Statistics: Measurement in Economics  
Econ 310 (4 Credits), Spring 2021  
University of Wisconsin-Madison

Instructor

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Teaching Assistants

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Instructional Mode

Due to the COVID-19 pandemic, all lectures and discussion sections will be held online this semester.

Course Overview

This course provides an introduction to statistics. We will tackle three main topics. We begin with an overview of descriptive statistics and statistical terminology. Next we turn to probability, a branch of mathematics which provides us with the methods necessary to reason about uncertain environments. Finally, we turn to the bread and butter of statistics: estimation and inference. Particular attention will be paid to the application of these tools to the analysis of economic data.

Prerequisites

Prerequisites for this class include (a) an introductory economics course and (b) Math 211 or Math 221.

Class Meetings and Office Hours

Our scheduled lecture time is Tuesday and Thursday from 2:30 to 3:45pm in the North American Central Time Zone.

On a typical class day, because the lecture is online and asynchronous, rest assured that you may watch the lecture whatever time is most convenient for you.

But there are four days (February 18, March 11, April 1, and April 22) where we will use our class time for online quizzes, so you must be available at our scheduled lecture time these four days. For more information, see the “Evaluation” section below.

Instructor and TA office hours will be conducted online. A schedule of office hours and instructions on how to attend is available via the course website.
Required Course Materials

Because this is an online course, you must have a reliable internet connection for the duration of the course (January 25 through May 5). There is no need for you to be physically present in Madison at any point during the term.

This course requires MindTap, through which you will access the eBook as well our Aplia problem sets. When you log into MindTap for the first time (via our course web-page on Canvas), you will be presented with purchase options, and you will also be granted free “trial access” through February 8, 2021.

Currently, the most cost effective way to access MindTap is to get a subscription to Cengage Unlimited, which for $120 gives you a semester of access to all Cengage textbooks and digital learning platforms. So if you’re taking multiple classes that use Cengage resources this semester, then this subscription will allow you to access Cengage materials for all of them.

If you prefer a physical textbook in addition to the eBook, you will have the option of renting a print textbook when you activate MindTap for $8 with free shipping. If you decide to do this, the textbook you want to rent is:


This course requires frequent use of a computer (Mac or Windows) with Stata installed. Because UW-Madison has a site-license, Stata can be downloaded for free from the Campus Software Library. While completing the problem sets, quizzes, and final exam, you will also need a calculator with the following functions: $x^y$, $x!$, and $e^x$.

Course Website

All course materials will be posted on our course website on Canvas: [https://canvas.wisc.edu/courses/231141](https://canvas.wisc.edu/courses/231141)

Evaluation

Your overall grade for the course will be based on the following components:

- Participation: To build community in this online class, I will be holding virtual office hours. Details on how to attend will be posted on the course website. To encourage attendance, participation is worth 1% of your overall grade. To receive full participation credit, the only requirement is that you attend office hours at least once.

- Aplia Problem Sets: There will be weekly Aplia problem sets, which together are worth 25% of your overall grade – so completing them will be critical to your success. The problem sets will be due each Monday by 11pm in the North American Central Time Zone. Late problem sets will not be accepted for any reason, but your lowest two Aplia problem set scores will be automatically dropped.
• Stata Problem Set: There will be one Stata problem set, which is worth 5% of your overall grade for the course. **For full credit, the problem set must be submitted in Canvas before the submission deadline.** Late problem sets may be submitted after this deadline, but will receive a **20% per day deduction.** To receive full credit, **you must submit your Stata log.** You are encouraged to form a study group with your classmates, but you must **write up your answers independently** (meaning that you should not be looking at another student’s answers as you write up your own). **Problem sets with identical answers will not be accepted (i.e., receive zero credit).**

• Quizzes: Four open-book, open-note quizzes will be administered online and must be completed between **2:30 and 3:45pm in the North American Central Time Zone on February 18, March 11, April 1, and April 22.** These quizzes make up 44% of your overall grade for the course, and may not be rescheduled. On a case by case basis, in the event of a truly unavoidable circumstance, I may elect to shift the weight of one missed quiz to other quizzes or the final exam. In order to qualify, you must notify me of the circumstance in advance of the quiz, it must make completion of the quiz impossible, and it must be fully documented.

• Final Exam: The open-book, open-note, cumulative final for this class will be administered online and must be completed from **5:05pm to 7:05pm in the North American Central Time Zone on May 5.** The final will make up 25% of your overall grade for the course. As with the quizzes, in a class this size it is not possible to reschedule the final – even when students have multiple exams in a 24 hour period. However, if you have another exam at exactly the same time, then I am willing to reschedule so long as you provide evidence of enrollment in a class with a conflicting final and notify me at least two weeks in advance.

