

Since my talk will be very software focused I suggest that I name 2 graphical and 2 mathematical modeling and analysis packages.

Graphical modeling:

CellDesigner <http://celldesigner.org/>
Virtual Cell <http://www.vcell.org/login/login.html>

Mathematical modeling and analysis:

Copasi <http://www.copasi.org>
SBtoolbox <http://www.sbtoolbox.org>

Instead of reading software related research papers students could have a look at the 4 different tools and try to build a simple model and run some simulations. Its harder than it sounds/reads :)

Title: A systematic modeling framework and related computational tools + live demo

Abstract:

Modeling of biological systems is an intensively interdisciplinary process. Tasks to be performed are the generation of quantitative data by experiments, setting up biological and mathematical hypotheses about the considered processes, estimation of model parameters from the measured data, and computational analysis of the resulting models. Software tools play an increasingly important role in modeling and already now a large amount of tools is available (see, e.g., sbml.org). In this lecture a systematic modeling framework is presented and it is discussed how the different steps in the framework relate to requirements on / choice off software tools. The lecture is complemented by the demonstration of different software tools, using a realistic modeling example.