EPFL

BIO-629   **Practical - Naef Lab**

Naef Felix

Cursus	Sem.	Type
Molecular Life Sciences		Obl.

Language of teaching	English
Credits	1
Session	
Exam	Oral
Workload	30h
Hours	**24**
Courses	8
TP	16
Number of positions	**2**

Frequency

Every year

Remark

3-day Block course, every year in January. To register, contact EDMS Administration

Summary

Biological modeling. The student will become familiar with a few selected classical and recent research articles in the field of biological modeling, or model driven analysis of biological data.

Content

Day 1: Introduction by the PI. Study of articles.
Day 2: Practical exercices in matlab + article presentation (each student presents one article).
Day 3: one day simulation miniproject. Possible topics include: 1) simulation of an enzymatic reaction, validity range of the Michaelis-Menten approximation. 2) Simulation of a biochemical oscillator, effect of noise on period length, collective synchonization in phase oscillators. Analysis and simulation of a predator-prey model.
The goal is that the student becomes aware of a number of quantitative approaches that he might apply in his future research. The course will also serve as an introduction to matlab, in particular the possibility of simulating simple differential equation systems. Reading topics will include cell cycle models, patterning in the drosophila embryo, models of circadian clocks.

Note

Note that while the course is open to all first year EPFL doctoral students, priority will be given to EDMS students, given that they are mandated to take three of EDMS practical modules. Note also that doctoral students from the Naef laboratory cannot take this course. Access is limited to 4 students.

Keywords

Biological modeling, systems biology

Resources

Websites

- http://naef-lab.epfl.ch/