

COLLEGE OF CHEMISTRY COURSE GUIDE (../INDEX.HTML)

MAJORS (../MAJOR.HTML)

LIST OF COURSES (COURSES.HTML)

RESOURCES (../RESOURCES/RESOURCE.HTML)

STUDENT LIFE (../STUDENTLIFE/ORGS.HTML)

BIOE 135 - FRONTIERS IN MICROBIAL SYSTEMS BIOLOGY (4 UNITS)

(Taken from the UC Berkeley Course Guide (<http://guide.berkeley.edu>))

COURSE OVERVIEW

SUMMARY

This course is aimed at graduate and advanced undergraduate students from the (bio) engineering and chemo-physical sciences interested in a research-oriented introduction to current topics in systems biology. Focusing mainly on two well studied microbiological model systems--the chemotaxis network and Lambda bacteriophage infection--the class systematically introduces key concepts and techniques for biological network deduction, modelling, analysis, evolution, and synthetic network design. Students analyze the impact of approaches from the quantitative sciences--such as deterministic modelling, stochastic processes, statistics, non-linear dynamics, control theory, information theory, graph theory, etc.--on understanding biological processes, including (stochastic) gene regulation, signalling, network evolution, and synthetic network design. The course aims to identify unsolved problems and discusses possible novel approaches while encouraging students to develop ideas to explore new directions in their own research.

PREREQUISITES

Upper division standing with background in differential equations and probability.
Coursework in molecular and cell biology or biochemistry recommended

Students will receive no credit for 135 after taking 235.

WORKLOAD

TIME COMMITMENT

3 hours of lecture and 1 hour of discussion per week.

UC Berkeley Course Guide (<http://guide.berkeley.edu>)

COLLEGE OF CHEMISTRY PEER SERVICES

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