



Catalog Description:

Introduction to quantitative and qualitative analysis of several mathematical models for biological systems.

Purpose:

This course provides students with experience and knowledge in mathematical analysis of differential equations models, as well as with numerical tools for simulating those models.

Prerequisite:

C- or better in Math 2255, 2415, 5520H; or credit for 255, 415.xx, or 521H.

Text:

Lecture Notes

Topics List:

1. Population dynamics: Logistic growth.
2. Population dynamics: Lotka-Volterra predator-prey model.
3. Modeling specific diseases (e.g. HIV, cancer).
4. Competition models.
5. Dynamics of neurons.
6. Bifurcation theory.
7. Enzyme kinetics.
8. Cells proliferation and death.