ECO350: Economic and Business Statistics II
The University of North Carolina at Greensboro
Fall 2023

Course Information

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Office hours: After class and by appointment
Office hours location: In-office (Bryan 447)

Course Description

This is an intermediate statistics course for students in the Bryan School. It covers testing for differences between two populations, inference about variances, simple and multiple linear regression, and recent causal inference methods. Throughout the semester, you will use Microsoft Excel for statistical calculations and analysis. You are expected to be familiar with the material covered in ECO250 (Economic and Business Statistics I), as well as basic algebra, equations and inequalities, linear functions, and graphs.

Learning Objectives

By the end of the course, you will be able to

1. Describe and explain statistical methods to compare two populations.
2. Describe and explain single and multiple linear regression methods in business and economics.
3. Apply confidence intervals, hypothesis testing, and linear regression models to empirical problems in business and economics.
4. Interpret the results of these statistical models.
5. Use Microsoft Excel as a tool for implementing these statistical methods.
6. Describe and explain randomized study designs, and their value for solving problems in business and economics.
7. Get acquainted with the causal inference methods commonly used in academia, government, and the private sector.

Course Materials

All students are required to purchase access to *MindTap*, Cengage's online learning platform. The platform will be used for homework assignments and includes access to a digital version of the main course textbook - *Essentials of Modern Business Statistics with Microsoft Excel (8th ed.).*

Most students have automatically been enrolled into the **UNCG First Day Complete program** upon registration to the course. Participants in the program automatically purchase access to MindTap (see above) for $20 per credit hour, billed to their student account. Students who would like to obtain a physical copy of the textbook, can purchase it from the UNCG bookstore or directly from Cengage, at an additional cost.

Students who choose to opt-out of the UNCG First Day Complete program, can purchase one of the following 3 options from the UNCG bookstore, or directly from Cengage (usually at a higher cost than program participants): a digital-only option, a digital plus a physical copy of the textbook, or an unlimited subscription to Cengage that allows access to Cengage for multiple courses (this option is cost effective if you are taking/will take several courses that utilize Cengage materials).

Please contact the UNCG bookstore for any assistance with purchasing materials.

First time accessing MindTap - please log into Canvas, and not directly to MindTap, and follow the following instructions: participants in the UNCG First Day Complete program will automatically have MindTap access set-up on their Canvas course page. When first accessing MindTap, click on the link to "Initiate Cengage MindTap Access" on Canvas, under the first module. The link will take you to MindTap where you will be prompted to either sign into your existing Cengage account or set up a new Cengage account. Once this process is complete, your Canvas and MindTap will be linked (this is important, as MindTap homework grades are automatically imported to Canvas).

For the causal inference part, the following book could be helpful:

Cunningham, Scott. *Causal inference: The mixtape*. Yale university press, 2021.

Technology Requirements

The central hub for everything related to this course is Canvas.

For some of the homework assignments you will need to use Microsoft Excel. If the assignment is set up **within** MindTap, you automatically have access to Microsoft Excel Online, which is the web-based version of the software that you can use through any internet browser. For Excel-based activities that are **external** to MindTap, you have several options. First, you can access Microsoft Excel on computers in most of the computer labs on campus. Second, you can use Microsoft Office 365 Online on your own computer by navigating to http://office365.uncg.edu/ and logging in with you UNCG username and password.

Grading

Your course grade is based on the following components and weights:

- MindTap homework assignments: 20%
- Canvas quizzes: 10%
- Data project: 10%
- Midterm exam: 25%
- Final exam: 35%

Your letter grade will be assigned based on the following scale.

- 93% and above A
- At least 90% but less than 93% A-
- At least 87% but less than 90% B+
- At least 83% but less than 87% B
- At least 80% but less than 83% B-
- At least 77% but less than 80% C+
- At least 73% but less than 77% C
- At least 70% but less than 73% C-
- At least 67% but less than 70% D+
- At least 63% but less than 67% D
- At least 60% but less than 63% D-
- Less than 60% F

Note: Grades will not be rounded up. For example, a score of 89.99% is a B+. Once your course grade has been determined, it will be final. Make-up credit opportunities or extra-credit assignments will not be available.

MindTap Homework Assignments

Homework assignments will be due approximately every week. The assignments will be conducted on MindTap. They consist of a mix of theory, calculation-based questions, and applications in Microsoft Excel. The due date for each assignment will be clearly marked on Canvas and MindTap. When working on the assignments, plan your time accordingly and do not wait until the last minute. Late submissions will not be expected.

Canvas Quizzes

Throughout the semester, you will complete several short quizzes in Canvas. Whereas the MindTap assignments focus on solving numerical problems, the quizzes focus on definitions and concepts. **The quizzes are due by 11:59 pm the night before class**. Due dates will be clearly marked on Canvas. Late submissions will not be expected. The grades of your lowest two quizzes will be dropped.

Data Project

Towards the end of the semester, you will work on a data project that synthesizes the material taught throughout the semester.

