Business Statistics

SYLLABUS AND SCHEDULE | Fall 2020

Welcome

I'd like to start by acknowledging upfront that this is an unusual quarter. You probably did not expect to be learning statistics remotely. I certainly did not expect to be teaching statistics remotely. None of us knows how the autumn of 2020 will unfold. Along with the uncertainties posed by COVID-19, we face uncertainties regarding the upcoming election, the societal response to ongoing racial injustice, and perhaps new challenges in our personal lives.

Through all of that, we hold the intention of learning together. You will be learning the material of statistics. At the same time, you may be learning to learn in a new way. Instead of live lectures, you will be watching brief recorded explanations of statistical concepts. Instead of doing group work in class, you'll be working practice problems on your own. Instead of learning to use Excel in a computer lab, you'll be watching video demonstrations. Instead of stopping by my office in the Pigott building with questions, you may be dropping into my office hours via Zoom.

We'll all be learning as we go. I don't expect you to get everything right the first time. I do expect you to learn from your mistakes. That's why I've already built the course with opportunities to retake quizzes and revise assignments. As your instructor, I don't expect to get everything about online teaching right the first time. That's why I will be reaching out to you as we go for feedback about what's working and what isn't, and why I may make changes to the course along the way in response to that feedback. It's going to be challenging, but I am excited about the new possibilities that online teaching provides. So welcome--let's begin!

Course description

In Econ 2100, you will learn statistical concepts, procedures, and computer applications used in business and economics. The topics we will cover include descriptive statistics, probability, random variables, sampling, statistical inference, confidence intervals, and hypothesis testing. The prerequisite is successful completion of a course in calculus (MATH 1130, 1331, 1334, or the equivalent).

Course information

Course code:	ECON 2100
Credits:	5
Location:	Online - Asynchronous
Starts:	September 9, 2020
Ends:	November 24, 2020

Instructor information

Instructor:	Stacey Jones
Phone:	(206) 296-5790
Email:	sjones@seattleu.edu
Office:	Pigott 427 / Zoom
Office hours:	By appointment

Learning outcomes

On successful completion of this course (i.e. by *passing* this course), you will be able to:
1. Understand and explain fundamental concepts of probability and statistics
2. Describe qualitative and quantitative data
3. Analyze data and present statistical results using Excel
4. Use statistical inference to draw conclusions from samples
5. Communicate the results of statistical analysis effectively in tables, figures, and words
6. Discuss the complexities involved in producing and interpreting statistical information.

Materials

1. **Textbook:** Freed, Jones and Bergquist (2014). *Understanding Business Statistics.* Wiley. ISBN 978-1-118-14525-8 (binder version) or ISBN 978-1-118-79914-7 (digital version).
2. **Software:** We will use Microsoft Excel to analyze data. MS Office is available at no a cost through Seattle University. You can download Excel at http://office.com/getoffice365.
3. **Lectures, assignments, practice problems:** All other course materials will be shared on the course website: https://seattleu.instructure.com.
4. **Calculator:** You may find it useful to have a calculator on hand for working practice problems and quizzes.

Instructional methods and class communication

The course will be taught asynchronously. What does this mean for your class experience?
1. All instruction will be delivered online without regularly scheduled meeting times.
2. On our Canvas site, I will provide course materials for you to view and assignments for you to complete at times that fit your own personal weekly schedule.
3. It will be your responsibility to decide when to work on weekly course material. I recommend that you pace your work so as to cover the material gradually over the week.
4. Our work week will generally begin on Monday and end on Sunday. On Mondays I will provide you all of the materials to be completed during the week.
5. There will be regular assignments to complete and submit online, with feedback on those assignments also provided online. I'll keep deadlines as predictable as possible.
6. I will cover no more, and no less, content than I usually cover in a ten-week in-person course. It may seem like more, because it will all be "homework" instead of a mix of homework and class time.
7. You'll meet and work with your classmates primarily through online course discussions.
8. I'll hold optional office hours for in-person questions and discussion of course material. You can schedule an appointment through the office hours link provided on the course website.
9. E-mail is the best way to reach me. You can email me at any time, but you may not receive a response outside regular business hours. Generally, emails received before 3 p.m. will receive a response before I finish work for the day and emails received after 3 p.m. will receive a response on the following business day (M-F, except holidays).
10. We'll keep the emphasis on *learning*, not on grades. I will give you meaningful and timely feedback on your work in order to support your learning.

Evaluation: Overview of assignments

During a typical week, you will have two different types of assignment: a quiz on statistics concepts, and a statistical investigation using Excel. For your final project, you will integrate your statistical investigations into a power point presentation and written summary.

