

Modules:

physics700 **Elective Advanced Lectures**
 physics720 **Applied Physics**
 physics730 **Theoretical Physics**

Course:**Physical biology (T/A)**

Course No.:

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

Requirements:**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 alignment
 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)