

Statistical and Biological Physics

Module No.: MN-P-SP-StatBio, MN-P-PN-StatBio, MN-P-WaMa

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Course: Biological Physics I: Molecules and Cells

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Category	Type	Language	Teaching Hours	CP	Semester
Core Course	Lecture	English	3+1	6	WiSe
Core Course	Lecture + Seminar	English	4+1	7.5	WiSe

Requirements for participation:

Bachelor in Physical Sciences

Type of module examinations:

Oral Examination

Duration of the course:

1 semester

Aims of the course:

Life as an interplay between physics and genetics; understanding how physical principles guide the behavior of biological cells and organisms; introduction into biophysical methods.

Contents of the course:

- Introduction to molecular cell biology
- Random-walks in biology
- Rate equations and cellular dynamics
- Mechanical forces in molecular and cellular biology
- Signal transduction in nerve cells
- Photophysics
- Physical methods for analysis of biological molecules and processes

Recommended literature:

Phillips, R., Kondev, J., Theriot, J., H. Garcia, Physical Biology of the Cell, Garland Science, New York, 2013