MATH 6242 SYLLABUS
FALL 2006

Course Number: Math 6242

Course Title: Probability II

Lecture Time: MWF 2:05–2:55pm

Lecture Room: Skiles 154

Instructor: Dr. Yuri Bakhtin
Office: Skiles 167
Office Phone: 404-894-9235
Email: *bakhtin@math.gatech.edu*
Office hours:TBA

Course Web Page: *http://www.math.gatech.edu/~bakhtin*

Contacting me: The best way to contact me is by email.

Prerequisite: Math 6241 (Probability I)

Brief Description: The class is intended to provide a mathematical introduction to Probability Theory. This is part two of a year long sequence.

Sourses: Your main sourse will be your lecture notes. A lot of material to be covered in the course will be close to Chapters 6–9 of our main text: *Kai Lai Chung, A Course in Probability Theory, 3rd edition.* However, there will be no exact correspondence between that text and the lectures.

Material:

- Chapter 6: Characteristic functions
- Chapter 7: Limit theorems for sums of independent random variables and related topics
- Chapter 8: Random walks
- Chapter 9: Conditional expectation. Markov property. Martingales, sub- and supermartingales

If time permits, I will also discuss the following topics:

- Basics of Ergodic Theory
- Basics on Poisson Process and Brownian Motion

Honor code: All students are expected to comply with the Georgia Tech Honor Code. Any violations of the Georgia Tech Honor Code will be submitted directly to the Dean of Students. The Georgia Tech Honor Code is available at

`http://www.deanofstudents.gatech.edu/integrity/policies/honor_code.php`

Grading: There will be 5 homework assignments (each one is worth 5%, the lowest score will be dropped which amounts to total of 20%), two in-class exams (each one is worth 20%), and one comprehensive final exam (worth 40% of the final score). Letter grades will be based on the accumulated points according to the standard 90%, 80%, 70%, 60% cutoffs: A: 90–100, B: 80–89, C: 70–79, D: 60–69, F: 0–59.

At the end of the course I shall evaluate the class distribution and decide if a curve is needed which may result only in lowering the above cutoffs.

Homework: Homework assignments will be given approximately once every two weeks, and will usually be due one week after they are handed out. Homework will consist of problems selected from the book or made up by myself. All homework assignments will appear online at the URL given above. Homework must be stapled. Please print your name on the front page of each assignment you submit. All homework is due by 5pm on the due date or it will be considered to be late and will not be accepted.

You are allowed and encouraged to work together with other students on the homework as long as you each *independently write up your own solution.* You are encouraged to ask me questions.

Exams: At the exams you will have to demonstrate your knowledge of the course material as well as your ability to solve problems based on it. Most problems on the exams will be similar to those discussed in class or assigned as homework. The tentative dates for the exams are:

Exam 1: Sep 27, Wed (in class, 50 minutes)
Exam 2: Nov 8, Wed (in class, 50 minutes)
Final Exam: Dec 15th (Fri), 11:30 – 2:20

All exams are closed-book and no aids will be allowed. Makeup exams are given only in extraordinary circumstances.

Some other special dates: There will be no class on Mon September 4, Mon October 16, and Fri, November 24 due to Official school holidays or the recess.

Fri, October 13 is the Drop Day.