

Prof. Dr. D. Becherer  
<http://www.math.hu-berlin.de/~becherer>  
Institute of Mathematics  
Stochastics



In winter term 2015/16 I shall read the following lecture

*Stochastics II*  
(BMS Course Stochastic Processes)

This is a BMS course which will be taught in English to facilitate participation of international students.

Content:

Conditional expectations, martingales in discrete time: stopping and convergence theorems with applications, construction of stochastic processes, Markov and Gaussian processes, weak convergence of measures, invariance principle and Brownian motion

Prerequisites:

Modules 4 and 5 „Lineare Algebra und Analytische Geometrie I und II“ (linear algebra I + II), modules 1 and 2 „Analysis I und II“, Measure and integration theory to the extent provided in the module “Analysis III” and module 9 „Stochastik I“.

Students who need to refresh (or catch up by self-study) on measure and integration theory, find excellent expositions in Klenke (ch. 1,2,4,6), Williams (part A) or Rogers/Williams (ch. II.1-2).

References:

- Klenke, A.: *Wahrscheinlichkeitstheorie*, Springer 2008  
(available online via HU-net at library: <http://dx.doi.org/10.1007/978-3-642-36018-3>)  
Klenke, A.: *Probability Theory: A Comprehensive Course*, Springer 2008  
Jacod, J. / Protter, Ph.: *Probability Essentials*, Springer 2000  
(<http://dx.doi.org/10.1007/978-3-642-55682-1>)  
Rogers, L.C.G. / Williams, D.: *Diffusions, Markov Processes and Martingales*; Vol 1  
Širjaev, Albert N.: *Wahrscheinlichkeit*, (z.B. Dt. Verlag der Wissenschaft, 1988)  
Shiryaev, Albert N.: *Probability*, Springer-Verlag 1995  
(<http://dx.doi.org/10.1007/978-1-4757-2539-1>)  
Williams, D.: *Probability with Martingales*, Cambridge University Press 1991  
Bauer, Heinz; *Wahrscheinlichkeitstheorie*, de Gruyter 2002  
(<http://www.degruyter.com/viewbooktoc/product/119350>)

Lectures (Prof. Becherer):

Tuesday, 09 – 11, RUD 25, room 1.013  
Wednesday, 13 – 15, RUD 26, room 0'311

First lectures: **October 13, 2015**

Exercises (Todor Bilarev/N.N.):

Tuesday, 11 – 13, RUD 26, room 1'304

Office hours: tba

There will be a course webpage, cf. <http://www.mathematik.hu-berlin.de/~becherer>