Physical biology (T/A) - PhysBio

Degree - M.Sc. in Physics (PO von 2014)

Module	**Elective Advanced Lectures: BCGS Courses**
Module No.	physics70d

Course	**Physical biology (T/A)**
Course No.	PhysBio

Category	Type	Language	Teaching hours	CP	Semester
Elective	Lecture with exercises	English	4+2	8	ST

Requirements for Participation:

Preparation: Advanced statistical mechanics

Form of Testing and Examination: Oral examination

Length of Course: 1 semester

Aims of the Course: Acquaintance with basic concepts of molecular and evolutionary biology; understanding of statistical issues arising in the analysis of sequence data and the application of methods from statistical physics addressing them.

Contents of the Course:

Statistics of the genome

Sequence analysis and sequence alignement

Evolutionary theory and population genetics

Theory of bio-molecular networks

Recommended Literature:

J.H. Gillespie, Population Genetics: A concise guide (Johns Hopkins University Press, 2004)

R. Durbin, S.R. Eddy, A. Krogh, G. Mitchison, Biological Sequence Analysis: Probabilistic Models of Proteins and Nucleic Acids (Cambridge University Press, 1998)

F. Kepes, Biological Networks (World Scientific, Singapore 2007)

D.J. Wilkinson, Stochastic Modelling for Systems Biology (Chapman&Hall, 2006)