

Quantitative Methods for Business and Economics

SYLLABUS AND SCHEDULE | Spring 2022

Welcome

I'd like to start by acknowledging upfront that although we're beginning to see hopeful signs of a return to normal, we remain in unusual times. While I am grateful to return to in-person learning and teaching, we all know that we might have to make some adjustments this quarter in order to stay safe and healthy. I'll do my best to communicate any other changes clearly.

Through all of that, we hold the intention of learning together. You will be learning fundamental concepts of statistics. Statistics is an essential tool for citizenship. The very word "statistics" has its roots in the "state." Statistics provides us the information we need to understand our environment and make well-informed decisions. The pandemic has driven this lesson home. You could even say that Covid-19 has made statistics of us all, as we use data on a daily basis to negotiate risk and make choices. These are challenging times, but statistics has never been so relevant. I look forward to learning with you this quarter.

Course description

Analyzed skillfully, data can point the way to more effective policy and business decisions. Statistical and quantitative methods are used throughout business, government and the non-profit sector of the economy. An effective participant in decision-making must be able to, at a minimum, understand and interpret statistical information. Econ 3100 builds on concepts taught in Introduction to Business Statistics (ECON 2100) or the equivalent, introducing students to more advanced statistical methods, with a focus on regression analysis.

Learning outcomes

On successful completion of this course, you will be able to:

1. Apply regression analysis to gain insight into the relationship between different factors in a situation.
2. Use analysis of variance and chi-squared techniques to test for differences across groups.
3. Accurately interpret statistical results presented in a variety of formats.
4. Use Excel to perform statistical analysis and present results.
5. Apply regression analysis in a data-based research project.
6. Present statistical results accurately, clearly, and in an audience-appropriate manner.

Course information

Course code: ECON 3100
Credits: 5
Location: Section 1: Bannan 629
Section 2: Pigott 202
Meets: S1: MW, 3:40-5:45 pm
S2: TTh: 1:30-3:35 pm
Starts: March 28, 2022
Ends: June 11, 2022

Instructor information

Instructor: Stacey Jones
Email: sjones@seattleu.edu
Office: Pigott 427
Phone: (206) 296-5790
Office hours: Mon 11-12, Wed 1-2, and by appointment

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

At current writing, the plan is for this to be a face-to-face class.

1. We'll meet in-person. In-person classes will involve a mix of my presentation of the material and opportunities for you to practice working with the concepts.
2. I will take attendance, mainly to get to know the class and to be aware of issues with attendance that may arise during the quarter. Attendance "points" are not formally counted toward your grade.
3. We will have an in-class quiz each week, covering material from the previous week.
4. We'll spend some of our class time working with data in Excel. If you'd like to work on your own laptop, please bring it to class. I'll also have netbooks available for you to use.
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've posted recorded lectures and Excel demonstrations on Canvas. While this material will mainly be presented in class, you are welcome to use the recorded lectures and demonstrations as an additional resource.
7. In the event that you are not able to attend class, please watch the corresponding recorded lectures or Excel demonstrations as a substitute.
8. I I'm happy to meet with you for in-person questions and discussion of course material. Drop-in office hours will be on Mondays, 1-2 pm, and Wednesdays, 11 am -12 pm, in Pigott 427. If you prefer to meet at another time or to meet by Zoom, please send me an e-mail and we'll set that up.
9. E-mail is the best way to reach me. Please put Econ 3100 in the subject line. 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. You will also complete an empirical research project, applying the tools of regression analysis to a real-world scenario and communicating your results in writing.

