

Åbo Akademi
Matematiska institutionen
Fänriksgatan 3 B III vån.

Poissonprocesser - Poisson Processes

Kursen **Poissonprocesser** (kurskod 273019, 5 sp) har som mål att lära studenterna grundläggande kunskaper och teknik för modellering med Poissonprocesser och andra Markovprocesser i kontinuerlig tid.

Innehåll: Poissonprocesser (homogena, inhomogena, sammansatta, flerdimensionella) med generaliseringar såsom födelse- och dödsprocesser. Tillämpningar på modeller inom försäkringsmatematik, tillförlitlighetsteori, köteori m.fl.

Kursen hålls troligtvis på engelska.

The course on **Poisson Processes** (Course code 273019, 5 credits) treats the basic theory and modelling techniques of Poisson processes and other Markov processes in continuous time.

Contents: Poisson processes (homogeneous, inhomogeneous, compound, multidimensional) with generalizations such as birth and death processes and applications in actuarial mathematics, reliability theory, queueing theory etc.

The lectures may be given in English, depending on the audience.

Literature: Sheldon M. Ross: *Introduction to Probability Models* 9th ed., Academic Press 2007; in particular Chapter 5. A number of books are available at the student library in the ASA building.

Additional material may be used. All material will be available in Room B310.

Prerequisites: Analysis (Calculus), probability theory and a course on linear algebra or matrix calculus. Some knowledge of differential equations is also helpful. Programming ability using a major mathematical programming package such as Mathematica or Matlab is necessary.

Class hours (preliminary) are Mondays 13 - 15, Tuesdays 15 - 17 and Fridays 10 - 12. The venue is *Hilbertrummet*, ASA B329. The course starts at **1 p.m. on Monday, March 18**. It goes on until **17 May**.

There will be some compulsory theoretical and numerical exercises and assignments.

The course ends with a written examination (closed-book) on 21 May (provisional date).

Åbo den 12 mars 2013

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