Course Analysis: SF2940, Probability Theory, 2017

A course analysis meeting was held on Thursday, November 24, 2017 at 10.30-11.00, in room F11. The attendees were, Michael Hanke, Nazim Huzeynov (student representative), Anja Janssen and Boualem Djehiche (course examiner). The invitation was extended to the students representatives for the programs D (computer science), F (engineering physics), I (industrial engineering and management), M (mechanical engineering), and T (vehicle engineering).

Course Data

- SF2940, Probability Theory 7.5 ECTS
- Period 1 , 2017
- Responsibility: Boualem Djehiche
- Teaching hours:
  - Lectures/exercises: 24+4 h
- Registered students: 261 (218 first time registered students of which only 19 students did withdraw their registration i.e. 199 students followed the course to the end)+ 4 PhD students.
- Literature: Primary source: Lecture notes: Probability and Random Processes at KTH, by Timo Koski, Ed. 2014. Secondary source: A. Gut An Intermediate Course in Probability, Springer-Verlag 1995 or later editions.
- Credits:
  - Homework: two homeworks which yield bonus points at the first exam and the first re-exam.
  - Written examination: 7.5 ECTS
- Number of students that wrote the ordinary exam: 217. 75% passed the course.
- Performance index (according to VIS): 62% (this highly technical number is based on only first time registered students)
- Examination index (according to VIS) (students that passed the exam): 62% (this number is based on only first time registered students).

Aim The aim of the course is to introduce basic theories and methods of pure probability theory at an intermediate level. For example, the student will learn how to compute limits of sequences of stochastic variables by transform techniques. No knowledge of measure and integration theory is required, and only bare first statements of that will be included in the course. Techniques developed in this course are important in statistical inference, statistical physics, time series analysis, financial analysis, signal processing, statistical mechanics, econometrics, and other branches of engineering and science. The course gives also a background and tools required for studies of advanced courses in probability and statistics. The course is lectured and examined in English.

Changes compared to the last year Typos in the course material have been fixed.

Input from students An evaluation form was handed out to the students through both Canvas and standard e-mail. It contained only tow questions: Two things you think are good about the course, Two ways to improve the course. Only 11 answers were received. But many students did orally tell me their opinions. The content of the evaluation is that the course book is not concise enough to help for an efficient learning. I totally agree with them. The lecture notes are encyclopedic and are not really user-friendly for first time readers.

Conclusions The course was estimated as having just the right difficulty. It was considered very interesting and meaningful. The homeworks came to the point and their level was just right.

Teaching The teaching was done by lectures, exercises, and office hours. Homeworks have been evaluated during lectures or exercises.

Examination The examination based on homework problems and a written examination. A successfully solved homework gave bonus credits for the written examination.

Prerequisites With the exception of certain issues regarding Fourier transforms as tool, no problem. This concerns, in particular, Indek students that have no such course in their curriculum. But, we recall every item needed in the course.

Planned changes Look for a replacement for the Lecture Notes. More worked out examples during the lectures. A more focused course content. Look for more flexible examination forms.

Grading No problems.