- Quizzes (25%).** The material in this class is cumulative in nature: For this reason, I give weekly, graded quizzes to help you keep on track and to help you and me identify and address gaps in your understanding. The practice problems and quizzes on Canvas are a good way to prepare for the in-class quizzes. The quiz each week will cover the previous week's material: the Week 2 quiz will cover the Week 1 material, and so on. I do not offer make-up quizzes, except under very unusual circumstances (forgetting about a quiz is not an unusual circumstance). That said, sometimes unexpected things come up. For all students, I will drop your lowest quiz score, essentially giving you one "free pass" to miss a quiz.
- Statistical investigations (50%):** Over the course of the quarter, you will apply the statistical tools that we are learning in Excel to answer questions using a variety of data sets. Generally, your statistical investigations will include tables or figures, along with written discussion of those tables and figures. Unlike the quizzes and discussion posts, I will not drop any of the grades, as the statistical investigations are the core of our work together. Except under very unusual circumstances, no credit will be given for late work.
- Research project (25%):** You will complete a research project that involves gathering data and applying statistical techniques to address answer a business or economic question. We will develop the projects through a series of assignments to be completed both in and outside of class. Your grade will be based on the quality of your analysis and the effectiveness of your presentation of the findings.

Summary of assessed assignments:

Assignment	Learning outcomes	Weight	Due date: Section 1 (MW)	Due date: Section 2 (TTh)
Quizzes	1, 2, 3	25%	Wednesday	Thursday
Statistical investigations	1, 2, 4, 5	50%	Monday	Tuesday
Research project	1, 3, 4, 5, 6	25%	See calendar	See calendar

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:

BORROW A CHROMEBOOK OR AN INTERNET HOTSPOT FROM THE LIBRARY

If you are having difficulty accessing course materials because your laptop is older or your internet access is patchy, the Library is currently loaning out Chromebooks and internet hotspots. You can find the information here: <https://libguides.seattleu.edu/technology/>

LEARNING COMMONS PARTNERSHIP

The [Learning Commons Partnership](#), housed in the Lemieux Library, offers multiple services to support your academic efforts. The following may be of particular help with this course:

LEARNING ASSISTANCE PROGRAMS

[Learning Assistance Programs](#) provide peer tutoring, facilitated study groups, and learning strategy development through scheduled workshops and individual meetings with a learning specialist.

To schedule an appointment, call 206-398-4450.

MATH LAB

[The Math Lab](#) is a drop-in service available to students enrolled in lower division mathematics courses. Students can stop by the lab to work with a tutor who will assist them with their particular mathematics assignments. Visit us on the 2nd floor.

WRITING CENTER

[The Writing Center](#) employs undergraduate writing consultants who assist students at all stages of the writing process. Consultants will help students begin writing tasks, organize and develop first drafts, and revise and edit later drafts. To schedule an appointment, call 206-296-6239.

ECONOMICS DEPARTMENT DROP-IN TUTORING

The Economics Department offers peer tutoring in a number of Economics courses, including Econ 3100. [Click here](#) to see what's available and to make an appointment online.

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

Course schedule-Section 1 (MW)

We'll aim to stay on schedule, but due dates or assignments may change, with changes announced in class and on the website. Quizzes will be in class. Please submit other assignments online by 11:59 pm PDT.

