



STA 371G
Statistics and Modeling
Spring 2014

Professor Sinead Williamson
Office Hours Tuesdays, 5pm-7pm
Location CBA 6.476
Email Sinead.Williamson@mcombs.utexas.edu

Teaching Assistants Xiao Han and Long Zhao
Email Xiao.Han@phd.mcombs.utexas.edu
Long.Zhao@phd.mcombs.utexas.edu

Syllabus

Course Description

The objective of this course is to learn to apply statistical analyses to business decisions. Statistics allows us to quantify uncertainty in a rigorous manner, and to make decisions and predictions in the face of that uncertainty. This course will cover regression, time series models, decision analysis, and simulation, with an emphasis on business applications.

Regression analysis allows us to estimate the relationship between variables. This is useful for predicting and forecasting. Students will learn to use regression analysis to analyze a variety of real-world data sets.

Time series forecasting involves using historical, time-indexed data — for example historical sales data — to make statements about future data. Students will apply forecasting techniques to real-world time series data sets.

Decision analysis allows us to make decisions in the face of uncertainty. Students will learn techniques for making choosing between alternative decisions and evaluating the cost of obtaining further information.

Simulation is a computational method for quantifying the impact of multiple interacting sources of uncertainty. Students will learn to run simulations and interpret the outputs.

Quantitative Reasoning

This course carries the Quantitative Reasoning flag. Quantitative Reasoning courses are designed to equip you with skills that are necessary for understanding the types of quantitative arguments you will regularly encounter in your adult and professional life. You should therefore expect a substantial portion of your grade to come from your use of quantitative skills to analyze real-world problems.

Textbook

This course is designed to be self-contained, and there is no required textbook. An **optional** textbook that you may find useful is:

- Data Analysis and Decision Making with Microsoft Excel, by Albright, Winston, Zappe, revised 3rd edition.

Software

This is quantitative course. We will be using Microsoft Excel on Windows. If you We will also use the Decision Tools package, see <http://www.mcombs.utexas.edu/tech/computer-services/coe#DecisionTools>.

Course website

Slides, homework problems and any additional material will be posted at sinead.github.io/teaching.

Grades will be posted at canvas.utexas.edu.

Evaluation

Your grade will be assigned in the following way:

Homework	10%
Midterm 1	25%
Midterm 2	25%
Final Exam	40%

Homework will be assigned (approximately) bi-weekly. There will be six homework assignments in total. Students are encouraged to work in groups of up to 4; only one assignment need be turned in per group. Hard copies of homework should be submitted in class, including print-outs of any requested Excel charts. The lowest scoring homework will be excluded from the final grade.

Midterm 1 will take place on February 18.

Midterm 2 will take place on April 1.

*If you need to miss either midterm exam for the observation of a religious holy day, please let me know as far in advance as possible so that alternative arrangements can be made. If you miss an exam for any other reason, **and you inform me before the exam**, you will be able to count your final exam grade as your midterm grade. **If you do not inform me in advance you will receive a 0.***

The **Final Exam** has yet to be scheduled, but will occur in the official Final Exam period between May 7 and 13.

Requests for Regrade

Clerical requests will be corrected without hassle. Other regrading requests must be submitted in writing within one week (7 days) of the exam's return. Be aware that the entire exam will be subject to regrading, and grades may go up or down.

Class Schedule

This schedule lists the topics that will be covered in the semester. Note that this schedule is tentative and subject to change. In particular, review sessions are contingent on having covered the scheduled material for previous lectures. Slides will be posted on the course website.

Date	Topic
Tuesday, Jan 14	Introduction and review
Thursday, Jan 16	
Tuesday, Jan 21	
Thursday, Jan 23	
Tuesday, Jan 28	Simple regression
Thursday, Jan 30	
Tuesday, Feb 4	
Thursday, Feb 6	
Tuesday, Feb 11	
Thursday, Feb 13	Review
Tuesday, Feb 18	MIDTERM 1
Thursday, Feb 20	Multiple regression
Tuesday, Feb 25	
Thursday, Feb 27	Residual Diagnostics/Transformations
Tuesday, Mar 4	Interactions and Dummy Variables
Thursday, Mar 6	Model Selection
Tuesday, Mar 18	Time Series and Forecasting
Thursday, Mar 20	
Tuesday, Mar 25	
Thursday, Mar 27	Review
Tuesday, Apr 1	MIDTERM 2
Thursday, Apr 3	Decision Analysis
Tuesday, Apr 8	
Thursday, Apr 10	
Tuesday, Apr 15	
Thursday, Apr 17	Simulation
Tuesday, Apr 22	
Thursday, Apr 24	
Tuesday, Apr 29	
Thursday, May 1	

Students with Disabilities

Students with disabilities may request appropriate academic accommodations from the Division of Diversity and Community Engagement, Services for Students with Disabilities, 512-471-6259, <http://www.utexas.edu/diversity/ddce/ssd/>.

Religious Holy Days

By UT Austin policy, you must notify me of your pending absence at least fourteen days prior to the date of observance of a religious holy day. If you must miss a class, an examination, a work assignment, or a project in order to observe a religious holy day, you will be given an opportunity to complete the missed work within a reasonable time after the absence.

Policy on Scholastic Dishonesty

The McCombs School of Business has no tolerance for acts of scholastic dishonesty. The responsibilities of both students and faculty with regard to scholastic dishonesty are described in detail in the BBA Programs Statement on Scholastic Dishonesty at <http://www.mcombs.utexas.edu/BBA/Code-of-Ethics.aspx>. By teaching this course, I have agreed to observe all faculty responsibilities described in that document. By enrolling in this class, you have agreed to observe all student responsibilities described in that document. If the application of the Statement on Scholastic Dishonesty to this class or its assignments is unclear in any way, it is your responsibility to ask me for clarification. Students who violate University rules on scholastic dishonesty are subject to disciplinary penalties, including the possibility of failure in the course and/or dismissal from the University. Since dishonesty harms the individual, all students, the integrity of the University, and the value of our academic brand, policies on scholastic dishonesty will be strictly enforced. You should refer to the Student Judicial Services website at <http://deanofstudents.utexas.edu/sjs/> to access the official University policies and procedures on scholastic dishonesty as well as further elaboration on what constitutes scholastic dishonesty.

Campus Safety

Please note the following recommendations regarding emergency evacuation from the Office of Campus Safety and Security, 512-471-5767, <http://www.utexas.edu/safety>:

- Occupants of buildings on The University of Texas at Austin campus are required to evacuate buildings when a fire alarm is activated. Alarm activation or announcement requires exiting and assembling outside.
- Familiarize yourself with all exit doors of each classroom and building you may occupy. Remember that the nearest exit door may not be the one you used when entering the building.
- Students requiring assistance in evacuation should inform the instructor in writing during the first week of class.
- In the event of an evacuation, follow the instruction of faculty or class instructors.
- Do not re-enter a building unless given instructions by the following: Austin Fire Department, The University of Texas at Austin Police Department, or Fire Prevention Services office.
- Behavior Concerns Advice Line (BCAL): 512-232-5050
- Further information regarding emergency evacuation routes and emergency procedures can be found at: <http://www.utexas.edu/emergency>.