



Computational Systems Biology with BioSym

Presentation of research results achieved by the participants of the biological modeling course 2008

A minisymposium offered by the Bio-294 students on Wednesday, March 12, 8.30 to 18 in Seminar room 34-J-02, at the Irchel campus

Students and guests are welcome

The symposium illustrates results which were obtained during a three week training course with biology, biochemistry and mathematics students. Student training and research was carried out with Matlab and its toolboxes in the Systems Biology Learning Environment that was developed in the course of an SVC (Swiss Virtual Campus) project by the Swiss BioSym team. Details about the BioSym course are available on [OLAT](#).

Lectures last 30 minutes, discussion time included

Conveners introduce the speakers and the topic and they lead the discussion

08.30 Welcome and Introduction	Kurt Hanselmann
08.35 Session 1: Physiology and biochemistry	CONVENERS: Nadine Schmid Dominik Possner Boris Begemann
08.35 L 1: Direction selectivity in the retina	Janine Hall
09.05 L 2: Regulation of the hypothalamic-pituitary-adrenal system	Ronald Egli
09.35 L 3: Drug delivery across the blood-brain barrier	Victoria Makrides
10.05 L 4: Direct protein evolution	Fabio Parmeggiani
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10.35 Intermission	
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10.50 Session 2: Epidemics and Genetics	CONVENERS: Markus Schlegel Esther Kohler Mirjam von Rütte Claudio Bozzuto
10.50 L 5: Stochastic epidemic SEIR model with control intervention applied to Ebola	Jahel Hämmerli
11.20 L 6: Dengue fever: A vaccination model with antibody-dependent enhancement	Titu Staubli
11.50 L 7: <i>Wolbachia</i> spp.: Incompatibility-inducing microbes in insects	Raphael Sieber
12.20 L 8: Can insertion sequences invade bacterial biofilms?	Manuel Bichsel
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12.50 Lunch Break	
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13.20	Session 3: Regulation of cellular processes	CONVENERS: Victoria Makrides Janine Hall Ronald Egli
13.20	L 9: Quorum sensing networks in <i>Pseudomonas aeruginosa</i>	Nadine Schmid
13.50	L 10: Regulatory cascade for caspase-3 activity	Dominik Possner
14.20	L 11: Cell cycle control in budding yeast	Boris Begemann

14.50 Intermission

15.10	Session 4: Ecology and ecosystems	CONVENERS: Titu Staubli Jahel Hämmerli Raphael Sieber Manuel Bichsel
15.10	L 12: Effects of iron fertilization on the marine food web and nutrient cycles	Markus Schlegel
15.40	L 13: Nitrogen cycling in the lower trophic level of a north pacific marine ecosystem	Esther Kohler
16.10	L 14: Marine protected areas: Can they lead to sustainable fisheries	Mirjam von Rütte
16.40	L 15: Allee effects in Polar Bears	Claudio Bozzuto

17.10	Summary and conclusions	Kurt Hanselmann
17.30	Course assessment	ALL
17.45	End of symposium	

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