

## Course Information

**WVU catalog description:** [Mathematical Systems Biology](#)

**Textbook:** Sontag, [Lecture Notes on Mathematical Systems Biology](#)

**Course website:** [https://wiki.math.wvu.edu/mediawiki/index.php/793A\\_Systems\\_Biology](https://wiki.math.wvu.edu/mediawiki/index.php/793A_Systems_Biology)  
(also linked from my webpage)

**Instructor:** Casian Pantea <http://math.wvu.edu/~cpantea/>

**Class schedule:** Tuesdays, Thursdays 11:30-12:45 AM in Armstrong 309

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

## Description

This course aims to equip students with mathematical tools required for modeling and analysis of phenomena arising in biology. Chemical and enzyme kinetics are emphasized as building blocks of biochemical pathway models, but ideas from ecology and population dynamics are also discussed. Biological applications will open the door for discussing ideas from dynamical systems (stability analysis, bifurcations, multi-stability, periodic behavior).

## Prerequisites

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

## Evaluation

### Grading scheme

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

### Homework

- Three homework sets will be assigned throughout the semester – please see the course schedule below for exact dates.

### Project

- A project based on a paper from the literature will be assigned for 25% of the grade. The project may involve an oral presentation and some mild MATLAB programming. Project topics will be chosen based on students interests.

### Final Exam

- Thursday December 13 2016, 8AM-10AM in Armstrong 309.
- 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>.