

36-703: Intermediate Probability, Spring 2009

<http://www.stat.cmu.edu/~vventura>

Class schedule : TR 12-1:20 in Porter Hall 226C

Instructor : Valérie Ventura, Baker Hall 229E, vventura@stat.cmu.edu (x8-4249)

OH : Tuesdays 2:30pm to 4pm

TA : Darren Homrighausen, dhomrigh@stat.cmu.edu

OH : to be determined

Objective

The goals of this course are primarily to study in depth a range of important stochastic processes. By the end of this course you will be able to analyze models based on standard stochastic processes, including Markov processes, point processes, and diffusions (if time permits).

Textbook

Probability and Random Processes, 3rd Edition, by Grimmett, GR and Stirzaker, DR

Course Grading

40% : best 2 out of 3 mid-term exams (20% each): **Feb 5, Mar 5, Apr 9**. Mark these dates. There will be no make-up exam.

25% : final exam. Date to be determined.

25% : Homework

10% : Class participation

Homework

The homework will be assigned every Friday, and will be due the following Friday by 12 noon, at a location to be determined. No late homework.

Start the HW **as soon as I give it to you**. If you get stuck on a problem, go back to the book and the notes, and try again. If you are still stuck, wait for a day; sometimes sleep does wonders. If you are still stuck, it is time to see me, or your TA for help. Please come with what you have done, and try to identify what stops you (is it a calculation you can't do, a concept you can't apply, etc ...). There is enormous (enlightening) value in getting stuck, provided you understand why when you get unstuck.

Finally, you should study my solutions to the HWs, even if you received full credit to a question. I might have a solution that is better than yours (or the contrary).

Exams

All exams are closed book and closed notes. They might contain HW problems, class examples or proofs, and examples treated in the book. This means that you should spend a very substantial amount of your time studying and working through the class notes and the book. Working only on the HW will not be a good strategy for this class.

Study Tips

After each class, go over your notes, fill in gaps with extra explanations, study the corresponding sections in the book; also make a list of the points you don't fully understand, discuss them with friends, with your TA and/or with me. **If you don't ask any questions, I will have an inaccurate perception of what you do and do not understand. Please ask questions so that I can provide more explanations on difficult/interesting topics.**

When you read the book, actually **DO** the examples, hiding the solutions, and then compare your solutions to those in the book.

Come to each class with a good knowledge of the material that was covered in the previous class.

Group Work

There is value in sharing knowledge and discussing problems with others; learning more/faster and keeping your motivation high are two positive aspects, so I encourage you to work with others. However there are few negative sides to these practices. For example, you must refrain from getting the answer to a difficult problem too promptly; persevere until you identify where and why you are stuck so that you can ask (me/the TA/a fellow student) a pointed question; identifying what you cannot do/do not understand is the key to progress and long lasting knowledge. If you feel uneasy about some concept, even after discussing it with fellow students, please check with me that you understand it correctly. (I have known a group of students who kept confusing one another.)

I think that the best way to work with others is to solve all the problems on your own, then meet to discuss and compare. I expect the solution that you turn in to represent your own understanding of the problem, however, so do the final write-up independently.

You are welcome to use computer software, other people, and other books unless I explicitly state otherwise. As with the teamwork, these sources should not be used as a substitute for your thoughtful work.