

SYLLABUS FOR STATISTICS 100B - LECTURE 1

WINTER QUARTER 2008

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Office hours: MW 17:00 - 19:00, T 16:00 - 18:00

Lecture	Day	Class Time	Location
Lecture 1	MW	12:00 - 13:30	Botany 325

Section	Day	Discussion Time	Location
1A	T	11:00 - 11:50	FRANZ 1260

Textbook: John Rice, *Mathematical Statistics and Data Analysis*, Duxbury Press.

COURSE TOPICS

1. The distribution of a function of a random variable - Chapter 2.
2. Simulations: Techniques for simulating continuous random variables - Chapter 2.
3. Moments, and moment generating functions - Chapter 4.
4. Moments of linear combinations of random variables and covariance between two random variables - Chapter 4.
5. Chebyshev's inequality - Chapter 4.
6. The Central Limit Theorem and the Law of Large Numbers. The distribution of the sample mean and sum of n observations - Chapter 5.
7. The Chi-Square distribution and the distribution of the sample variance. The F and t distributions - Chapter 6.
8. Estimation and properties of estimators. Method of moments and method of maximum likelihood. Cramer-Rao inequality, Rao-Blackwell Theorem - Chapter 8.
9. Confidence intervals for means and proportions - Chapters 7 and 8.
10. Hypothesis testing. The Neyman-Pearson lemma. Power function and likelihood ratio tests - Chapter 9.
11. Regression and correlation - Chapter 14.

COURSE GRADES:

There will be three (3) exams and homeworks or labs that will be assigned every week. Please staple your homeworks and labs and write your name on them. Late homeworks will not be accepted and make-up exams will not be given. Being in class on time and fully participating is important for your understanding of the material and therefore for your success in the course. You are required to attend all the lectures. Attendance will be taken at random times during the quarter and it will count for 20% of your grade.

The course grade will be based on the calculation

$$Final\ score = 0.10 \times Homework + 0.10 \times Labs + 0.20 \times Attendance + 0.15 \times Exam1 + 0.15 \times Exam2 + 0.30 \times Exam3.$$

Important dates:

First day of classes: 07 January 2008.

Last day of classes: 14 March.

Holidays: 21 January (Martin Luther King, Jr.), 18 February (Presidents Day).

Exams:

Exam 1: Week 4.

Exam 2: Week 7.

Exam 3: Week 10.

Good Luck !!!