Week	Topic	To Read or Watch	To Turn In
Week 1 March 28- April 3	Review the normal distribution and sampling	<input type="checkbox"/> <i>Understanding Business Statistics (UBS)</i> , Chapter 6, sections 3-5 <input type="checkbox"/> Chapter 6 videos <input type="checkbox"/> Excel demonstration	<input type="checkbox"/> Student introduction “quiz” (Wed 3/30) <input type="checkbox"/> Statistical Investigation 1 (Monday 4/4)
Week 2 April 4-10	Review confidence intervals	<input type="checkbox"/> <i>UBS</i> Chapter 7, sections 3-5 <input type="checkbox"/> Chapter 7 videos <input type="checkbox"/> Excel demonstration	<input type="checkbox"/> Week 2 quiz (Wednesday 4/6) <input type="checkbox"/> Statistical Investigation 2 (Monday 4/11)
Week 3 April 11-17	Review hypothesis testing	<input type="checkbox"/> <i>UBS</i> Chapter 9, all (emphasis on using t-distribution, p-values) <input type="checkbox"/> Chapter 9 videos <input type="checkbox"/> Excel demonstration	<input type="checkbox"/> Week 3 quiz (Wednesday 4/13) <input type="checkbox"/> Statistical Investigation 3 (Tuesday 4/19) (Tuesday because of Easter Break on Monday)
Week 4 April 18-24	Simple linear regression, begin project	<input type="checkbox"/> <i>UBS</i> Chapter 11, sects 1-3, 8 <input type="checkbox"/> Chapter 11 pt. 1 videos <input type="checkbox"/> Excel demonstration <input type="checkbox"/> Sample Paper in Econometrics	<input type="checkbox"/> Week 4 Quiz (Wednesday 4/20 in class) <input type="checkbox"/> Statistical investigation 4 (Monday 4/25)
Week 5 April 25- May 1	Inference and prediction in simple linear regression	<input type="checkbox"/> <i>UBS</i> Chapter 11, sects 4-7, 9 <input type="checkbox"/> Chapter 11 pt. 2 videos <input type="checkbox"/> Excel demonstration	<input type="checkbox"/> Week 5 Quiz (Wednesday 4/27 in class) <input type="checkbox"/> Research Project Data Section Draft (Friday 4/29) <input type="checkbox"/> Statistical investigation 5 (Monday 5/2)
Week 6 May 2-8	Multiple linear regression	<input type="checkbox"/> <i>UBS</i> Chapter 12, section 3 <input type="checkbox"/> Chapter 12 pt. 1 videos <input type="checkbox"/> Excel demonstration	<input type="checkbox"/> Week 6 Quiz (Wednesday 5/4 in class) <input type="checkbox"/> Statistical investigation 6 (Monday 5/9)
Week 7 May 9-15	Inference in multiple regression	<input type="checkbox"/> <i>UBS</i> Chapter 12, sects 1-2, 4 <input type="checkbox"/> Chapter 7pt1 videos <input type="checkbox"/> Excel demonstration	<input type="checkbox"/> Week 7 Quiz (Wednesday 5/11 in class) <input type="checkbox"/> Statistical investigation 7 (Monday 5/16)
Week 8 May 16-22	Qualitative variables in regression	<input type="checkbox"/> <i>UBS</i> Chapter 12, section 5 <input type="checkbox"/> Chapter 12 pt. 3 videos <input type="checkbox"/> Excel demonstration	<input type="checkbox"/> Week 8 Quiz (Wednesday 5/18 in class) <input type="checkbox"/> Statistical investigation 8 (Monday 5/23)
Week 9 May 23-29	Testing for equal means and variances	<input type="checkbox"/> <i>UBS</i> Chapter 13, all <input type="checkbox"/> Chapter 13 videos <input type="checkbox"/> Excel demonstration	<input type="checkbox"/> Week 9 Quiz (Wednesday 5/25 in class) <input type="checkbox"/> Research Project Results Section Draft (Friday 5/27) <input type="checkbox"/> Statistical investigation 9 (Tuesday 5/31)
Week 10 May 30- June 5	Tests about proportions, independence	<input type="checkbox"/> <i>UBS</i> Chapter 14, all <input type="checkbox"/> Chapter 14 videos <input type="checkbox"/> Excel demonstration	<input type="checkbox"/> Week 10 Quiz (Wednesday 6/1) <input type="checkbox"/> Statistical investigation 10 (Monday 6/6) <input type="checkbox"/> Online course evaluation
Final week June 6-11			<input type="checkbox"/> Research Project – Final (Friday 6/10)

Course schedule-Section 2 (TTh)

We'll aim to stay on schedule, but due dates or assignments may change, with changes announced in class and on the website. Quizzes will be in class, other assignments are due 11:59 pm, PDT, on the day listed.

