

## MAT337H1, Introduction to Real Analysis (Winter 2017)

**Instructor:** Anton Izosimov.

**Email:** izosimov@math.utoronto.ca

**Office hours:** Wed 4-5 and Fri 5-6, or by appointment, in BA6172.

**Lectures:** Wed 2-4 and Fri 4-5, in SS 2117.

**Course TAs:** Duncan Dauvergne (duncan.dauvergne at mail.utoronto.ca; teaching Wednesday tutorials) and Ivan Telpukhovskiy (ivantelp at math.utoronto.ca; teaching Friday tutorials)

**Tutorials:** Tutorials start on the week of Jan 16. All students must enroll in one tutorial section. You will have to write quizzes in the tutorials.

**Text:** Kenneth R. Davidson and Allan P. Donsig, Real Analysis and Applications: Theory in Practice.

**Course Home Page:** <http://www.math.toronto.edu/izosimov/mat337>. Urgent announcements and marks will be posted on the Blackboard.

**Course Outline:** Construction of Real Numbers. Metric spaces; compactness and connectedness. Sequences and series of functions, power series; modes of convergence. Interchange of limiting processes; differentiation of integrals. Function spaces; Weierstrass approximation. Time permitting, some of the following: Fourier series; Contraction mappings; existence and uniqueness of solutions of ordinary differential equations. Countability; Cantor set; Hausdorff dimension.

**Tests and Assignments:** There will be 1 homework assignment, 2 quizzes, 2 midterm exams, and the final exam.

**Course Marking Scheme**<sup>1</sup>: Your Term Mark ( $TM$ ) will be computed with the following approximate weights:

$$TM = 0.8(0.6 \max\{M_1, M_2\} + 0.4 \min\{M_1, M_2\}) + 0.2QP,$$

where  $M_1, M_2$  are your midterm marks (out of 100), and  $QP$  is your total mark (out of 100) for the homework and quizzes. Your final course mark will be the weighted average of your Term Mark ( $TM$ ) and your Final Exam Mark ( $FEM$ , out of 100):

$$CourseMark = 60\% \max\{TM, FEM\} + 40\% \min\{TM, FEM\}.$$

**Term Tests:** Midterms are on Wednesdays, February 8 and March 8, during class time (exact duration to be confirmed). There will be no alternate sittings.

**Tentative Schedule of Quizzes:** Quiz 1 on the week of Jan 23, Quiz 2 on the week of Mar 20.

**Missed Quizzes and Term Tests:** There will be no make-up quizzes or term tests. If one has a doctor's note for missing a quiz/test, this quiz/test is prorated based on one's other term work. If one is supposed to miss a quiz because of a time conflict with other University/job related matters, one can apply (in advance) to a TA of another section in order to write the quiz with that section.

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<sup>1</sup>Corrected on Mar 11, according to the results of the vote held on Mar 10.