This course is a continuation of MM506 (Probability I). We begin by discussing Borel-Cantelli lemmas and almost sure convergence of sums of independent random variables. We then continue with a measure theory topic, namely absolute continuity with respect to a measure and the Radon-Nikodym theorem. Next we talk about conditional expectations and stopping times. These are topics at the heart of martingale theory, which we discuss further. Our discussion of martingale theory in discrete time will include results such as: the upcrossing lemma, optional sampling theorem, martingale convergence theorems and uniform integrability. A detailed description of the syllabus is enclosed below:

Kapitel 2: 2.1, 2.2 (only Sætning 2.1), 2.3.
Kapitel 3: 3.2.
Kapitel 4: 4.1 (excluding Lemma 1.5 and Sætning 1.6).
Kapitel 5: 5.1, 5.2 (until Sætning 2.20-including).


Webpage: The webpage for the course can be found at the following address: www.imada.sdu.dk/Courses/MM513.

Weekly notes containing information about the topics covered in lectures during the week and homework assignments will be posted there.

Lectures meet on Mondays 12-14, Room U2 and Thursdays 10-12, Room U26, with Magdalena Musat (musat@imada.sdu.dk).

Exercise Sessions meet on Tuesdays 10-12, Room U44 and Fridays 10-12, Room U30, with Søren S. Thorsen (sthorsen@imada.sdu.dk)

Assignments: Homework assignments to be discussed during Exercise Sessions of the following week, will be posted on the webpage. Also, there will be a mandatory project, that will be posted on the web page around April 30, 2007. The project will be due on Thursday, May 24, in lecture.

Final exam: The final exam is scheduled for June 20, 2007. There will be an external examiner, as well.