

Course Syllabus
Math 2210 XX---Spring 2011

Instructor: Dr. Neal Smith

Phone: 729-2283

Office: Allgood N329

Office Hours: 8-9 MW, 9-10 TR, and by appointment.

Text and supplemental readings: Elementary Statistics Using the TI83/84, by Triola, The Lady Tasting Tea by David Salsburg, and Fooled by Randomness by Nassim Taleb.

Other Required Items: A TI-83, 83-plus, 84, or 84-plus is required. We will make extensive use of the calculator.

Grading: Your grade will be determined by your performance on the following items.

2 'mid-term' exams -----	30% each
Comprehensive final-----	30%
Quizzes* -----	10%

If your final percentage is in the interval..	Your course grade is...
[88%, 100%]	A
[78%, 87%)	B
[68%, 75%)	C
[55%, 68%)	D
[0%, 55%)	F

*---A 'quiz' will usually take the form of a short homework assignment (typically 2-4 problems and a couple of brief essay questions about the readings) that you are asked to take home and subsequently turn in during the next class period.

Note: As this is an honors course, in this course, we will cover all of the topics which are normally covered in Math 2210 plus 2 supplemental topics which are usually not discussed in depth (Bayes' rule and Markov chains). In addition, through the supplemental readings, the student is meant to gain understanding of the historical development of statistics (in the Lady Tasting Tea) and current issues in the (mis)-application of this field (Fooled by Randomness).

Other Policies:

Attendance: I'm not the attendance police, but you need to be here every day. I know it, you know it. I will take attendance, but this will not be a direct consideration in your course grade.

Quizzes: In the event of (unavoidable) absence, quizzes may be turned in before they are due in my mailbox in Allgood N319.

Make-ups: If you miss an hour exam (for whatever reason), the final exam will carry extra weight corresponding to the missed exam. Using this option is highly inadvisable, as the final is usually perceived to be the most difficult exam in the course.

Partial credit: If you wish to take advantage of partial credit, you will be graded upon the correctness of your solutions to problems and upon the correctness and quality of your work. This means you should endeavour to be clear and complete in your work.

Honor Statement: Each student is responsible for maintaining academic honesty as specified in the ASU catalog. On quizzes, you are free to work with other students. However, any collaboration with others on an assignment designated as an exam or as a portion thereof is forbidden.

Etiquette: All the common sense stuff they told you at freshman orientation applies. Except in cases of sudden and violent illness, leaving class early (unless arranged in advance for a legitimate academic purpose) serves no constructive purpose other than to quickly and efficiently alienate the professor. Cell phones should be neither seen nor heard in the classroom. Those who arrive late to class distract everyone in the classroom; thus, students who are persistently late to class may be withdrawn from the course in accordance with the policy in the student handbook.

Guests: Guests (including children) are not allowed in class.

Withdrawals: If you decide for whatever reason to drop the course you have the responsibility of making sure you have jumped through the necessary hoops (i.e. collected and filled out all the forms, collected all the necessary signatures, etc. etc. etc.) before the withdrawal deadline (March 1 is the last day to drop the course with a *W*). Extended non-attendance will not necessarily cause me to drop you from the class roll. Grades of

W are only assigned after midterm in the event of extraordinary (non-academic) circumstances where the student is passing the course and require documentation (by the student) and approval by the department chair.

Tentative Course Calendar. This is meant to give a rough idea of how much time we will spend covering the given topics. The exact dates of exams will be announced in class. Each student is responsible for keeping aware of these dates.

*---denotes topics which will be primarily covered in the lecture (and have minimal or no coverage in Triola). Homework will be assigned in class as appropriate.

Lecture(s)	Topic	Readings LTT-Lady Tasting Tea FBR-Fooled by Randomness
1	Introduction to Statistics	LTT-Chapters 1-2.
2/3/4	Basic Measures of Centrality and Variation in Statistics Using the TI-83/84	
4 / 5/6/7	Basic Methods in Probability Conditional Probabilities The Law of Total Probability	FBR-Chapters 1-4 and chapter 11.
8	EXAM #1 (plan for February 2)	
9/10	*Bayes' Rule	LTT-Chapter 13.
11	*Three views on the nature of probability: Frequentists vs. Bayesians vs. Likelihoodists.	
12/13	Probability Distributions Binomial and Poisson Distributions	
14/15	The Normal Distribution Standardization The Inverse Normal Distribution	FBR-Chapters 4-6.
16	The Central Limit Theorem	LTT-Chapter 9.
17/18	Estimation of Population Parameters (Confidence Intervals)	
19	EXAM #2 (plan for March 14)	
20/21/22	Hypothesis Testing: Terms and Methodology One vs. two-sample tests.	LTT-Chapter 11.
23/24	*Philosophical issues in hypothesis testing, Karl Popper, and "Bayesian" hypothesis tests	FRB-Chapters 7-9
24/25	The Chi-Square probability distribution and "Goodness of Fit" problems	LTT-Chapter 10.
26/27	Correlation and linear regression	
28	*Taleb's major malfunction: extrapolation and seeing patterns in data where there are none.	
29/30/31	*A brief introduction to Markov chains	

Final exam: Monday, May 2 from 1-3 pm.

