Course: Mathematics 480 – Chaos and Fractals  Spring 2004

Instructor: Dr. Elyn Rykken
Trumbower 110
Phone: x3356
E-mail: elrykken@muhlenberg.edu
Web Page: http://mathcs.muhlenberg.edu/~rykken/
Office hours: 10:30 – 11:20 M, 3:00 – 3:50 T, R, 1:00 – 2:00 F and by appointment.

Meeting Place: Trumbower 149

Meeting Times: 12:30 - 1:20 MTR (Occasionally Fridays)

Required Texts: A First Course in Chaotic Dynamical Systems, by Devaney (Perseus Publishing Co.). Bring your textbooks to class.

Course Description: Study of chaotic dynamical systems and fractal geometry. Topics from discrete dynamical systems theory include iteration, orbits, graphical analysis, fixed and periodic points, bifurcations, symbolic dynamics, Sarkovskii's theorem, the Schwarzian derivative, and Newton's method. Topics from fractal geometry include fractal, Hausdorff, and topological dimension, Julia and Mandelbrot sets. The prerequisite is M223 (multivariable calculus).

Grading Criteria: First exam Feb. 27th 12%
Second exam April 16th 12%
Homework and Labs 32%
Projects and Presentation 20%
Final (TBA) 24%

Note: All examination dates are approximate and are subject to change with warning. Please note that all students must be available until 3:00 PM on Friday, May 14th to take their final exam. Please make appropriate travel arrangements. No one will be allowed to switch the time or date of the final because of travel/ride conflicts. The only valid reason to change a final exam is a documented conflict with another final scheduled at the same time.

E-mail: You are required to have an e-mail account for this course. I will use it to relay messages about the course. Please see me if you have questions about how to acquire a Muhlenberg account. You may also use a non-Muhlenberg account.

Attendance: Attendance will be taken at each class meeting. Students are expected to attend and participate in class. Students are expected to come to class on time. Coming late to class is disruptive and discourteous to the other class members. Students should see me if they anticipate this being a problem. You will be held responsible for the material discussed in class whether present or not. I reserve the right to use attendance as a factor in borderline grades. ATTENDANCE AT ALL EXAMS IS MANDATORY. Absence from a scheduled exam for a valid reason (e.g., prolonged illness with a doctor's excuse or required participation in a sanctioned off-campus school event) must be cleared with me IN ADVANCE. The following are NOT valid excuses: other exams scheduled the same day, pressure from other classes, a flat tire, over sleeping, early departure from campus, unpreparedness, "I forgot."
Learning Disabilities: If you have a diagnosed learning disability and will need special arrangements either on a daily basis or for exams, please bring me a letter from Academic Support as soon as possible to confirm your need for accommodations. This includes a need for extra time on exams.

A reminder: At Muhlenberg we follow the Academic Behavior Code. Please be sure to read it carefully. It is available online at http://www.muhlenberg.edu/mgt/deans/abc_statement.html.