FYTN12
Systems Biology
– Models and Computations
Spring 2015: 19/1 – 20/3
Introduction meeting 19/1 13:15
Course contents

Biological systems <---> mathematical/computational models
Biochemistry <---> differential equations

Five topics:

- Deterministic simulations
- Stochastic simulations
- Population models
- Spatial models
- Parameter optimization
Course information

Schedule and other info:
http://cbbp.theplu.se/~carl/fytn12/

Literature:
slides and research papers.

Optional literature (not 100% relevant):
An Introduction to Systems Biology, Uri Alon

Examination:
Hand-in exercises
Projects with oral presentation
Oral exam
Five projects

- Deterministic models: Carl Troein
- Stochastic simulations: Victor Olariu
- Spatial models: Henrik Jönsson
- Population models: Carl Troein
- Parameter optimization: Carl Troein

Schedule, 5 * 4 times Mon/Wed/Fri (usually 13-15):
- Lecture
- Lecture + Project intro
- Project guidance in computer room
- Deadline + Presentations
Projects and reports

- Reproducing results from research papers
- Methods/problems to be implemented/solved in programming language of your choice
- Hand-in problems (programming and/or pen & paper)
- Cooperation allowed on programming
- Report: Slides for oral reports, clearly showing your results and conclusions.
  - Present oral report on 2-3 of the 5 projects
  - 5-6 reports per project, drawn at random
  - 10 minutes + 5 minutes questions/discussion
  - ~5-10 slides, possibly also video / running program