

Course Analysis: SF1901, Probability theory and statistics, 2017

Course Data • 6 ECTS

- SF1901, Probability theory and statistics, Period 1, 2017
- Responsibility: Tatjana Pavlenko
- Teaching hours:
 - Lectures/exercises: 60 h
 - Computer labs: 2 h
- Registered students: 153 students
- Literature: Blom et al. Sannolikhetslära och statistikteori med tillämpningar, Studentlitteratur Set of exercises and lecture slides under course log and updates, see the home page of the course
`+https://www.kth.se/student/kurser/kurs/SF1901?l=en/`
- Credits:
 - Written exam: 6 ECTS
- Performance index (according to VIS):
- Examination index (according to VIS): 61% passed the exam.

Aim Basic concepts like probabilities, conditional probabilities and independent events. Discrete and continuous random variables, especially one dimensional random variables. Measures of location, scale and dependency of random variables and data sets. Common distributions and models: normal, binomial and Poisson distribution. Central limit theorem and Law of large numbers.

Descriptive statistics.

Point estimates and general methods of estimation as the method of maximum likelihood and least squares. General confidence intervals but specifically confidence intervals for mean and variance of normally distributed observations. Confidence intervals for proportions, difference in means and proportions.

Testing statistical hypothesis. χ^2 -test of distribution, test of homogeneity and contingency.

Conclusions In general, the course was according to the plan. Next time there will changes in the bonus program offering students more active learning and more applications of the theoretical results discussed during the lectures and exercises. Specifically, the plan is to come back to two laboration exercises, deeply covering both probability and statistical inference parts. This plan is in agreement with the CFATE program and is highly appreciated. The laboration exercises

will be placed accordingly after each part of the course, stimulating students to work systematically with the course material.

Students are in general satisfied, they evaluate the course as an important part of their education and see the clear need of knowledge in this area for their applications. Some issues were mentioned concerning the lectures which were mainly caused by non-working equipment at the lecture rooms. Often projectors and the system to connect the laptop were out of work, which causes delays and improvising with the lecture material due to impossibility to present is according to the initial plan.

Teaching The teaching was done by lectures, theoretical exercises and bonus giving laboration exercises.

Examination Written exam.

Prerequisites Basic differential and integral calculus.

Planned changes are presented above.

Grading by the results of written exam with adding possible bonus.