Mathematics 1550H – Introduction to probability

TRENT UNIVERSITY, Winter 2015 *[In Peterborough ...]*

Instructor

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office: GCS 337
hours: Monday to Friday 11:00-11:50,
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

Introduction to Probability (2nd Edition), by C.M. Grinstead and J. Laurie Snell, American Mathematical Society, 2003; available for free at:

`www.math.dartmouth.edu/~prob/prob/prob.pdf`

Various additional resources for this text can be found at:

`www.dartmouth.edu/~chance/teaching_aids/books_articles/probability_book/book.html`

Meetings

Lectures: Tuesday 09:00-10:50 and Thursday 13:00-13:50, all in GCS 114.
Workshops: Monday and Wednesday 18:00-18:50, both in CC M2, and Tuesday 18:00-18:50 in SC 103.

Marking Scheme

There will be at least ten quizzes, four assignments, a test, and a final examination. Quizzes will normally be written in the Thursday lectures and last between ten and twenty minutes apiece. The assignments will usually be handed out and collected every three weeks on Thursdays. The test will last fifty minutes and will probably be written during the lecture period on Thursday, 26 February. The final examination will last three hours and will be written as scheduled by the Registar's Office during the examination period in April. These will weigh as follows in the final mark:

Best 9 quizzes (3% each)	27%
Best 3 assignments (8% each)	24%
Test	15%
Final Examination	34%

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.

Content & Schedule

MATH 1550H is an introductory probability course, with an emphasis on the foundations required to understand probability models and statistical methods. Upon successful completion of this course, a student should be able to have knowledge of some counting techniques, understand the concepts of independence of random variables and events, and of conditional probability, distinguish between discrete and continuous random variables, and understand the content of probability mass and density functions; recognize various discrete and continuous random variables, compute their expectations and variance, and apply their knowledge to simple modelling problems; have some elementary knowledge of bivariate and multivariate distributions, joint probability distributions, mass functions and probability density functions, and conditional probability distributions; and understand the statements of the Law of Large Numbers, Chebyshev's Inequality, and the Central Limit Theorem. (Roughly Chapters 1–9 in the text.)

Additional material, including some not in the text, may be covered on assignments and in class, and other sources may occasionally be used to augment the text.

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 Student Accessibility Services Office (SAS), Blackburn Hall Suite 132, 705 748-1281,* `accessibilityservices@trentu.ca`*. For Trent University in Oshawa Student Accessibility Services Office contact 905 435-5102, ext. 5024. Complete text can be found under Access to Instruction in the Academic Calendar.*

Web page

This course will make at most minimal use of LearningSystem/Blackboard. A web page at `euclid.trentu.ca/math/sb/1550H/` will have hopefully-up-to-date information and all handouts.

Last modified 2015.01.06.