1. **Quizzes (40%):** The material in this class is cumulative in nature: each concept must be mastered prior to moving on to the next. For this reason, I assign weekly timed, open-note online quizzes to help you and me assess your progress in learning the material. I will be posting multiple practice problems for to work through in preparing for the quiz. You can take the quiz one time during a 24-hour window each week, usually on Wednesday. Quizzes may be re-taken (the following Monday); the score of the second quiz will then be used in computing your final grade (I will use the score of the second quiz, not the best of the two-I recommend retaking the quiz only in the case of a low score or missed quiz).

2. **Statistical investigations using Excel (20%):** Over the course of the quarter, you will apply the statistical tools that we are learning to various data sets. You'll learn to use Excel to perform statistical analysis and to summarize the results. Your statistical investigations will include tables or figures, along with written discussion of those tables and figures. There is a discussion board on Canvas where you can post questions that come up as you work on your statistical investigations; please feel welcome to post anything you are uncertain about, and also to answer the questions of other students. The work that you do in the statistical investigations will prepare you to complete the two case studies for the course.

3. **Case studies (40%):** The two case studies involve gathering data and applying statistical techniques to address answer a business or economic question. The case studies help develop your ability not only to analyze a data set, but to present your results in tables, figures, and words. These real-world assignments models the type of work you might be doing in a data analysis or policy research job. Done well, they can provide a tangible demonstration of your statistics abilities that you can add to your portfolio and discuss in an interview for an internship or job

Summary of assessed assignments:

Assignment	learning OUTCOMES	WEIGHT	Due DATE
Quizzes	1, 2, 4	40%	Wednesdays / Mondays (retake)
Statistical investigations	2, 3, 4, 5	20%	Sundays
Case studies	1, 2, 3, 4, 5, 6	40%	October 2, November 22

Grading procedures and policies

Assignment grades will be posted on Canvas. To convert them to letter grades, the following grading scale represents minimum grades for given overall percentages:

A [Superior]	94-100	B-	80-82	D+	67-69
A-	90-93	C+	77-79	D [Poor]	63-66
B+	87-89	C [Adequate]	73-76	D-	60-62
B [Good]	83-86	C-	70-72	F [Failing]	59 or less

Academic resources

Significant campus resources are available to help you succeed:

SUPPORT FOR REMOTE LEARNING
Remember to review the online tutorial that our Center for Digital Learning and Innovation has created to support your remote learning experience:
https://seattleu.instructure.com/courses/1563070

BORROW A CHROMEBOOK OR AN INTERNET HOTSPOT FROM THE LIBRARY
If you are having difficulty with remote learning because your laptop is older or your internet access is patchy, the Library is currently loaning out Chromebooks and internet hotspots. You can submit a request at the following link:
https://seattleux.qualtrics.com/jfe/form/SV_9Bjo8RxYefZVeJv

LIBRARY AND LEARNING COMMONS
Multiple learning resources are housed within the library and learnings commons:
http://www.seattleu.edu/learningcommons/

WRITING CENTER
Given that the University has moved to online classes, the Writing Center is offering online appointments through asynchronous and synchronous options. Please visit https://www.seattleu.edu/writingcenter/online-consultations/ to learn more about the online consultations or schedule an appointment through https://seattleu.mywconline.com

LEARNING ASSISTANCE PROGRAMS
Learning Assistance Programs (LAP) provides peer tutoring, facilitated study groups, and learning strategy development through scheduled workshops and individual consultation sessions with a learning specialist. Given that the University has moved to online classes, LAP will only be offering services remotely. Please visit our website https://www.seattleu.edu/learning-assistance/ or e-mail us at learningassistance@seattleu.edu for the most updated information about accessing services.

General course and university policies

OUR CLASS WILL RESPECT THE FOLLOWING UNIVERSITY POLICIES:

ACADEMIC INTEGRITY TUTORIAL
 https://www.seattleu.edu/academic-integrity/resources-for-students/

SUPPORT FOR STUDENTS WITH DISABILITIES
Seattle University values diverse types of learners and is committed to ensuring that each student is afforded an equal opportunity to participate in learning experiences. For disability and other learning-related needs and accommodations that you have already arranged via Disability Services, please communicate with me during the first week of class through email or Zoom. Should concerns arise at any point in the quarter, please let me know as soon as possible.

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, but have not yet arranged support services and/or accommodations, I encourage you to do so through Disability Services staff at DS@seattleu.edu or (206) 296-5740. Disability-based adjustments to course expectations can be arranged only through this process. I am committed to working with you, so please do not hesitate to contact me.

NOTICE ON RELIGIOUS ACCOMMODATIONS
It is the policy of Seattle University to reasonably accommodate students who, due to the observance of religious holidays, expect to be absent or endure a significant hardship during certain days of their academic course or program. Please see, Policy on Religious Accommodations for Students (https://www.seattleu.edu/media/policies/Policy-on-Religious-Accommodations-for-Students---FINAL.PDF).

