbook problems (although I might pop in other questions here and there). Problem sets are to be submitted on Wednesday mornings no later than 8am (there is one exception to this in the calendar, so be aware of that). I will post the solution file for you to check out at 9am.

You may submit these problem sets in any format (e.g. Google docs, Excel, Word, PDF, handwritten and scanned), as long as I can read it.

Memos

There will be two brief writing assignments, called memos, that will require you to actually generate statistical results in Excel and present those results to a lay audience without any statistical jargon. This is a great opportunity for you to practice writing in a style that is concise and articulate. Each memo will have three parts, first you will submit the statistical results from Excel, then you will submit a rough draft, and finally you will submit the completed copy. I expect that you will revise your work as we go along. There is a bit of information presented on each of the memo topics below, but much more information is available on the Canvas pages.

Memo #1: Analyzing Home Prices over time in Seattle

Using a random sample of observations of home sales data from 2000 to 2019, you will be analyzing changes in home prices in Seattle. **Maximum: 2 single-spaced pages (includes graphs and diagrams).**

Memo #2: Using the American Community Survey to understand the Gender Wage Gap

Using a random sample of observations from the 2014 American Community Survey, you will describe and analyze wages between male and female full-time, year-round employees. You will then examine how the gap changes as a function of race and ethnicity. **Maximum: 3 single-spaced pages (includes graphs and diagrams).**

Exams

Examinations will be primarily free response (there will not be any multiple choice) and will ask you to demonstrate the skills and knowledge that we have practiced in class.

Participation

There will be many opportunities throughout the quarter to participate in our learning community including through online discussions, in our Zoom sessions (asking and answering questions), and through in-class projects. In-class projects will generally be either Excel assignments or online simulations that you will conduct in Zoom breakout rooms.

Tentative Course Schedule

This schedule is subject to change; it is your responsibility to keep yourself updated on what is on Canvas in the Modules section.

UBS = Understanding Business Statistics

OS = Online Statbook (entirely optional readings/problems)

Date	Topics & Tasks	Readings
Week 1 April 6-10	Introduction to Statistics, Descriptive Statistics, Visualization	Introduction to <i>Damned Lies & Statistics</i> (PDF on Canvas) UBS, Chapters 1 & 2 OS, Chapters 1-4
Week 2 April 13-17	Descriptive Statistics, Visualization, and Correlation Problem Set #1 due Wednesday, April 15th at 8am (answers to be posted at 9am) Quiz 1 - Descriptive Statistics & Visualization (Friday, April 17th)	OS Chapter on Graphing Distributions UBS, Chapter 3
Week 3 April 20-24	MONDAY APRIL 20th: In-Class "Project": Describing Census Data with Excel Introduction to Probability Memo 1 (Part I) due: Home Price Changes, Descriptive Tables and Graphs (Wednesday, April 22nd) Problem Set #2 due Wednesday, April 22nd at 8am (answers to be posted at 9am) Quiz 2 - Interpreting Descriptive Statistics (Friday, April 24th)	UBS, Chapter 4 OS, Chapter 5
Week 4 April 27- May 1	Probability Concepts Bayes Theorem Problem Set #3 due Wednesday, April 29th at 8am (answers to be posted at 9am) Quiz 3 - Introduction to Probability (Friday, May 1st)	UBS, Chapter 4 OS, Chapter 5
Week 5 May 4-8	Memo 1 Rough Draft Due (Monday, May 4th) Discrete Probability Distributions Continuous Probability Distributions Statistical Inference I: Sampling Distributions, Estimating Population Parameters Problem Set #4 due Wednesday, May 6th at 8am Quiz 4: Discrete and Continuous Probability Distributions	UBS, Chapters 5 & 6
Week 6 May 11-15	MIDTERM EXAM (Opens May 11th at 8am, closes May 12th at 8am) Statistical Inference: Estimating Population Parameters Problem Set #5 due Friday, May 15th at 8am Memo 1 Final Draft Due (Friday, May 15th)	UBS Chapter 7 & 8

Date	Topics & Tasks	Readings
Week 7 May 18-22	Statistical Inference: Estimating Population Parameters Problem Set #6 due Wednesday, May 20th at 8am Quiz 5: Estimating Confidence Intervals (Friday, May, 22nd)	**listed in order of priority Healey Chapter 8 (pdf online) UBS, Chapter 9 OS, Chapter 11
Week 8 May 25-29	Hypothesis Testing Memo 2 (Part I) due: ACS Descriptive Tables & Data Analysis Plan due on Wednesday, May 27th Problem Set #7 due Wednesday, May 27th at 8am Quiz 6: Hypothesis Testing (Friday, May 29th)	**listed in order of priority Healey Chapter 9 (pdf online) UBS, Chapter 10
Week 9 June 1-5	Hypothesis Testing (continued) Memo #2: Rough Draft Due (Wednesday, June 3rd) Problem Set #9 due Wednesday, June 3rd Quiz 7: Hypothesis Testing II (Friday, June 5th)	
Week 10 June 8-12	Understanding and interpreting Linear Regression Final Draft Memo 2 due: ACS and Gender Earnings Memo	UBS, Chapter 11 OS, Chapter 14
FINAL EXAM June 11-12	Exam opens on Canvas on June 11th at 8am and closes June 12th at noon	

Academic Honesty

In keeping with the mission of the school and university, students are expected and required to conform to the norms of academic honesty. Academic misconduct will be dealt with harshly. Academic misconduct includes (but is not limited to) using unauthorized written or electronic materials on a quiz or exam, copying another student's quiz or exam or allowing another student to copy yours, and passing off someone else's writing or ideas as your own in writing assignments. Possible consequences for academic misconduct range from zero credit on an assignment to failing the class.

Special Accommodations

If you have, or think you may have, a disability (including an 'invisible disability' such as a learning disability, a chronic health problem, or a mental health condition) that interferes with your performance as a student in this class, you are encouraged to arrange support services and/or accommodations through Disabilities Services staff in the Learning Center. Disability-based adjustments to course expectations can be arranged only through this process.

Use of Technology

With the exception of two Microsoft Excel practice sessions, you are not allowed to use laptops, cell phones, or similar forms of technology during class. Surfing the web, texting, and other uses of technology are distracting to students and instructors alike and ultimately detrimental to the learning environment. A violation of this policy may result in appropriate grade sanctions.

Title IX

Title IX of the Education Amendments of 1972 (Title IX) prohibits discrimination based on sex in educational programs or activities that receive federal financial assistance. This prohibition includes sexual misconduct, which encompasses sexual harassment and sexual violence. Seattle University remains committed to providing a safe and equitable learning, living, and working environment. The university offers emergency, medical, and other support resources, as well as assistance with safety and support measures, to community members who have experienced or been impacted by sexual misconduct.

Seattle University requires all faculty and staff to notify the university's Title IX Coordinator if they become aware of any incident of sexual misconduct experienced by a student.

For more information, please visit <https://www.seattleu.edu/equity/>. If you have any questions or concerns, you may also contact the Title IX Coordinator in the Office of Institutional Equity (email: oi@seattleu.edu; phone: 206.296.2824)