Module No.	Title of Module
10-MAT-MPSP2	**Stochastic Processes II**

Recommended for	3rd semester of Int. Master Program Math. Phys.
Duration	1 Semester
Frequency	Every Winter Semester
Course types	(1) Lecture „Stochastic Processes II" (4 SWS) = 60 h in class + 90 h individual studies = 150 h (2) Seminar „Stochastic Processes II" (2 SWS) = 30 h in class + 120 h individual studies = 150 h
Workload	10 LP = 300 h
Aims	After active participation, the students are able to - present and explain advanced concepts and methods of the theory of stochastic processes orally and in writing - apply them in order to investigate in and predict the behaviour of complex stochastic systems - solve simple model problems and justify their method - expand their specialist knowledge by using original literature on their own
Contents	Contents: Specialization a) random media: - Point processes and percolation - random walks in random media - Homogenization - interacting particle systems or Specialization b) condensed matter and stochastic field theory: - Freidlin-Wenzel-Theory and metastability - hydrodynamic limit of particle systems - stochastic partial differential equations The courses are held in English. Study and examinations are to be completed in English.
Prerequisites	None
Literature	G. Grimmet, Percolation, Springer 1999 G. Grimmet, Probability on Graphs, Cambridge University Press, 2018 G. da Prato, J Zabczyk, Stochastic Equations in Infinite Dimensions, Cambridge University Press, 2008 C. Kipnis, C. Landim, Scaling Limits of Interacting Particle Systems, 1999
Examinations	Oral exam of 25 min Oral lecture (60 min.) + written report (4 weeks).
Requirements	attendance at lecture „Stochastic Processes II“ (4 SWS) participation in seminar „Stochastic Processes II“ (2 SWS)