

**Math 411B Winter 2011**  
**Introduction to Mathematical Statistics**

**Instructor:** Dr. Kathy Temple

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**Office Hours:** MW 2:30 - 3:30 PM, T 1:00 - 1:50 PM, Th 12:00 - 12:50 PM, and by appointment.

**Course Goals:** At the end of this course, students should understand some further topics in basic probability theory and beginning topics in mathematical statistics. Specifically, we will cover:

- Some further families of discrete distributions, including the hypergeometric, Poisson, and multinomial distributions.
- The common families of continuous distributions, including the uniform, gamma, exponential, chi-square, beta, normal, and bivariate normal distributions.
- Distributions of functions of random variables, using the distribution function technique, transformation technique, and moment generating function technique.
- Common sampling distributions, including the chi-square, t, and F distributions.
- Basic properties of point estimators.

**Prerequisite:** Math 411A or permission.

**Required Text:** Miller and Miller, *John E. Freund's Mathematical Statistics with Applications*, 7th Edition.

**Chapters Covered:** Chapters 5 (sections 6 through 9), 6, 7, 8, and the first part of chapter 10.

**Evaluation:**

- Homework (30%)
- Two in-class exams (20% each); tentative testing dates: Wednesday, Jan. 26 and Wednesday, Feb. 23.
- Comprehensive final exam (30%); given Friday, Mar. 18, 8-10 AM

**Course Conduct:**

- The textbook is required. You will also want to have at least a scientific calculator. If you already own a TI-83 or 84, they have certain built-in distribution functions that you may find helpful.
- Homework will be assigned often in class and due dates will be announced at the time of the assignment. Homework must be done neatly, *stapled*, and written on clean-edged paper. Your work should be clear, in a logical order, and provide sufficient explanation. What's sufficient explanation? A good guide is to think about whether another student in the class who didn't know how to do this particular problem could understand your solution. This will also help you understand your solution later! Credit will not be given for late homework.

- Any changes to the tentative exam schedule will be announced in advance. Make-up arrangements must be made prior to an exam unless you can document an unexpected circumstance beyond your control that prevented you from taking the exam.
- Optional “problem session” sheets will be distributed weekly. If there is interest in the class, a group time to work on these problems outside of class time could be scheduled. While these problems are optional, you are strongly encouraged to do them!
- During the last week of classes, you will have regular homework assignments due.