

MATH 593G, Fall 2016

Course Information

WVU catalog description: [Applied Dynamics/Chaos](#)

Textbook: Strogatz, *Nonlinear Dynamics and Chaos*, 2nd edition.

Course website: https://wiki.math.wvu.edu/mediawiki/index.php/593G.Applied_Dynamics_and_Chaos
(also linked from my webpage)

Instructor: Casian Pantea (Casi) <http://math.wvu.edu/~cpantea/>

Class schedule: Tuesdays, Thursdays 10:00-11:15 AM in Armstrong 313

Office hours: Tuesdays 5-6PM, Thursdays 3-4 PM, and by appointment, in Armstrong Hall 305B

Description

This course is an introduction to the theory of dynamical systems, whose goal is to understand the long term behavior of systems with known laws of evolution. Are certain motions possible? How can we “tweak” parameters to get certain behaviors? What is chaos all about? What are fractals? The goal of the course is to answer questions like these. We will study fixed points and periodic orbits, their stability, local and global behavior of solutions, bifurcations, chaos, and numerous applications from biology, physics, chemistry and other sciences.

Prerequisites

Undergraduate differential equations (e.g. MATH 261), and some familiarity with linear algebra.

Evaluation

Grading scheme

- 45% Homework
- 25% Midterm exam
- 30% Final exam

Homework

- Homework will be assigned once every three weeks, and due two weeks later (please see the course schedule for exact dates).

Midterm Exam

- Tuesday October 20 2016, in class.

Final Exam

- Thursday December 13 2016, 11AM-1PM in Armstrong 313.
- Final is cumulative (i.e. all material covered during the semester will be tested)

Inclusivity statement

The West Virginia University community is committed to creating and fostering a positive learning and working environment based on open communication, mutual respect, and inclusion.

If you are a person with a disability and anticipate needing any type of accommodation in order to participate in this class, please advise me and make appropriate arrangements with the Office of Accessibility Services (293-6700). For more information on West Virginia University's Diversity, Equity, and Inclusion initiatives, please see <http://diversity.wvu.edu>.