

Statistic Applications and Quantitative Methods
ECON 5100 | 3 credit hours| Asynchronous Fall 2020

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COURSE DESCRIPTION

The stochastic and observational nature of business and economic data makes statistical models the primary tool for their analysis. An effective participant in decision-making must be able to understand and interpret statistical information. In this course, we will study the framework of statistical inferences. The statistical models we study include the population mean, simple linear regressions, and multiple regressions models, based on which we draw statistical inferences by through z-tests, t-tests, F-tests, and chi-square tests.

LEARNING OUTCOMES

“Statistical thinking will one day be as necessary for efficient citizenship as the ability to read and write.”

-Samuel S. Wilks (1950) paraphrasing H.G. Wells (1903)

On successful completion of this course (i.e. by passing this course), you will be able to

1. Understand the framework of statistical inferences
2. Use Excel and R to implement statistical models and conduct statistical tests
3. Present statistical results in an accurate, clear and audience-appropriate manner.
4. Conduct a data-based research project.

TEXTS, MATERIALS, and PREREQUISITES

- Freed, Jones and Bergquist (2014). Understanding Business Statistics. Wiley Publishing, ISBN 978-1- 118-14525-8 (binder version) or ISBN 978-1- 118-79914-7 (digital version). Please check [here](#) for extra learning material and solutions to the even number problems.
- We will be using Microsoft Excel to analyze data. Seattle U offers free MS Office to students. The download is available at <http://office.com/getoffice365>. Both programs are available to students on the university server, both in computer labs or online at <https://desktop.seattleu.edu>.
- Software: R will be used in the lecture and your assignments. R is a popular free software language that statisticians and data analysts use to develop statistical software and conduct data mining. There are many online tutorials, manuals, or guides for using R. I will provide some instructions, sample R codes, and practice problems. You are not

required to know R before the class and you are not going to be evaluated on your R coding skills, but it is necessary for you to acquire some R coding skills during the course to complete assignments.

- I will provide class notes before each week’s lecture. Read them carefully. They reflect my view of what are the most important concepts and results we cover in the course.

EVALUATION AND OVERVIEW OF ASSIGNMENTS

Assignment	Points
Participation	10
Reflection	10
Quizzes	20
Problem Sets	30
Group Assignments	30
Total Points	100

Point scale grade	Letter	Point scale	Letter grade
94 – 100	A	73 – 76	C
90 – 93	A-	70 – 72	C-
87 – 89	B+	67 – 69	D+
83 – 86	B	63 – 66	D
80 – 82	B-	60 – 62	D-
77 – 79	C+	59 and below	F

Participation points are earned by your turning in a few lines of the “muddiest point” after wrestling with readings and practice problems. The completion accounts for participation points.

Reflection ties your weekly learning to your personal experience and growth.

Quizzes are designed to help you review statistical concepts, principles, and frameworks. They also provide you with opportunities to practice hand-calculating statistics.

Problem sets provide you opportunities to apply methods and solve real-world problems by often using statistical software.

Group projects provides real-life scenario assignment that requires you to apply what you have learned. You have three group projects all together. To complete the projects, you need to collaborate with your own team members and provide feedback to other groups.

All course material and assignments are communicated on Canvas.

COURSE OUTLINE

Tentative Course Schedule*

Date	Readings	Topics	Group Assignments(Check Canvas for exact dates)
Week1	Ch 5,6,7,9	Basic Statistical Review	
Week2	Ch 8 and 10	Population Difference	SU Housing for review
Week3	Ch11	Simple linear regression	SU housing Due
Week4	Ch11	Simple linear regression	
Week5		Review	Chocolate for review
Week6	Ch 12	Multiple regression	Chocolate due
Week7	Ch 12	Multiple regression	
Week8	Ch 13	F-Tests and Variance Analysis	
Week9	Ch 14	Chi-Squared Tests	Final project for review
Week10		Review	Final project due

*Your learning is my primary concern in this course, so I may modify the schedule if, for instance, we discover we need to spend time on a certain topic and less on another.