Week	Topic	To Read or Watch	To Turn In
Week 1 March 28- April 3	Review the normal distribution and sampling	<input type="checkbox"/> <i>Understanding Business Statistics (UBS)</i> , Chapter 6, sections 3-5 <input type="checkbox"/> Chapter 6 videos <input type="checkbox"/> Excel demonstration	<input type="checkbox"/> Student introduction “quiz” (Thurs in class) <input type="checkbox"/> Statistical Investigation 1 (Tuesday 4/5)
Week 2 April 4-10	Review confidence intervals	<input type="checkbox"/> <i>UBS</i> Chapter 7, sections 3-5 <input type="checkbox"/> Chapter 7 videos <input type="checkbox"/> Excel demonstration	<input type="checkbox"/> Week 2 quiz (Thursday 4/7 in class) <input type="checkbox"/> Statistical Investigation 2 (Tuesday 4/12)
Week 3 April 11-17	Review hypothesis testing	<input type="checkbox"/> <i>UBS</i> Chapter 9, all (emphasis on using t-distribution, p-values) <input type="checkbox"/> Chapter 9 videos <input type="checkbox"/> Excel demonstration	<input type="checkbox"/> Week 3 quiz (Thursday 4/14 in class) <input type="checkbox"/> Statistical Investigation 3 (Tuesday 4/19)
Week 4 April 18-24	Simple linear regression, begin project	<input type="checkbox"/> <i>UBS</i> Chapter 11, sects 1-3, 8 <input type="checkbox"/> Chapter 11 pt. 1 videos <input type="checkbox"/> Excel demonstration <input type="checkbox"/> Sample Paper in Econometrics	<input type="checkbox"/> Week 4 Quiz (Thursday 4/21) <input type="checkbox"/> Statistical investigation 4 (Tuesday 4/26)
Week 5 April 25- May 1	Inference and prediction in simple linear regression	<input type="checkbox"/> <i>UBS</i> Chapter 11, sects 4-7, 9 <input type="checkbox"/> Chapter 11 pt. 2 videos <input type="checkbox"/> Excel demonstration	<input type="checkbox"/> Week 5 Quiz (Thursday 4/28) <input type="checkbox"/> Research Project Data Section Draft (Friday 4/29) <input type="checkbox"/> Statistical investigation 5 (Tuesday 5/3)
Week 6 May 2-8	Multiple linear regression	<input type="checkbox"/> <i>UBS</i> Chapter 12, section 3 <input type="checkbox"/> Chapter 12 pt. 1 videos <input type="checkbox"/> Excel demonstration	<input type="checkbox"/> Week 6 Quiz (Thursday 5/5) <input type="checkbox"/> Statistical investigation 6 (Tuesday 5/10)
Week 7 May 9-15	Inference in multiple regression	<input type="checkbox"/> <i>UBS</i> Chapter 12, sects 1-2, 4 <input type="checkbox"/> Chapter 7pt1 videos <input type="checkbox"/> Excel demonstration	<input type="checkbox"/> Week 7 Quiz (Thursday 5/12) <input type="checkbox"/> Statistical investigation 7 (Tuesday 5/17)
Week 8 May 16-22	Qualitative variables in regression	<input type="checkbox"/> <i>UBS</i> Chapter 12, section 5 <input type="checkbox"/> Chapter 12 pt. 3 videos <input type="checkbox"/> Excel demonstration	<input type="checkbox"/> Week 8 Quiz (Thursday 5/19) <input type="checkbox"/> Statistical investigation 8 (Tuesday 5/24)
Week 9 May 23-29	Testing for equal means and variances	<input type="checkbox"/> <i>UBS</i> Chapter 13, all <input type="checkbox"/> Chapter 13 videos <input type="checkbox"/> Excel demonstration	<input type="checkbox"/> Week 9 Quiz (Thursday 5/26) <input type="checkbox"/> Research Project Results Section Draft (Friday 5/27) <input type="checkbox"/> Statistical investigation 9 (Tuesday 5/31)
Week 10 May 30- June 5	Tests about proportions, independence	<input type="checkbox"/> <i>UBS</i> Chapter 14, all <input type="checkbox"/> Chapter 14 videos <input type="checkbox"/> Excel demonstration	<input type="checkbox"/> Week 10 Quiz (Thursday 6/2) <input type="checkbox"/> Statistical investigation 10 (Tuesday 6/7) <input type="checkbox"/> Online course evaluation
Final week June 6-11			<input type="checkbox"/> Research Project – Final (Friday 6/10)