Topics in Mathematics 1

Course Syllabus

Spring Term 2015 — SNU

Course Title	Topics in Mathematics 1 (in English)
Course number	3341.445
Instructor	Gerald Trutnau
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Course homepage	http://www.math.snu.ac.kr/∼ trutnau/teachingTIM12015.html
Course Objective	The purpose of this course is to develop fundamental results of probability theory like for instance the laws of large numbers and the central limit theorem.
References	Here are some references:

- Billingsley, P.: Probability and measure, third edition. Wiley, 1995. ISBN: 0-471-00710-2
- Chung, K. L.: A Course in Probability Theory, Third Edition Academic Press;
- Durrett, R.: Probability: theory and examples, fourth edition. Cambridge University Press, ISBN: 978-0-521-76539-8
- Jacod, J.; Protter, P.: Probability essentials, second edition. Universitext. Springer, ISBN: 3-540-43871-8
- Klenke, A.: Probability theory. A comprehensive course. Universitext. Springer, ISBN: 978-1-84800-047-6

Description   Here is a tentative content:
probability spaces, transformation of probability spaces, random variables, inequalities (Jensen, Chebychev, Markov, ...), variance and covariance, laws of large numbers, convergence and uniform integrability, distribution of random variables, weak convergence of probability measures, Dynkin systems and uniqueness of probability measures, independence, joint distribution and convolution, characteristic functions, central limit theorem, conditional probabilities, etc (to be updated)

Evaluation   - Attendance (10 % of final score).

- Assignment sheets (60 % of final score);

Students must solve exercises regularily, and will be given assignment sheets mostly every week.

- Midterm (7-8th week, 75 minutes, 30 % of final score);