Statistical and Biological Physics

Module No.: MN-P-SP-StatBio, MN-P-PN-StatBio, MN-P-WaMa   Version: 21.06.2017 BM

Course: Probability Theory and Stochastic Processes for Physicists

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Category	Type	Language	Teaching Hours	CP	Semester
Specialized Course	Lecture	English	2+1	4.5	WiSe

Requirements for participation:
Statistical Mechanics on the bachelor level

Type of module examinations:
Oral Examination or Term Paper

Duration of the course:
1 semester

Aims of the course:
Acquaintance with probabilistic concepts and stochastic methods commonly used in the theory of disordered systems and nonequilibrium phenomena, as well as in interdisciplinary applications of statistical physics.

Contents of the course:
 ➢ Limit laws and extremal statistics
 ➢ Point processes
 ➢ Markov chains and birth-death processes
 ➢ Stochastic differential equations and path integrals
 ➢ Large deviations and rare events

Recommended literature:

D. Sornette: Critical Phenomena in Natural Sciences (Springer, 2004)
N.G.Van Kampen: Stochastic Processes in Physics and Chemistry (Elsevier, 1992)