

Math 457/557, Discrete Dynamical Systems, Spring 2009

Class Time: MWF 2-2:50p.m. in 117 Fenton
Instructor: Dr. Marcin Bownik
E-Mail: mownik@uoregon.edu
Homepage: <http://www.uoregon.edu/~mownik>
Office: 334 Fenton
Office Phone: 346-5622
Office Hours: 11-12 Mon., Wed., Fri. or by appointment
Textbook: *A first course in chaotic dynamical systems*,
by R. Devaney.

1. **Background and Goals.** The aim of this course is to introduce students to discrete dynamical systems, which is a fancy term for the study of what can happen when one iterates a function. Topics covered include orbits, fixed and periodic points, bifurcations, symbolic dynamics, chaotic systems, Sarkovskii's theorem, Cantor's set, fractals, and the Mandelbrot set. For the in-class computer demonstrations we will use *Mathematica*, a powerful computer program for symbolic and numerical mathematical computations.
2. **Exams.** There will be a midterm in-class exam on Wed. of week 6 and a final exam.
3. **Homework.** Homework problems will be assigned every week and are due in class on Wednesday on the material of the previous week. No late homework will be accepted.
4. **Grading.** The grading distribution will be as follows:

Homework:	25%
Midterm Exam:	25%
Final Exam:	50%