<div align="center">

Mathematics 2260H – Geometry I: Euclidean geometry
Trent University, Fall 2015   *[In Peterborough!]*

</div>

Instructor   **Department of Mathematics**

Stefan Bilaniuk (pronounced Стефан Біланюк)   *office:* GCS 346
office: GCS 337   *hours:* weekdays 09:00-16:30
Fall hours: Weekdays (except Wednesdays) 10:00-10:50,   *phone:* 705 748-1011 x7531
          or by appointment, or just drop by!   *e-mail:* math@trentu.ca
phone: 705 748-1011 x7474
home: 705 742-7862 [Do *not* call between 9 p.m. and 8 a.m. unless it's an emergency.]
e-mail: sbilaniuk@trentu.ca [E-mail sent to me sometimes vanishes. If it's important, call!]
web: http://euclid.trentu.ca/math/sb/

Prerequisite

60% or higher in one of MATH 1005H or 1100Y or 1101Y or 1110H or 1350H; or permission of instructor.

Text

Geometry from Euclid to Knots, Saul Stahl, Dover Publications, Inc., 2010.
ISBN-10: 0-486-47459-3, ISBN-13: 978-0-486-47459-5.

You may also find the following books to be of interest and possibly useful:

Euclid's Elements of Geometry, in Greek, edited and translated into English by Richard Fitzpatrick, 2008. ISBN-13: 978-0-6151-7984-1. Free e-text at: farside.ph.utexas.edu/euclid.html

The Foundations of Geometry, David Hilbert, translated into English by E.J. Townshend, 1902. Free e-text at: www.gutenberg.org/etext/17384

Other freely available sources may be used to augment those above in the latter half of the course.

Meetings

Lectures: Monday 12:00-13:50 GCS 103 and Wednesday 12:00-12:50 in GCS 106.
Seminar: Monday 18:00-18:50 in GCS 103.

Marking scheme

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

Best 10 quizzes (3% each)	30%
Best 5 assignments (7% each)	35%
Final Examination	35%

At least 25% of the course marks will be obtained by the final date (Tuesday, 8 November) to withdraw from Winter half-courses without academic penalty. Please note that assignments will not normally be accepted after the due date. Students who miss more than one quiz or 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. *(8–9 September)* Organizational lecture. §1.1–1.3: Examples of geometries. *Classes begin Thursday, 8 September.*
Week 1. *(12–16 September)* 2.1–2.2, Appendix E: Euclid's definitions, postulates, and common notions. Hilbert's axioms for plane geometry. Quiz #1 written and Assignment #1 due on Wednesday, 14 September.
Week 2. *(19–23 September)* §2.3: Book I of Euclid's *Elements*; neutral geometry. Quiz #2 written on Wednesday, 21 September.

<div align="center">

1

</div>

Week 3. *(26–30 September)* §2.3: Book I of Euclid's *Elements* continued; more neutral geometry. Quiz #3 written and Assignment #2 due on Wednesday, 28 September.

Week 4. *3–7 October)* §2.4, 3.1: Book I of Euclid's *Elements* continued; parallelism. Quiz #4 written on Wednesday, 5 October.

Week 5. *(10–14 October)* §3.2–3.3: Book I of Euclid's *Elements* continued; areas and the Pythagorean Theorem. Quiz #5 written and Assignment #3 due on Wednesday, 12 October. *No classes on Thanksgiving Day, Monday, 10 October.*

Week 6. *(17–21 October)* §3.4–3.5: A little of Books II & V of Euclid's *Elements*; areas and proportions. Quiz #6 written on Wednesday, 19 November.

Fall Reading Week. *(24-28 October)* Enjoy!

Week 7. *(31 October – 4 November)* §4.1–4.2: A little of Book III of Euclid's *Elements*; circles and triangles. Quiz #7 written and Assignment #4 due on Wednesday, 2 November.

Week 8. *(7–11 November.)* §4.3–4.4: A little of Book IV of Euclid's *Elements*; regular polygons, circumference and area of a circle. Quiz #8 written on Wednesday, 9 November. *The last date to drop Fall half-courses without academic penalty is Tuesday, 8 November.*

Week 9. *(14–18 November)* §4.4–4.5: Triangles and circles. Quiz #9 written and Assignment #5 due on Wednesday, 16 November.

Week 10. *(21–25 November)* §5.1–5.2: A very little of Book VI of Euclid's *Elements*; division of line segments, Menelaus' Theorem. Quiz #10 written onWednesday, 23 November. Take-home final examination distributed on Wednesday, 23 November.

Week 11. *(27 November – 2 December)* §5.2: Ceva's Theorem, the Euler line. Quiz #11 written and Assignment #6 due on Wednesday, 30 November.

Week 12. *(5–7 December)* The nine-point circle. Catch-up and clean-up. *Wednesday, 7 December, is the last day of classes.*

Fall examination period. *(9–21 December)* Take-home final examination due on Friday, 16 December.

Departmental Policy: *The final date to appeal marks for assignments, quizzes, or projects for Fall half-courses is Monday, 6 March, 2017.*

Academic Integrity

> *Academic dishonesty, which includes plagiarism and cheating, is an extremely serious academic offence and carries penalties varying from failure on an assignment to expulsion from the University. Definitions, penalties, and procedures for dealing with plagiarism and cheating are set out in Trent Universitys Academic Integrity Policy. You have a responsibility to educate yourself unfamiliarity with the policy is not an excuse. You are strongly encouraged to visit Trents Academic Integrity website to learn more:* `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 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**. You may neither give nor receive any help on the quizzes, nor use any aids, except as noted below or with the instructor's express permission. The restrictions applicable to the take-home final exam will be spelled out on the exam.

For the quizzes, you may use whatever calculators you wish and an 8.5"×11" (or A4) aid sheet with whatever you want on written on all sides of it. Software such as `Maple`, `GeoGebra`, or `Geometer's Sketchpad` may occasionally come in handy when doing some of the assignments or to check answers when studying.

Access to Instruction

> *It is Trent University's intent to create an inclusive learning environment. If a student has a disability and documentation from a regulated health care practitioner and feels that he/she may need accommodations to succeed in a course, the student should contact the Student Accessibility Services Office (SAS) at the respective campus as soon as possible.*

Web Page

MATH 2260H will not make of Blackboard/LearningSystem. Hopefully up-to-date information about the course and all handouts will be posted to: `www.trentu.ca/mathematics/sb/2260H/`

Last modified 2016.09.02.