ACADEMIC POLICIES ON THE REGISTRAR WEBSITE
Be sure that you understand the following university academic policies, posted on the Registrar's website: https://www.seattleu.edu/redhawk-axis/academic-policies/:

1. Academic integrity policy
2. Academic grading grievance policy
3. Professional conduct policy

University mission

Seattle University is dedicated to educating the whole person, to professional formation, to empowering leaders for a just and humane world.

Provisional schedule-revised 9/19/20

We'll aim to stay on schedule, but due dates or assignments may change. You are responsible for changes posted on the course website.

Week	Topics	Read	Watch	Assignments
Week 1 Sept 9-13	**Introduction to statistics**	*Understanding Business Statistics (UBS)* Chapter 1, all	Welcome videos; Chapter 1 videos; Excel demonstration video.	☐ Submit student introduction "quiz" (by Friday 11:59 pm) ☐ Introduce yourself on the discussion board (by Friday, 11:59 pm) ☐ Statistical Investigation 1 (by Sunday, 11:59 pm)
Week 2 Sept 14-20	**Descriptive statistics**	*UBS* Chapter 2, all	Week 2 overview, Chapter 2 videos, Excel demonstration video	☐ Week 2 Quiz (Wednesday, timed) ☐ Statistical investigation 2 (by Sunday, 11:59 pm)
Week 3 Sept 21-27	**More descriptive statistics**	*UBS* Chapter 3, all	Week 3 overview, Chapter 3 videos, Excel demonstration video	☐ Week 3 Quiz (Wednesday, timed) ☐ Case study 1 Introduction and Q&A (Friday, 9:30 and 12:30, Zoom) ☐ Statistical investigation 3 (by Sunday, 11:59 pm)
Week 4 Sept 28-Oct 4	**Probability**	*UBS* Chapter 4, all	Week 4 overview, Chapter 4 videos, Excel demonstration video	☐ Week 4 Quiz (Wednesday, timed) ☐ Case study 1 statistical analysis (by Friday, 11:59 pm) ☐ Statistical investigation 4 (by Sunday, 11:59 pm)
Week 5 Oct 5-11	**Discrete probability distributions**	*UBS* Chapter 5, sections 1-4	Week 5 overview, Chapter 5 videos, Excel demonstration video	☐ Week 5 Quiz (Wednesday, timed) ☐ Case study 1 Final version (by Friday, 11:59 pm) ☐ Statistical investigation 5 (by Sunday, 11:59 pm)
Week 6 Oct 12-18	**Continuous probability distributions**	*UBS* Chapter 6, sections 1-3	Week 6 overview, Chapter 6 videos, Excel demonstration video	☐ Week 6 Quiz (Wednesday, timed) ☐ Statistical investigation 6 (by Sunday, 11:59 pm)
Week 7 Oct 19-25	**Sampling and inference**	*UBS* Chapter 7, sections 1-3	Week 7 overview, Chapter 7 videos, Excel demonstration video	☐ Week 7 Quiz (Wednesday, timed) ☐ Statistical investigation 7 (by Sunday, 11:59 pm)

Week	Topics	Read	Watch	Assignments
Week 8 Oct 26 – Nov 1	**Confidence intervals for the mean**	*UBS* Chapter 7, sections 4-5	Week 8 overview, Chapter 7 videos, Excel demonstration video	☐ Week 8 Quiz (Wednesday, timed) ☐ Statistical investigation 8 (by Sunday, 11:59 pm)
Week 9 Nov 2 -8	**More confidence intervals**	*Understanding Business Statistics (UBS)* Chapter 8, all	Week 9 overview, Chapter 8 videos, Excel demonstration video	☐ Week 9 Quiz (Wednesday, timed) ☐ Case study 2 Introduction and Q&A (Friday, 9:30 and 12:30, Zoom ☐ Statistical investigation 9 (by Sunday, 11:59 pm)
Week 10 Nov 9-15	**Hypothesis testing**	*UBS* Chapter 9, sections 1-3	Week 10 overview, Chapter 9 videos, Excel demonstration video	☐ Week 10 Quiz (Wednesday or Thursday, timed) ☐ Case study 2 statistical analysis (by Friday, 11:59 pm) ☐ Statistical investigation 10 (by Sunday, 11:59 pm)
Week 11 Nov 16-18	**More hypothesis testing**	*UBS* Chapter 9, sections 4-5	Week 11 overview, Chapter 9 videos, Excel demonstration video	☐ Week 11 Quiz (Wednesday, timed)
Finals week Nov 19-24	**Complete case study 2**			☐ Case study 2 (by Sunday, 11:59 pm)