Exams

This course has a midterm exam and a final (non-cumulative) exam. The midterm will be taken during regular class time. The final will be taken during the exam period at the slot assigned for our class. Exam dates are as follows:

Midterm (90 minutes): Wednesday Sep 27, 11am – 12:30pm. In class.

Final (180 minutes): Monday Dec 4, 12pm – 3:00pm. In class.

Exams will be done on your **own** laptops in class. If you don't have a laptop, please make sure to obtain one / rent one from the library prior to the exam and make sure it has the necessary Excel add-ons.

If there are extreme circumstances that prevent you from taking an exam, you need to notify me **prior** to the exam and provide documented evidence. If I do not receive prior notification, then not taking the exam will result in a score of zero.

Class Attendance

Attendance is highly recommended; attending is the best way to learn, practice, and ask questions about the material. The slides that I distribute are partial, so I recommend that you attend and take notes for reference.

Extra credit - I will award 5 extra points (added to your final grade) to students who attend regularly. Throughout the semester, I will check attendance a few times. Students who were in class for at least 75% of these checks, will be awarded these points; these could mean a 1, or 2 step "jump" in your letter grade.

Office Hours

The course introduces a large amount of material, that gets complex over the semester. Don't get left behind; if you don't understand a concept, need help with solving a homework question, don't understand a solution, or for any other reason, I encourage you to attend office hours, or ask questions via e-mail. I am here to make sure you do well in this course, use this resource.

If the assigned official office hours don't work for you, please e-mail me, and we will set an alternative time that does.

Office hours will in in-person in my office (see above).

Class Participation

I encourage students to actively participate during lectures – feel free to ask questions, make comments and engage in discussions. Outside lectures, I encourage group study among students, and interaction with me during office hours and e-mails. Stay engaged, and make sure you understand the material as it is taught (and not right before the exam).

Tentative Course Outline

Aug 16, 21, 23 – Syllabus – going over course logistics, review of concepts
Aug 28, 30 - Unit 1 – Week 1
Sep 4, 6 - *No class*
Sep 11, 13 - Unit 1 - Week 2
Sep 18, 20 - Unit 2
Sep 25 - Midterm review
Sep 27 - Midterm
Oct 2, 4 - Unit 3 - Week 1
Oct 9 - *No class*
Oct 11 - Unit 3 - Week 2
Oct 16, 18 - Unit 4 - Week 1
Oct 23, 25 - Unit 4 - Week 2
Oct 30; Nov 1 - Unit 4 - Week 3
Nov 6,8 - Unit 5
Nov 13, 15 - Unit 6
Nov 20, 22 - *No class*
Nov 27, 29 – Wrapping up data project, final review
Dec 4 - Final

Course Expectations

Expectations for students

- Inside the classroom:
    - Do not talk to your neighbors. It distracts the students around you, and it distracts me.
    - Please be on time and remain in class until class is dismissed. Arriving late or leaving too early is disruptive both to me and your classmates.
    - You may use a laptop only to take notes or to access course-related materials. Refrain from using social media and surfing the web.
    - Turn off and stow away your phone.
- When you begin to feel lost, be proactive! I am more than happy to answer questions during class and during office hours.
- Outside of the classroom, you will most likely need at least 5-6 hours each week for reviewing course material and completing assignments.

- Make sure that your Canvas account settings are such that you receive notifications about new announcements and discussion posts.
- Make sure you regularly check for [COVID-19 updates from UNCG](#).

<u>Expectations for the instructor</u>
- You will have opportunities in the classroom to ask questions about the course material. I will also be available during office hours to address any concerns you may have and try to respond to e-mails in a timely manner.
- If you are experiencing any issues that are not directly related to the course, I will do my best to refer you to other resources on campus.
- I will communicate with the class via Canvas. For this purpose, I will use Canvas announcements and discussion boards.

Academic Integrity Policy

Please review [UNCG's Academic Integrity Policy](#) before the start of the semester. You are expected to know this policy and abide by it in all matters pertaining to this course. Note that course materials are for your personal use only. They may not be shared or posted on the internet, since this would violate UNCG copyright policies and U.S. copyright law. If I suspect that a violation of the policy has occurred, I will follow the sanctions procedure as outlined in Section IV of the policy.

Faculty and Student Guidelines

Please familiarize yourself with the Bryan School's [Faculty and Student Guidelines.](#) These guidelines establish principles and expectations for the administration, faculty, staff, and students in the Bryan School of Business and Economics.

Academic Accommodations

The University of North Carolina at Greensboro respects and welcomes students of all backgrounds and abilities. If you feel you will encounter any barriers to full participation in this course due to the impact of a disability, please contact the Office of Accessibility Resources & Services (OARS). The OARS staff can meet with you to discuss the barriers you are experiencing and explain the eligibility process for establishing academic accommodations. You can learn more about OARS by visiting their website at ods.uncg.edu, by calling 336-334-544, or by visiting suite 215 in the EU.