QTM 100: Introduction to Statistical Inference

Contact information
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Class
8:15-9:20am MWF
9:30-10:35pm MWF
Humanities 206

REQUIRED MATERIALS

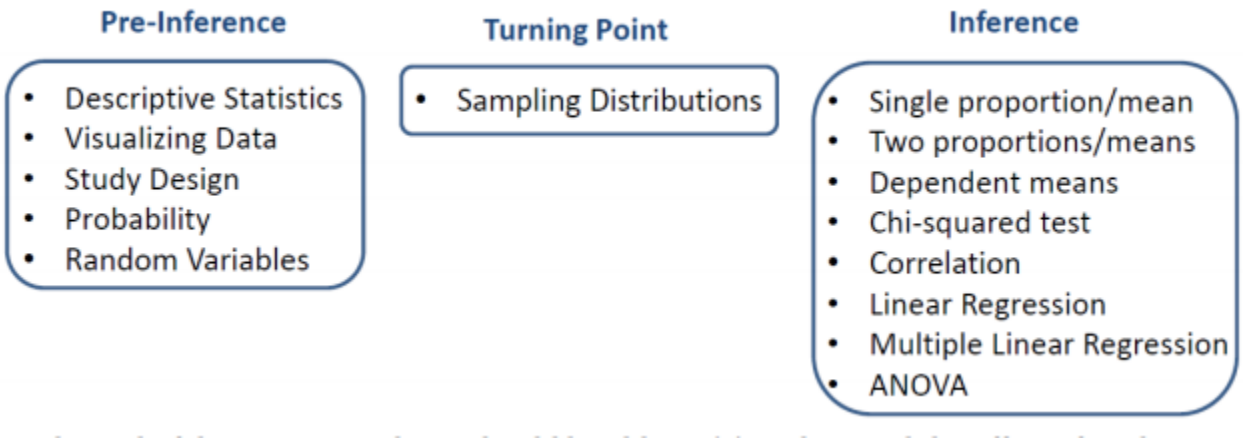
Textbook:
Required: OpenIntro Statistics, 2nd ed, by David Diez, Christopher Barr, and Mine Cetinkaya-Rundel. A free pdf of the textbook can be accessed online at http://www.openintro.org/stat/textbook.php, or you can buy a hard copy on Amazon for around $10.
Although the OpenIntro website is under development, it does have other useful materials such as videos that accompany the text.
Recommended: Discovering Statistics Using R, 1st ed, by Andy Field, Jeremy Miles, & Zoe Field.
http://www.amazon.com/Discovering-Statistics-Using-Andy-Field/dp/1446200469

Calculator: A calculator (that is not on your phone) is required for lecture, and is essential for exams. You can use any type of non-phone calculator.

Laptop: All students are required to install the free statistical software, R. Installation instructions are on Blackboard. Laptops are not required in lecture and may be actually be a hindrance to your learning. I reserve the right to ban laptops from lecture, except for those with a documented disability.

COURSE DESCRIPTION

This course provides an introduction to descriptive and inferential statistics. It is designed as a gateway course for students of many academic interests, with emphasis on practice and implementation. The goal of this course is to introduce students to basic statistical concepts and to encourage critical thinking about data. The figure below provides an overview of how the course is organized. Conceptually, this course can be divided into concepts covered before statistical inference (laying the foundation for inference), then a turning point in the semester when we discuss sampling distributions (the underlying theory behind why statistical inference works), and lastly we discuss many methods of statistical inference.



COURSE GOALS

By the end of the course, students should be able to (1) understand the effect of study design on interpretation of statistical results, (2) identify appropriate statistical methods when presented with new data, (3) read and interpret basic statistical literature of various sources, such as newspaper articles and academic journals, and (4) use R as a tool to perform statistical analysis.

Algebra is the only prerequisite for the course. While statistics does involved math, this course will not require you to memorize formulas. Rather, this course focuses on implementation or appropriate statistical analysis and interpretation of results. Consequently, logical reasoning, critical thinking, and writing are also skills that will be emphasized throughout the course.

Common Courtesy

Please use common courtesy in all your decisions. I promise to spend my time designing these classes to be helpful, engaging and as entertaining as possible. This class is designed to give you a basic understanding of many topics you will encounter in other classes. So please respect your fellow students, yourself, and me. Likewise, I will treat you, your schedules, and your concerns with respect and common courtesy.

