

Mathematics III 2016: Syllabus

Stockholm University

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The course has 10 lectures and 4 practice sessions. The examination consists of a final exam (90%), on January 20th, and 4 homeworks (10%). Homeworks are graded on a pass/fail basis. Each homework that is passed will give 2.5 points towards the final grade. Students may solve the homeworks in groups, but every student should submit an individual answer.

This course covers fundamental topics in differential/difference equations and dynamic optimization. The first part of the course studies first- and second-order differential and difference equations and discusses elementary solution methods, complex numbers, existence and uniqueness of solutions, stability of solutions, and systems of differential/difference equations. The part on dynamic optimization covers optimization with a finite and infinite time horizon, dynamic programming, continuous time optimization, stochastic dynamic programming, numerical solution methods.