TEKNISKA HÖGSKOLAN I LINKÖPING
Matematiska institutionen
Matematisk statistik

MAI0104 Malliavin Calculus and Stochastic Integration

Course Plan Spring 2012

Main literature

[1] D. Nualart, *The Malliavin Calculus and Related Topics*, 2nd edition, Berlin Heidelberg: Springer 2006.

Additional literature

[2] N. Bouleau, F. Hirsch, *Dirichlet Forms and Analysis on Wiener space*, Berlin, New York: Walter de Gruyter 1991.
[3] G. Da Prato, *Introduction to Stochastic Analysis and Malliavin Calculus*, Edizioni della Normali 2008.
[4] D. Nualart, *The Malliavin Calculus and Its Application*, AMS 2009.

Location All sessions take place in *Kompakta rummet* in the B building, first floor, entrance 23.

Topic 1 Classical and abstract Wiener space, Girsanov's theorem, Derivatives, Partial integration, Stochastic integral, Wiener functionals

Tue, March 13 Lecture

Thr, March 15 Lecture

Tue, March 20 Lecture

Thr, March 22 Problem seminar on topic 1, material will be passed out

Topic 2 Ornstein-Uhlenbeck form, -semigroup, -operator, related Sobolev spaces, comparison finite dimensional and infinite dimensional case

Tue, March 27 Lecture

Thr, March 29 Lecture

Tue, April 3 Problem seminar on topic 2, material will be passed out

Topic 3 Ito-integral, Skorohod integral, Stratonovich integral, L^2-integral

Thr, April 5 Presentation by participant or lecturer

Tue, April 10 Presentation by participant or lecturer

Thr, April 12 Lecture

Tue, April 17 Lecture

Thr, April 19 Lecture

Tue, April 24 Problem seminar on topic 3, material will be passed out

Topic 4 Application to Stochastic Differential Equations, characterization of probability laws, mathematical finance; selection according to interest of the participants

Thr, April 26 Lecture

Tue, May 8 Lecture

Thr, May 10 Problem seminar on topic 3, presentation by participant