STAT 451: Summer 2012 (session II)
Intro to Probability Theory

Course Information

Course: Stat 451: *Intro to Probability Theory*
Time/Place: Monday and Wednesday 4-5:15pm
Instructor: Dr. Stanwyck
Office: MP 408
Email: estanwy1@math.umbc.edu
Office Hours: Monday 4:10-5:40 and by appointment
Text book: Introduction to Mathematical Statistics
By Hogg, McKean, Craig; 6th edition, Pearson

Course Description

By the end of this course, students will be able to understand probability measure, random variables, and their distribution functions; they will be able to master many of the distribution finding techniques, such as transformation and moment generating methods; and they will be very familiar with special distributions such as binomial, poisson, normal, gamma, and beta distributions.

Prerequisite: MATH 251 (Multivariable Calculus)

Main Topics

- Probability and distributions
- Random variables and expectations
- Multivariate distributions
- Conditional distributions
- Independent random variables
- Special distributions (binomial, poisson, gamma, beta, normal, t, F)
- Order statistics, confidence intervals, tolerance limits

Grading Method

Homework (due Mondays and Wednesdays)	0%
Quizzes (best 5 out of 6)	25%
Participation (Mon/Wed)	20%
Exam I (Oct. 12)	25%
Final August 16th	30%

Graded work

Homework: Homework will be assigned regularly. It is expected that you will complete the homework before the next class, but homework is not collected or graded.

Participation: Students will take turns coming to the board to demonstrate the homework problems. Attend regularly and come to class prepared to do problems on the board to get full credit for participation. Each student must complete four (4) problems at the board, as well as participating in class activities, for full participation credit.

Quizzes: A short quiz will be given at the beginning of class once a week, based on the homework assigned previously. Quizzes are closed book, closed notes.

Exam and Final: There is one midterm and one final. The exams are not comprehensive, but due to the sequence of concepts developed in the course, later exams will require you to understand and retain materials from previous exams. All exams are closed book and closed notes.

Tentative Calendar

Note: The dates below are *very* tentative and subject to change. This is just a general plan for the course.

We will cover chapters 1, 2, and 3 from the textbook, with additional topics from chapter 5 if there is time.

Date	Contents
Mon 7/9	intro/calculus review, set theory
Wed 7/11	[HW 1, quiz 1] combinatorics, probability set function
Thurs 7/12	conditional probability and independence
Mon 7/16	[HW 2] random variables (discrete and continuous), transformations
Wed 7/18	[HW 3, quiz 2] transformations, expectations, special expectations
Thurs 7/19	inequalities, multivariate distributions
Mon 7/23	[HW 4, quiz 3] multivariate distributions, expectation of 2 random variables
Wed 7/25	[HW 5] bivariate transformations, conditional distributions
Thurs 7/26	[midterm review] conditional distributions
Mon 7/30	[MIDTERM]
Wed 8/1	[HW 6, quiz 4] correlation coefficient
Thurs 8/2	correlation coefficient, independent random variables
Mon 8/6	[HW 7, quiz 5] binomial
Wed 8/8	[HW 8] Poisson, gamma
Thurs 8/9	gamma, beta
Mon 8/13	[HW 9, quiz 6] normal distribution
Wed 8/15	[HW 10, final exam review]
Thurs 8/16	final exam

Blackboard

Course materials (syllabus, homework) will be posted on the Blackboard website for this course. Important announcements will be posted to Blackboard, so make sure to check regularly.

The Official UMBC Honor Code

By enrolling in this course, each student assumes the responsibilities of an active participant in UMBC's scholarly community in which everyone's academic work and behavior are held to the highest standards of honesty. Cheating, fabrication, plagiarism, and helping others to commit these acts are all forms of academic dishonesty, and they are wrong. Academic misconduct could result in disciplinary action that may include, but is not limited to, suspension or dismissal.

To read the full Student Academic Misconduct Policy, consult the UMBC Student Handbook.