

Mathematics 1550H – Introduction to probability

TRENT UNIVERSITY, Summer 2013

[In Peterborough!]

Instructor

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office: GCS 337

Office hours: Monday and Wednesday 12:00-13:00

or by appointment, or just drop by!

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Department of Mathematics

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Prerequisite

MATH 1005H, or MATH 1100Y, or MATH 1101Y, or permission of the instructor. MATH 1100Y or MATH 1101Y may be taken as a co-requisite.

Text

Fundamentals of Probability, with Stochastic Processes (3rd Edition),

by Saeed Ghahramani, Pearson Prentice Hall, 2004, ISBN-10: 0-131-45340-8.

Meetings

The course will run during the second six-week summer session (S62: 24 June – 1 August), 09:00-12:00 on Mondays and Wednesdays in locations to be announced. Normally, the first half-hour or so of each three-hour period will be used as a seminar, followed by a quiz on the material in the previous lecture, and the rest will be used as lecture time.

Marking Scheme

There will be at least nine quizzes, at least five assignments, a test, and a final examination. Quizzes will normally be written in the lectures and last between ten and twenty minutes apiece. The assignments will usually be handed out and collected on Wednesdays. The test will last fifty minutes and will probably be written during the lecture period on Monday, 15 July. The final examination will last three hours and will be written as scheduled by the Registrar's Office during the examination period (5–6 August). These will weigh as follows in the final mark:

Best 8 quizzes (4% each)	32%
Best 4 assignments (5% each)	20%
Test	15%
Final Examination	33%

Students who miss the test or more than one quiz for reasons beyond their control should contact the instructor as soon as possible to arrange to write a make-up. Assignments will not normally be accepted after the due date; students unable to hand in the assignments in time for reasons beyond their control should contact the instructor as soon as possible. Note that there is no attendance requirement *per se*, but the consequences of missing classes are ultimately the students' responsibility to deal with.

This scheme may be modified for individual students in *exceptional* circumstances, such as a lengthy absence due to illness. Any such modification will require the agreement of both the student and the instructor.

* The Deans' Office has told the instructor not to put an alternate e-mail address on this course outline. You can ask the instructor for one if you think you may need to contact him by e-mail, but for anything important, *call or come by in person!*

Content & Schedule

MATH 1550H is an introductory probability course, with an emphasis on the foundations required to understand probability models and statistical methods. We will cover material from Chapters 1 through 8 and 11 of the text, namely:

- Week 1.* [24-28 June] Chapters 1 & 2: Axioms of probability, combinatorial methods. Quiz #1 on Wednesday, 26 June.
- Week 2.* [1-5 July] Chapters 3 & 4: Conditional probability, independence, discrete random variables, cumulative distributions, expectations, variance. No class on Monday, 1 July [Canada Day]. Quiz #2 written and Assignment #1 due on Wednesday, 3 July.
- Week 3.* [8-12 July] Chapter 5: Examples of discrete random variables. Quiz #3 written on Monday, 8 July; Quiz #4 written and Assignment #2 due on Wednesday, 10 July.
- Week 4.* [15-19 July] Chapters 6 & 7: Continuous random variables and examples thereof. Test written on Monday, 15 July; Quiz #5 written and Assignment #3 due on Wednesday, 17 July. *The last date to drop this course without academic penalty is Thursday, 18 July.*
- Week 5.* [22-26 July] Chapters 6 & 7: Normal random variable, normal approximation to binomial random variable. Quiz #6 written on Monday, 22 July; Quiz #7 written and Assignment #4 due on Wednesday, 24 July.
- Week 6.* [29 July - 2 August] Chapters 8 & 11: Bivariate distributions, sums of independent random variables, moment generating function, Central Limit Theorem. Quiz #8 written on Monday, 29 July; Quiz #9 written and Assignment #5 due on Wednesday, 31 July.

Please note that where the material covered is concerned this schedule is a polite fiction: no lesson plan survives contact with actual students unchanged! Additional material, including material not in the text, may be covered on assignments and in class, and other sources will be used to augment the text in a couple of places. In particular, some assignments may require the use of the program R, a common package for statistics.

Honour & Help

Academic Integrity

Academic dishonesty, which includes plagiarism and cheating, is an extremely serious academic offence and carries penalties varying from a 0 grade on an assignment to expulsion from the University. Definitions, penalties, and procedures for dealing with plagiarism and cheating are set out in Trent University's Academic Integrity Policy. You have a responsibility to educate yourself – unfamiliarity with the policy is not an excuse. You are strongly encouraged to visit Trent's Academic Integrity website to learn more – www.trentu.ca/academicintegrity

For clarity, the following guidelines will apply in MATH 1550H:

You are permitted and encouraged to work with others and ask anyone willing (especially the instructor!) for explanations, hints, and suggestions on the assignments, and to consult whatever sources you wish. However, **all work submitted for credit must be written up entirely by yourself, giving due credit to all relevant sources of help and information. For the quizzes, test, and final exam, you may not give or receive any help**, nor use any aids except for a calculator (any that you like) and one letter- or A4-sized aid sheet with whatever you want on (all sides!) of it, except with the instructor's express permission.

Access to Instruction

It is Trent University's intent to create an inclusive learning environment. If a student has a disability and/or health consideration and feels that he/she may need accommodations to succeed in this course, the student should contact the Disability Services Office (Blackburn Hall Suite 132, 705 748-1281, disabilityservices@trentu.ca) as soon as possible.

Last modified 2013.06.19.