Accommodations

Students who require accommodations for physical and/or learning challenges should present appropriate documentation before the end of the second week of class, and plan to meet with me individually to discuss accommodations. Your accommodations are YOUR responsibility. **Failure to set up an alternate test time within 2 weeks of the exam could mean the loss of accommodations.**

Honor code

- Improperly placing students' names on assignments or class exercises, or asking other students to write your name on assignments/exercises to which you did not contribute will also be considered violations of the Emory Honor Code.
- Possession of course exams, lab exercises, or homework assignments that are not yours, or from previous classes, will also be in violation of Emory's Honor Code.
- During exams, looking at other student's exam or discussing exam questions will also be considered violations of the Emory Honor Code.
- Memorizing long passages of someone else's work and using that information to answer an essay question on an exam is not acceptable. You must always cite your sources if the idea is not your own.

- Using any source of information (prepared notes, your phone, the internet) that is not given to you by the instructor to complete an exam is a violation of the Emory Honor Code.
- These are only highlights of the university code. Please read the code in its entirety. You will be required to sign a pledge stating that you have read the honor code and that you abide by it in its entirety.
- **Infractions of the honor code will result in a zero for the assignment/exam and will be referred to the honor council.**

For a copy of Emory University's Honor Code:
http://www.college.emory.edu/current/standards/honor_code.html

Attendance

- Attendance is NOT required. However, I may have opportunities to earn extra credit and/or surprise quizzes during class. These are NOT available for make-up unless you have an excused absence. Illnesses require a doctor's note.
- You are expected to be present for all exams. If you are sick and think what you have is contagious and therefore, you cannot attend the scheduled exam you must email me prior to the exam AND have a doctor's note that is dated for the day of the exam. You will have one opportunity for a make-up exam. Failure to contact me prior to missing an exam will result in a zero for that grade with no opportunities for make-up.

Grading

There will be a combination of **quizzes and assignments** for a total of **50 points**. They will often be open note and open book. Occasionally, we will have a quiz in class and it will be closed note. I suggest you stay on top of your reading.
You will have **ungraded** homework assignments every week. Occasionally, you will be asked to provide the answers to your homework online for credit. The window to submit the answers will be short, thus you'll need to have completed the assignments ahead of time.

Your **lab portion** will be worth **200 points**. All questions related to lab grading and lab exercises should be brought up with Dr. Riner. I can be available for questions related to the statistical concepts and related to R software if necessary.

There will be four **exams** worth **75 points** each. Statistics, by nature, builds on previously learned topics. While you may not be expressly questioned about topics from previous exams you should expect some cross over to occur. In short: Exams can be cumulative.

The **final exam**, worth **200 points**, will take place
(for the 8:15am class) **Tue May 5th from 2pm-5pm and will be cumulative.**
(for the 9:30pm class) **Wed April 29th from 9am-12pm and will be cumulative.**

The class is graded on a points system where you can earn a total of 750 points. There will be NO rounding up.

697.5-750	= A
675-697.49	= A-
660-674.99	= B+
622.5-659.99	= B
600-622.49	= B-
585-599.99	= C+
547.5-584.99	= C
525-447.49	= C-
472.5-524.99	= D
450-472.49	= D-
Below 450	= F

Late Policy

- There is no late policy. All quizzes and assignments are to be turned in on time. Keep in mind that the quizzes and assignments may require the internet. The internet being 'down' is not an excuse, so plan ahead and submit things early.

Email Policy

- You must write "QTM 100" in the subject line of your emails. You must include your full name in the body of the email. I will check my email at least once a day between 1 and 3pm. I will not respond to emails that do not follow the protocol listed above and I may not respond to emails that ask me for extra credit, additional points, re-grading, or for information found in the syllabus.

Research and/or independent study

- Occasionally, students ask to do research with me and/or sign up or an independent study. I am willing to accept any student who turns in work on time, comes to class regularly, and shows initiative. You do not need to have gotten an A in the class, though of course that is often a way to show initiative. Keep in mind we do not have a small animal facility here at Oxford, so my current research is focused on investigating the mind-body connection and the scholarship of teaching and learning. I try to use modern neuroscience to influence my work, but there are currently no opportunities for neural based research.
- If you would like to work with me, it is your opportunity to brainstorm for ideas that you would like to investigate. I am open to many different ideas, so please do not hesitate to ask. I can help formulate your idea into a workable hypothesis and we can work together to bring a project to publication.

Letters of recommendation

- The best letters are written for students who make themselves known to me. Talk with me throughout the semester, invite me to your performances and events, come to office hours, etc. It is not enough to get an A in the class, nor is an A necessary for me to write a letter.
- I need a minimum of 30 days for the first letter, 2 weeks for each additional letter.

Additional

- I reserve the right to change or amend this syllabus.
- Student work submitted as part of this course may be reviewed by Oxford College and Emory College faculty and staff for the purposes of improving instruction and enhancing Emory education