

MATH 308 Euclidean Geometry

This is the Canvas site for MATH 308 and is the source of all course information, including the course outline, course policies, course study materials, access to online homework, course grades, and general announcements.

The instructor for MATH 308 is Professor Mark Mac Lean.

Office: Math Annex 1209.

Office Hours: These will be set each week and published here on the previous Friday.

Week of Oct. 7 to Oct. 11: Tuesday 9:30 to 10:30 a.m. and Wednesday 1 to 2 p.m.

Important note regarding midterms: Students requesting regrades for their midterms must complete and submit a hardcopy of the [regrade request form](#) with their original midterm attached.

Text:

Geometry from Euclid to Knots by Saul Stahl, Dover Publications, 2010.

This is a paperback book and the cost should be around \$30. There is a Kindle Edition for about \$17.

Students may wish to consult a copy of *Euclid's Elements*, especially books I to VI, during the course. There is a [freely available online version](#).

Course Outline:

1. Euclid's axiomatic approach to geometry: basic definitions, common notions, and postulates.
2. Highlights from Books I to VI of *Euclid's Elements* (Cf. Chapters 2, 3, and 4 of Stahl).
3. Hilbert's Axiomatization of Euclidean Geometry
4. Geometric motions in the plane and space: isometries and similarities.
5. Geometric Transformations.
6. The Poincaré upper half-plane and its geometry: a non-Euclidean geometry.
7. The Parallel Postulate

Learning Goals:

1. To understand the nature of Euclid's axiomatic approach to geometry and use it to construct proofs.
2. To understand Hilbert's approach to axiomatizing geometry and to be able to present coherent discussion of the issues it addresses relative to Euclid's approach.
3. To understand the roles of isometries and similarities in Euclidean geometry and to use them in various contexts, including to construct proofs.
4. To understand geometric transformations and to make use of them in various contexts, including in the construction of proofs.
5. To understand the Parallel Postulate, its use in constructing proofs, and the issues it raises in geometry.

Learning Assessment:

Students will be assessed using homework, in-class midterms and quizzes, and a final exam. Students will be asked to engage in peer assessment through the use of comparative judgment as part of their learning process. Constructing and critiquing geometric proofs will be a significant part of this course.

Grading Scheme:

- Your grade normally will be computed based on the following formula: **50% Final Exam + 20% 1 Midterm + 30% Assignments, which include comparative judgment assignments using ComPAIR.** Please note that grades *may be scaled* to ensure consistency with departmental expectations.
- **FINAL EXAM PERFORMANCE REQUIREMENT: Students need to achieve a minimum of 40% on the final exam to pass MATH 308.** Students who fail the course solely because they have failed to achieve the 40% minimum on the final exam will receive a grade of 47% in the course.
- Passing the MATH 308 final exam may not be sufficient to ensure a student passes MATH 308 if they have failed the term work.

Course Policies:

1. There will be a final examination in December for this course. This examination will account for 50% of a student's final grade. The remaining 50% will be based on term work. The final examination generally will not be weighted higher for students who perform better on the final examination than they did during the term, although some allowance *may* be made for students who perform *much* better on the final examination than they did during the term. (In practice, this rarely happens and the criterion will be set by the instructor and applied uniformly.)

2. No unauthorized devices will be allowed at the final examination. This includes cell phones, smart phones, music players, and all other devices. Formula sheets and other memory aids will not be allowed.
3. No calculators will be allowed on the midterm or the final examination.
4. **Midterms: There will be one in-class midterm in MATH 308. The date, which is subject to change, is Monday, October 21st.**
5. **Missing the midterm:** There are *no make-up midterms* in this course. Missing the midterm for a valid reason normally results in the weight of that midterm being transferred to the final exam. Examples of valid reasons include illness and travel to play a scheduled game for a varsity team. Examples of reasons that are not valid include conflicts with personal travel schedules or conflicts with work schedules. Any student who misses the midterm is to present to their instructor the [Department of Mathematics self-declaration form](#) for reporting a missed assessment to their instructor within 72 hours of the midterm date. This policy conforms with the UBC Vancouver Senate's Academic Concession policy V-135.

Please note that a student who misses the midterm and has otherwise not completed a substantial portion of the term work normally shall not be admitted to the final examination.

6. **Missing the Final Exam:** You will need to present your situation to the Dean's Office of your Faculty to be considered for a deferred exam. See the Calendar for [detailed regulations](#). Your performance in a course up to the exam is taken into consideration in granting a deferred exam status (e.g. failing badly generally means you will not be granted a deferred exam). In Mathematics, generally students sit the next available exam for the course they are taking, which could be several months after the original exam was scheduled. ***Note that your personal travel schedule is NOT a valid reason for missing a final exam and students who miss the MATH 308 exam for this reason will receive a grade of 0 on the exam and fail the course.***

Academic Misconduct:

1. UBC takes cheating incidents very seriously. After due investigation, students found guilty of cheating on tests and examinations are usually given a final grade of 0 in the course and suspended from UBC for one year. [More information.](#)
2. While students are encouraged to study together, they should be aware that blatant copying of another student's work is a serious breach of academic integrity. Please discuss with your instructors their expectations for acceptable collaboration on any assigned coursework. Cases of suspected cheating will be investigated thoroughly.
3. Note that academic misconduct includes misrepresenting a medical excuse or other personal situation for the purposes of postponing an examination or quiz or otherwise obtaining an academic concession.

Weekly Assignments:

Assignments will be given on a regular basis. Many of them will include a peer comparative judgment component using ComPAIR. Late assignments are not accepted.

The UBC Vancouver Senate's [Academic Concession Policy V-135](#) applies to all assignments in this course, and students are advised to read this policy carefully.

Note that the material in this course builds in a structured way and students who do not keep up with the material are unlikely to do well. Regular attendance in class is expected.

Statement on UBC's Policies and Resources to Support Student Success:

UBC provides resources to support student learning and to maintain healthy lifestyles but recognizes that sometimes crises arise and so there are additional resources to access including those for survivors of sexual violence. UBC values respect for the person and ideas of all members of the academic community. Harassment and discrimination are not tolerated nor is suppression of academic freedom. UBC provides appropriate accommodation for students with disabilities and for religious and cultural observances. UBC values academic honesty and students are expected to acknowledge the ideas generated by others and to uphold the highest academic standards in all of their actions. Details of the policies and how to access support are available [here](#).