

Fractals Everywhere!
Math 407, Spring 2017
11:00-11:50 Th, Bouillon 106

Instructor: Dr. Fassett
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Resources: Fractal Geometry; [http://users.math.yale.edu/public_html/People/frame/Fractals/Fractals Everywhere](http://users.math.yale.edu/public_html/People/frame/Fractals/Fractals%20Everywhere) by Michael Barnsley.

Course Description: Fractal Geometry is an exciting field of contemporary mathematics that is having an increasing influence upon the sciences and mathematics education. A student planning on going into industry, teaching, or planning on attending graduate school, will undoubtedly want to learn more about this field in their future endeavors. This course is designed to introduce students to the foundational mathematical concepts of Fractal Geometry.

Course Goals: Upon successful completion of the course, the student will be proficient in answering questions of both a computational and theoretical nature within the following topics:

- Iterated Function Systems
- Collage Theorem (Inverse Problem)
- Fractal Dimension
- Mandelbrot Set
- Julia Sets

If time permits, we will also consider topics such as Chaos Theory and Period-Doubling Route to Chaos.

Course Policies:

Class Participation/Attendance: As with any course meeting only once per week, attendance is very important. I will expect everyone to be in attendance and participate in discussions. If you must miss class, please let me know as soon as possible. If you miss more than two class meetings, your participation/attendance score will be lowered. I will be lecturing periodically during the quarter, but a key component of the seminar will be student presentations (see below).

Homework: On occasion, problems related to the week's discussion will be assigned and collected for grading. Students are encouraged to work together on homework.

Presentations: Each student will be paired with a partner and will be responsible for leading a discussion on an assigned topic. I will meet with each group prior to a presentation to answer any questions.

Paper: Students will write a two to three page paper summarizing a topic (different from the student's presentation topic). Details of what to include in the paper and the grading rubric to be used will be provided.

Course Grade: Course grades will be assigned according to the following distribution:

Class participation/attendance	25%
Homework	25%
Presentations	25%
Paper	25%

Central Washington University is committed to creating a learning environment that meets the needs of its diverse student body. If you anticipate or experience any barriers to learning, discuss your concerns with the instructor. Students with disabilities should contact Disability Services to discuss a range of options to removing barriers, including accommodations. Student Disability Services is located in Hogue 126. Call (509) 963-2214 or email ds@cwu.edu for more information.