

**Instructor**

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office: GCS 337  
hours: Weekdays 11:00-11:50  
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**Department of Mathematics**

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**Prerequisite**

At least one of MATH 1005H or 1110H or 1350H, or permission of instructor.

**Text**

The first two-thirds or so of the course will be based on the oldest math textbook still in use:

*Euclid's Elements of Geometry*, in Greek, edited and translated into English by Richard Fitzpatrick, 2008. ISBN 978-0-6151-7984-1. Free e-text at: [farside.ph.utexas.edu/books/Euclid/Euclid.html](http://farside.ph.utexas.edu/books/Euclid/Euclid.html)

The remainder of the course will not have a textbook, though there will be occasional handouts and references to other freely available sources.

**Meetings**

*Lectures*: Monday 10:00-10:50 in GCS 110, Tuesday 13:00-13:50 in GCS 111, and Friday 10:00-10:50 in GCS 103.

*Seminar*: Tuesday 15:00-15:50 in GCS 103.

**Marking scheme**

There will be at least eleven weekly assignments and a take-home final examination. Please consult the schedule below for due dates. The work will weigh as follows:

Best 10 assignments (6.5% each)	65%
Final Examination	35%

At least 25% of the course marks will be obtained by the final date (Tuesday, 6 November) to withdraw from Fall courses. Please note that assignments will not normally be accepted after the due date without the instructor's permission. Students who miss more than assignment for reasons beyond their control should contact the instructor as soon as possible.

This scheme may also 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 & Learning Outcomes**

MATH 2260H is an introduction to Euclidean plane geometry, starting from Euclid's axioms and developing properties of lines, angles, polygons, and circles. Successful students will acquire knowledge of and the ability to use results concerning congruence, similarity, cross-ratios, concurrency, and collinearity, including the Butterfly, Ceva's, Menelaus', and Pappus' Theorems, and develop some of the relationships between triangles and circles, up to and including the nine-point circle. Other topics in geometry may be touched on from time to time. Note that acquiring familiarity and comfort with doing proofs is necessary in this course.

**Schedule**

Please note that where the material covered is concerned, the schedule below is a polite fiction: no lesson plan survives contact with actual students unchanged!

**Week 0.** (6–7 September) Examples of geometries and systems of axioms. Classes begin Thursday, 6 September.

**Week 1.** (10–14 September) Book I of Euclid's *Elements*: Euclid's definitions, postulates, and common notions; Hilbert's axioms for plane geometry. Neutral geometry (*i.e.* without the parallel postulate). Assignment #1 due on Friday, 14 September.

**Week 2.** (17–21 September) Book I of Euclid’s *Elements*: More neutral geometry. Assignment #2 due on Friday, 21 September.

**Week 3.** (24–28 September) Book I of Euclid’s *Elements*: Even more neutral geometry. Assignment #3 due on Friday, 28 September.

**Week 4.** (1–5 October) Book I of Euclid’s *Elements*: Parallel lines, equivalents of the Parallel Postulate. Assignment #4 due on Friday, 5 October.

**Week 5.** (9–12 October) *University closed on Monday, 8 October, for Thanksgiving Day.* Book I of Euclid’s *Elements*: Areas and the Pythagorean Theorem. Assignment #5 due on Friday, 12 October.

**Week 6.** (15–19 October) A little of Books II & V of Euclid’s *Elements*: Areas and proportions. Assignment #6 due on Friday, 19 November.

**Fall Reading Week.** (22–26 October) Enjoy!

**Week 7.** (29 October – 2 November) A little of Book III of Euclid’s *Elements*: Circles and triangles. Assignment #7 due on Friday, 2 November.

**Week 8.** (5–9 November.) A little of Book IV of Euclid’s *Elements*: Regular polygons, circumference and area of a circle. Assignment #8 on Friday, 9 November. *The last date to withdraw from Fall courses is Tuesday, 6 November.*

**Week 9.** (12–16 November) Triangles and circles. Assignment #9 due on Friday, 16 November.

**Week 10.** (19–23 November) Division of line segments, Menelaus’ and Pappus’ Theorems. Assignment #10 due on Friday, 23 November. Take-home final examination distributed on Friday, 23 November.

**Week 11.** (25–30 November) Ceva’s Theorem, the Euler line. Assignment #11 due on Friday, 30 November.

**Week 12.** (3–5 December) The nine-point circle. Catch-up and clean-up. Possible Assignment #12 due on Wednesday, 5 December. *Wednesday, 5 December, is the last day of classes.*

**Fall examination period.** (7–19 December) Take-home final examination due on Friday, 14 December.

### 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](http://www.trentu.ca/academicintegrity)*

For clarity, the following guidelines will apply in MATH 2260H:

You are permitted and encouraged to work together and ask anyone willing (especially the instructor!) for explanations, hints, and suggestions on the assignments, and to use what software and consult whatever sources you wish. However, **all work submitted for credit must be written up entirely by you, giving due credit to all relevant sources of help and information.** The restrictions applicable to the take-home final exam will be spelled out on the exam.

### 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, [sas@trentu.ca](mailto:sas@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

We will make only minimal use of Blackboard. A web page at [euclid.trentu.ca/math/sb/2260H/](http://euclid.trentu.ca/math/sb/2260H/) will have hopefully-up-to-date information and all handouts, as well as material from a number of previous iterations of first-year calculus taught by the instructor.

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