COURSE POLICIES

INSTRUCTION METHOD

Instructional methods this quarter will be experimental! It will be conducted as a “asynchronous” learning. A word of caution, although asynchronous learning happens at a time to suit your schedule, this is not self-paced study. The course assignments have rigid deadlines and we move in a steady pace.

Every week, I conduct a class-wide Q&A session. You are not required but highly encouraged to attend. It helps me get to know you, as well as allowing for an easy switch between whole-group and small-group discussions. I understand that not everyone is in a convenient time zone and has the bandwidth, so I will record these sessions.

Remember, too, that if you are having technology problems, you may be able to borrow a Chromebook or internet hotspot from the Library. (See “Academic resources” below or go straight to <https://seattleu.instructure.com/courses/1563070>)

I will regularly ask for your feedback on how the class format is working for you. Expect there to be a few changes as the quarter progresses; in any changes, I will be putting your learning first.

In our zoom meetings, I prefer you to turn on video, which make us easier to connect and communicate. If you need to temporarily turn off video, please feel free to do so. If you have any concerns about this, please inform me.

OFFICE HOURS

Office hours are a chance for you to meet with me one-on-one or in small groups to discuss the course, your learning, your plans for the future, or just to check in. We’ll be holding office hours via Zoom. I have setup both one-on-one consultation time and drop-in hours on Canvas. Feel free to come in anytime

during my drop-in office hours. You are also welcome to sign up one-on-one consultation time with me. I've set up a waiting room to ensure you receive my full attention during your time slot – and to maintain your privacy.

COMMUNICATIONS

Most of our communication will be conducted on Canvas. I will make an announcement on Canvas whenever I have information to share with the class. Please check announcements regularly.

I encourage you to send me an email with any questions and concerns. I prefer canvas email to SU email because during the school year I check canvas email more frequently than my regular SU email. Also, the canvas email identifies which class the email comes from. If you send an email to sxie@seattleu.edu, please use Course Code: <your email subject> as the subject. I prefer to be addressed by my last name. I will do my best to respond to you within 24 hours. This response may come in the form of an email directly back to you or, if the answer would be beneficial to the entire class, I will make an announcement on Canvas.

INTERNET ACCESS

We will use a variety of online applications to communicate and collaborate. As such, you will need a reliable, high-speed Internet connection for the duration of this course. If you are traveling to countries such as China, Vietnam, Saudi Arabia, Iran, Burma, and others, some content in this course may be blocked. Please contact me immediately if you will be traveling to a country that may block Internet access during any portion of this class.

ASSIGNMENT DEADLINES AND EXTENSIONS

This is not a self-paced course. You have deadlines to meet every week. Please pay close attention to all deadlines. You are expected to turn in work on time. If work is submitted late, the instance will result in a penalty of 20% for every day of delay until it becomes zero after five days.

My plan is to return your assignments as soon as possible after you have submitted them. Faster feedback means you're more likely to remember what you wrote and can more easily take the feedback on board for the next assignment. The assignments in this course build on one another, so that feedback process is an important part of the learning.

It would greatly help the learning process if you are able to submit your assignment by the stated deadlines. However, these are not normal times! If you find that you are unable to complete an assignment on time, *please communicate with me*. I do understand that things are difficult right now. I'll do my best to be flexible; for that to happen, we need to keep in dialogue so that I know where you are in your learning and how I can best support you.

To help keep yourself on track, I strongly encourage you to plan ahead. To help you better plan your time, I have published the whole quarter's course on canvas. Keep in mind, some assignments are not completely written yet at the beginning of the quarter and some may change. As default, course material go alive every Monday morning. I will also give video introduction every Monday morning to orient you to the corresponding week's material before you embark on the reading materials and demos.

