Calculus Ib

MWF
2:30-3:20
SCTR A155

Robert Bosch
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Office hours

MW 3:30-4:30, TuTh 12:00-1:30, or by appointment.

Course outline

We will cover most of chapters 4 through 6 of Stewart's *Calculus* (sixth edition).

Homework/Quizzes

On a daily basis, I will assign and collect problems from Stewart. Occasionally, I will administer quizzes.

- It is extremely important that you attempt to do as many of the homework problems as you can. It is impossible to learn mathematics without doing problems! (Can you become a good tennis player just by watching U.S. Open matches on television?)
- This class is worth three credit hours. Accordingly, I expect you to devote about six hours per week outside of class to reading the text and working on homework problems.
- I encourage you to work on the homework problems in groups, but I require that you submit your own write-up. If someone in your group provides a key idea, give them credit for it!
- If you don't know how to do a problem, try to start the problem and indicate where you got stuck.
- Please write in complete sentences. Also, neatness and style will count!
- Answers to the odd-numbered problems are in the back of the book.
- I have four hours of office hours per week. Please make use of them! I'm also available at other times by appointment.
- E-mails are fine too. I'll try to respond to each message within 24 hours.

Bosch	Probability Models and Random Processes	Spring 2008

SYLLABUS

TuTh
3:00-4:20
King 227

Robert Bosch
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Office hours: MW 3:30-4:30, TuTh 12:00-1:30, and by appointment.

Required text: Sheldon M. Ross, *Introduction to Probability Models*, Academic Press, ninth edition.

Purpose: This course can be viewed as an introduction to mathematical modeling. During the semester, we will survey a variety of mathematical models. Many of them are considered classics, and virtually all of them are stochastic (i.e. involve probability). We will devote the first two weeks or so to Distance and Location Problems and a review of Probability (Chapters 1-3). We'll then take a long, hard look at Discrete Time Markov Chains and Markov Decision Processes (Chapter 4). Afterwards, we will study Poisson Processes (Chapter 5) and Continuous Time Markov Chains (Chapter 6). Depending on how quickly we move, we may study Renewal Theory (Chapter 7), Queueing Theory (Chapter 8), Reliability (Chapter 9), and Simulation (Chapter 11). In addition, we may study Stochastic Dynamic Programming and Revenue Management.

Homework: Homework will be due at my office by 4:30 pm on Fridays. I encourage you to discuss the assignments with your classmates, but I insist that you write and submit your own solutions. Under normal circumstances, no late homework will be accepted. Each homework assignment will be worth 25 points. At the end of the semester, when computing your homework grade, I will drop your lowest score.

Exams: There will be two midterms. The first one will have two parts: an in-class portion and a take-home portion. The second will be a take-home exam. You will have the option of taking an in-class final **or** doing a final project. (To do a final project, you must submit a proposal to me by April 21.) All exams will be open-text, open-notes. The first midterm will be held on March 13. The second will be distributed on April 24. The final will be held on May 16 at 7 pm.

Project: The final project can involve you doing some modeling, conducting a simulation, or writing a research paper on a topic that interests you. Each team of students that does a final project must give a brief in-class presentation of their project and submit a 5-10 page written report. Presentations will be held during the last week of class. The written reports will be due at 7 pm on May 16.

Grading: The homework assignments will be worth a total of 25% of the final grade. Each exam (or project) will be worth 25%.