

Math 476: Modern Geometry

Fall 2009

Course Procedures

Professor: Josh Laison

Ford 215, x6689, jlaison@willamette.edu

Office Hours:

Tuesday 4:00-5:00, Thursday 1:00-2:00

or anytime by appointment or by catching me in my office.

Class Meetings: Ford 201, 2:30-4:00 Tuesday and Thursday

Textbook: A Course in Modern Geometries, 2nd edition, Judith N. Cederberg

Course Web Page: <http://www.willamette.edu/~jlaison/geometry.html>

Grading:

Homework assignments (approx. 7)	30%
Quizzes (approx. 7)	30%
Take-home exams (approx. 3)	30%
Class participation and presentations, including attendance at 4 math collo- quium talks	10%
Total	100%

Goals of the Course:

- Learn about different types of geometries, including axiomatic, transformational, Euclidean, hyperbolic, elliptic, finite, and projective geometries.
- Improve mathematical writing and presentation skills.
- Explore a variety of pedagogical techniques that could be used by future mathematics teachers.
- Have fun.

Topics Covered: We will cover most of Chapters 1-4 of Cederberg, as time permits. The course is divided up into the following topics. Times for each topic are rough estimates only.

- Euclidean geometry, Section 2.2, 1 week
- Axiomatic systems and finite geometries, Sections 1.1–1.3, 1 week
- Hyperbolic and elliptic geometry, Sections 2.3–2.9, 3 weeks
- Symmetries and transformations in the plane and 3-space, Chapter 3, 5 weeks
- Projective geometry, Chapter 4, 4 weeks

Homework assignments: These assignments will be due about once every two weeks. You may work together on these problems; in fact, you may have the opportunity to work on them in class. However, please write your solutions in your own words.

Take-home exams: You may not consult any person about these assignments other than me. You may not consult any source about these assignments other than your textbook, your notes, and class handouts. Don't hesitate to ask me if you have questions on a take-home exam.

Attendance at the Math Department Colloquium: According to math department policy, since you are enrolled in a 400-level mathematics course, you are required to attend at least 4 mathematics department colloquium talks. The goal of this requirement is to expose you to a wider range of mathematics, and to make you want to go to more than 4 talks! I hope you will decide by the end of the semester, as I have, that math talks are a lot of fun.

Quizzes: We will have an in-class quiz about once every two weeks. They should take about half an hour of class time. approximately $2/3$ of each quiz will be on new material, and $1/3$ will be cumulative. The quizzes are the only component of your grade for which you won't have access to your textbook or class notes, so the questions will be significantly easier and involve some small amount of memorization.

Disabilities: If you have a documented disability for which accommodations may be required in this class, please contact me to discuss your needs. Additionally, you will need to register with Disability and Learning Services in the Bishop Wellness Center within the first two weeks of class. All such discussions will be confidential.

Academic Honesty: Cheating and plagiarism are serious offenses and will be treated severely, in accordance with college policy. In addition, I am personally insulted by such behavior. So please don't do it. These are the practices I expect you to follow in each of the components of the course:

- **on the homework assignments:** You may, and are encouraged to, discuss the homework with anyone, get help from your textbook, notes, computer algebra systems, etc. However, your submitted written work should be your own.
- **on the quizzes:** You may not consult any outside sources, living, written, or electronic.
- **on the exams:** You may consult your text and notes. You may not discuss them with anyone other than me.