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Mathematical Methods for Bioengineers

Instructor

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Email:

Department: BioSystems Science and Engineering

Course Time:

Lecture venue:

Detailed Course Page:

Announcements

Brief description of the course

This course is designed to equip first year post-graduate students in BioSystems Science and Engineering with the mathematical, computational, and statistical tools that they might require during their research.

Prerequisites

Basic engineering mathematics

Syllabus

1. Linear algebraic equations
2. Eigenvalues and eigenvectors
3. Nonlinear algebraic equations
4. Optimization methods
5. Ordinary differential equations
6. Dynamical systems
7. Random variables and processes
8. Monte Carlo methods

9. Statistical tests

Course outcomes

At the end of the course, students will be

1) well-versed with mathematical and statistical concepts of importance to bioengineers

2) have acquired facility with numerical tools for solving mathematical problems in bioengineering

Grading policy

Assignments: 15%, Quizzes: 20%, Midterm Exam: 15%, Final Exam: 50%

Assignments

Resources