WINTER 2011

STAT 412: SECTION 1

Instructor: Dr. Shyamala Nagaraj
462 West Hall, 936-4804, shyamnk@umich.edu

Lecture: T Th 10 – 11.30 am, 296 Dennison

Office Hours: Tuesdays, 12 – 2 pm, or by appointment

GSI: David Kim (ddkim@umich.edu)

Office hours: Mondays, 9 – 11 am, West Hall 274.

Classes begin January 6, 2011; the instructor’s office hours will be held from second week of the semester

Course Objective: This course introduces topics in probability and statistics for engineering and the sciences with emphasis on fundamental concept and practical interpretation.

Course Outline: This course covers

- probability, random variables, and probability distributions (Chapters 1-5)

- sampling distributions, point estimation, confidence intervals, and hypothesis tests (Chapters 6 - 9)

- anova and regression (Chapters 10 - 13, to the extent possible).

Prerequisites: Calculus I and II (Basic Differentiation and Integration).

Ctools site: Asides from lectures, Ctools will be the most frequently used form of communication. All course materials, announcements, surveys, etc will be posted. However, some notes will be distributed only in class.

Assessment: The final grade is based on homework (30%), two midterms (30%), and the final exam (40%). You can earn a further 5 percentage points in extra credit.

Integrity: A reminder about our expectations (both yours and mine) that everyone will act with integrity. This class will function effectively if we treat each other with honesty, fairness, respect, and trust.

Exams: The final exam is cumulative. Coverage for the midterms will be announced prior to the exam dates. The dates of the midterms and final are, respectively: Thursday, 17 February, in class; Thursday 24 March, 2011, in class; Tuesday, April 26, 2011, 1.30 – 3.30 pm (place to be announced). Alternate times are not ordinarily possible. Excepting medical emergencies, requests for special exam times, accompanied by supporting evidence, will be considered only during the first two weeks of classes.

Homework: Generally, homework will be assigned on Wednesdays or Thursdays (these are usually questions from the text) and is due back latest the following Thursday in class (before the lecture begins; if you are late, come in quietly and hand in at the end of class). Late homeworks will not accepted (homework handed up after class has begun is considered late). Electronic versions of homework sent via email will only be accepted when prior arrangements (prior to class) have been made or under (very) extenuating circumstances. Final decision for acceptance of any electronic submission is at the discretion of the Instructor. Collaboration on homework is encouraged. However, each student must hand in their own assignment. Assignments that have been clearly copied electronically from another student and modified will result in a score of 0 for all parties involved. Solutions for homework problems will be posted on CTools. One homework score, your lowest, will be dropped when calculating the final homework score.

Extra credit: Determined by the quality of your contributions to the class. You don’t have to contribute often or even frequently, to get full participation credit. You can collect:

- 1 of these 5 points by meeting with the Instructor at least once before Winter Recess to introduce yourself,
- another 1 by completing a form telling me about your interest in statistics (form provided on CTools), and
• 1 point each for filling up the mid-semester and final evaluation forms (for this, you will need to email me the email receipt you receive upon submission of your evaluation. If you inadvertently delete this, you can email me a screen image of your page showing all evaluations done). For credit to be recorded, you must submit these in a timely manner (at the appropriate time, I will send out the announcement alerting you).

Regrading: All homeworks will be graded by your GSI and questions about grading should be directed to him, first. You’re welcome to ask the professor or GSI to reconsider a grade. For exams, this request must be in writing or in person after comparing your answer against the solution and identifying where you were wrongly graded. In either case, your request should be polite and well-reasoned to ensure a consideration of the request.

Lecture resources: Notes will be posted online as early as possible prior to class. It is advisable to print out the lectures prior to class so that you can make notes on it. Some pages will have blank spaces to be filled in during class. We will roughly cover a chapter a week (two at the beginning); chapters will be covered consecutively, so you read ahead to prepare for class.

Software: We will be using R software (this is a free software). There will be an introduction to R at the start of the course, but thereafter you are expected to use code that will be provided to obtain computational results on your own. R code need not be shown on homework; however, R output on which your answer is neatly typed or penciled in is acceptable. You are expected to understand all R code and output as this is the means whereby information required for doing problems will be provided in the examinations.

Lecture etiquette: As soon as lecture has begun (usually 10 minutes after the posted start of the lecture), please “silence” your cell phone, and refrain from using it in any way; and refrain from disruptive or unrelated conversations with classmates. Please try to be punctual. Late arrivals, early departures or leaving for a part of lecture does not require an excuse or special permission, but whenever you come or go during the appointed lecture period we ask that you make every effort to minimize disruption for your fellow students and the Instructor.

Communication:

(1) Weekly announcements will be posted to draw your attention to matters regarding the course.
(2) Office hours are for you to meet with your GSIs and Instructor. They have been timed to assist students who may have problems with homework prior to submission. If you are unable to come to these office hours on a particular week, it may be possible to arrange an appointment.

(3) The forums tool on CTools may be used to post a query related to homework. We will respond as soon as possible. Other students are also encouraged to respond. Expect a 24-hour response time during the week. Questions posted on weekends will not be addressed by us until the following week.

(4) We can, of course, always be contacted by email.

Learning tips: The most important prerequisite is not formally stated. It is simply that students are organized and are able to meet the rigor of weekly investment in learning and keeping up with homework. We will cover roughly one chapter a week, consecutively. Sections that are covered in the course will be highlighted in the lecture notes. As is the norm in a university course, it is impossible to learn all of the material just by attending lectures. It is vital that each student take an active role in his or her own education by attempting to solve problems. In fact, most of what you learn in this course will be the result of working through exercises that are designed to reinforce key concepts, develop skills, and test your understanding of the material. Before you try working the exercises, however, do the reading assignment. Reading the relevant sections in the text will help you review the important concepts before you start on the exercises. Some of the exercises are straightforward, others are very complex. It will be helpful if after each class meeting, you read through the material from the section discussed in that class.

Wiki site: In order to facilitate learning, at the end of lecture, students will be given three minutes to note down the main ideas covered that day. At each lecture, one student will be assigned to record briefly the main ideas and one student assigned to record a question that relates to the material covered on the Wiki site. All students can then improve upon this. At the end of the course, the Wiki notes can serve as a summary or overview of concepts covered in the course.