Check the assignments on canvas to see when assignment briefing will be given and when assignments are due. This enables you to block out time in your calendar now so that you know when you will be working on assignments for this course. Try to give yourself a little more time than you normally would; we all know it could be a bumpy time outside the course!

An agreement to receive an Incomplete (I) grade may be negotiated if your circumstances do not allow you to finish the course on time. The Incomplete Grades Policy of the university is available on the Office of the Registrar web site: <https://www.seattleu.edu/redhawk-axis/academic-policies/>

ACADEMIC RESOURCES

My goal is to create a learning environment in which you can be successful and feel supported. I will work hard to create and improve the learning environment throughout the quarter based on my own observations of the course and your feedback on what would help you learn more. In return, I ask and encourage you to make the most of this learning opportunity. As we are using a remote learning format, you may find that some of your previously successful strategies in face-to-face and on-campus settings are less suited to this environment. I encourage you to explore the services below and to work on the assumption that in this quarter, you'll be developing some new strategies that will help you become a more flexible learner. I am keen to support you in that growth, and plan to build in opportunities for us all to share new strategies with one another either in scheduled class time or via a Canvas chat.

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>

Students and faculty have reported a more engaging class experience when using video on Zoom. We know not everyone has the ability to have their camera on all the time, for a variety of reasons. If you aren't able to do so, be sure to stay connected in other ways (in chat or vocally).

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://seattleu.qualtrics.com/jfe/form/SV_9Bjo8RxYefZVeJv

LIBRARY AND LEARNING 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.

Research Services

Research help is available to students at any stage in the research process. Students can schedule a virtual consultation with our team of Research Services Librarians and Student Peer Research Consultants (SPRCs) to get help finding and assessing sources, learn database search skills, and develop research topics.

To learn more, or for assistance via chat/phone/email, check out our Get Research Help page (<https://www.seattleu.edu/library/get-research-help/>) or book a Virtual Consultation online (<https://www.seattleu.edu/library/consultation/>).

Math Lab

The Math Lab offers one-on-one tutoring to students enrolled in lower division mathematics courses. Please visit our website at <https://www.seattleu.edu/scieng/math/student-resources/math-lab/> for more information.

English-language learning center (ELLC)

The English Language Learning Center (ELLC) offers free tutoring for all SU students who are non-native speakers of English. Experienced ELLC tutors can help you improve your English language skills and better understand American culture. We can help with any type of assignment: written essays, online discussions, oral presentations, interview practice, etc. For the schedule or to book a session please visit <https://www.seattleu.edu/ellc/ellc-tutoring/>

Academic integrity tutorial

<https://www.seattleu.edu/academic-integrity/resources-for-students/>

UNIVERSITY POLICIES

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>).

ZOOM MEETING NORMS

During our Zoom meetings, we will jointly create course norms (or “agreements”) to which we will all abide so that we have the most productive and positive remote learning environment. In face-to-face classes, regular examples have included that we agree to:

- Start and end on time
- Come to meeting prepared
- Participate actively in discussion
- Show one another courtesy, including when we disagree.

Given our circumstances this quarter, we will revisit these norms regularly to focus on what works for our learning together, including norms for sessions via Zoom and norms for online discussions.

MEETING RECORDING

Zoom meetings of this course may be recorded. Any recordings will only be available to students registered for this class. Recordings may not be reproduced, shared with those not in the class, or uploaded to other online environments.

ACADEMIC POLICIES ON THE REGISTRAR WEBSITE

<https://www.seattleu.edu/redhawk-axis/academic-policies/>

Be sure that you understand the following university academic policies, posted on the Registrar’s website:

- [Academic Integrity](#)
- [Academic Grading Grievance Policy](#)

Office of Institutional Equity

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. SeattleU remains committed to providing a safe and equitable learning, living, and working environment. Seattle U 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 U 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 directly contact the Title IX Coordinator in the Office of Institutional Equity by email: oi@seattleu.edu or phone: (206) 296-2824.