**On all quizzes and exams, you must work alone. In other words, you are not permitted to work with your classmates or to receive outside help of any kind.**

Your overall grade for this class will be curved. This curve can help your grade, but cannot hurt it. I achieve this by computing your grade using two different methods. First, I assign grades according to a percentage scale, where A = [92,100], AB = [88,92], B = [82,88], BC = [78,82], C = [70,78], D = [60,70], F = [0,60]. (In other words, if you receive a grade in the class of 92% or better, then you’ll receive an A.) Second, I assign grades according to a percentile scale, where A = [83,100], AB = [65,83], B = [45,65], BC = [25,45], C = [6,25], D = [3,6], F = [0,3]. (In other words, if you perform better than 83% of the class, then you’ll receive an A). Your overall grade in the class is the higher of these two grades.

I strive to make all of the grading transparent and fair. If you are unhappy with the way a problem has been graded, I encourage you to discuss it with me, but you must bring the concern to me within two weeks of when you were first able to view the graded problem set or exam.

**Learning Outcomes**
Following the completion of this course, students will be able to:

• Interpret tables, graphs, and statistics used to summarize data (QRB-3)
• Apply probability theory to model the likelihood of uncertain events (QRB-1)
• Estimate the true value of unknown parameters using point and interval estimators (QRB-2)
• Critically evaluate interpretations of statistical estimates and resulting inferences (QRB-2 & QRB-3)
• Test theories by determining an appropriate test statistic, implementing a formal hypothesis test, and interpreting the outcome (QRB-2)
• Use software to apply statistical techniques to the analysis of economic data (QRB-1)

Credits

The credit standard for this course is met by an expectation of a total of 180 hours of student engagement with the course learning activities (at least 45 hours per credit), which includes watching video lectures, completing problem sets, working on practice problems, taking exams, and other student work as described in the syllabus.

Students with Disabilities

If you have approval from the McBurney Center for disability-related accommodations, please contact me to discuss how these accommodations will be implemented for this course. This should be done as soon as possible, and no later than two weeks before the first quiz.

Religious Observances

If an exam or problem set conflicts with a religious observance, let me know and we’ll work together to make an accommodation. This should be done as soon as possible, and no later than two weeks before the conflict.

Grievance Procedure

The Department of Economics has developed a grievance procedure through which you may register comments or complaints about a course, an instructor, or a teaching assistant. The Department continues to provide a course evaluation each semester in every class. If you wish to make anonymous complaints to an instructor or teaching assistant, the appropriate vehicle is the course evaluation. If you have a disagreement with an instructor or a teaching assistant, we strongly encourage you to try to resolve the dispute with him or her directly. The grievance procedure is designed for situations where neither of these channels is appropriate.
If you wish to file a grievance, you should go to room 7238 Social Science and request a Course Comment Sheet. When completing the comment sheet, you will need to provide a detailed statement that describes what aspects of the course you find unsatisfactory. You will need to sign the sheet and provide your student identification number, your address, and a phone where you can be reached. The Department plans to investigate comments fully and will respond in writing to complaints.

Your name, address, phone number, and student ID number will not be revealed to the instructor or teaching assistant involved and will be treated as confidential. The Department needs this information, because it may become necessary for a commenting student to have a meeting with the department chair or a nominee to gather additional information. A name and address are necessary for providing a written response.

**Misconduct Statement**

Academic integrity is critical to maintaining fair and knowledge based learning at UW-Madison. Academic dishonesty is a serious violation: it undermines the bonds of trust and honesty between members of our academic community, degrades the value of your degree, and defrauds those who may eventually depend upon your knowledge and integrity.

Examples of academic misconduct include, but are not limited to: cheating on an examination (copying from another student's paper, referring to materials on the exam other than those explicitly permitted, continuing to work on an exam after the time has expired, turning in an exam for regrading after making changes to the exam), copying the homework of someone else, submitting for credit work done by someone else, stealing examinations or course materials, tampering with the grade records or with another student's work, or knowingly and intentionally assisting another student in any of the above. Students are reminded that online sources, including anonymous or unattributed ones like Wikipedia, still need to be cited like any other source; and copying from any source without attribution is considered plagiarism.

The Dept. of Economics will deal with these offenses harshly following UWS14 procedures ([http://students.wisc.edu/saja/misconduct/UWS14.html](http://students.wisc.edu/saja/misconduct/UWS14.html)):

1. The penalty for misconduct in most cases will be removal from the course and a failing grade,

2. The department will inform the Dean of Students as required and additional sanctions may be applied.

3. The department will keep an internal record of misconduct incidents. This information will be made available to teaching faculty writing recommendation letters and to admission offices of the School of Business and Engineering.

If you think you see incidents of misconduct, you should tell your instructor about them, in which case they will take appropriate action and protect your identity. You
could also choose to contact our administrator (Tammy Herbst-Koel: therbst@wisc.edu) and your identity will be kept confidential.