



CH 242 Aug 3:0

Special Topics in Theoretical Biology

Instructor

Narendra M. Dixit

Email: narendra@iisc.ac.in

Teaching Assistant

Email:

Department: Chemical Engineering

Course Time:

Lecture venue:

Detailed Course Page:

Announcements

Brief description of the course

The course is designed for first year graduate students in the quantitative sciences (physics, engineering, etc.) to get exposed to theoretical treatments of biological processes, particularly in the context of infectious diseases.

Prerequisites

Basic engineering mathematics and programming

Syllabus

1. Population dynamics and epidemiology
2. Viral dynamics
3. Drug pharmacokinetics and therapy
4. Molecular evolution
5. Phylogenetics
6. Complex reaction networks
7. Immune recognition and response

Course outcomes

At the end of the course, students will have

1. developed an appreciation of the power of theoretical techniques in investigating biological phenomena
2. gained an understanding of selected classic and current topics in theoretical biology
3. acquired hands-on experience in the application of theoretical techniques to biological problems

Grading policy

Assignments: 25%, Quizzes/Mid-term: 25%, Course project/Final: 50%

Assignments

Resources