



Course syllabus

Faculty Board of Science and Engineering
School of Computer Science, Physics and Mathematics

4MA132 Matematiska metoder inom kvantmekaniken, 7,5
högskolepoäng

Mathematical Methods of Quantum Mechanics, 7.5 credits

Main field of study

Mathematics

Subject Group

Mathematics

Level of classification

Second Level

Progression

A1N

Date of Ratification

Approved by the Board of the School of Computer Science, Physics and Mathematics
2009-12-01

Revised 2010-11-26. Revision made for prerequisites and course evaluation.

The course syllabus is valid from autumn semester 2011

Prerequisites

Mathematics 15 credits at G2F level or the equivalent.

Expected learning outcomes

The student should be able to:

- operate with self-adjoint linear operators in Hilbert space
- apply self-adjoint linear operators for solving of problems
- operate with definitions and central notions of the course in coupling with study of various problems
- operate, communicate and present argumentation using mathematical forms of representation
- demonstrate applications to theory of quantum information.

Content

The course content is

- introduction to theory of linear operators in Hilbert space
- axiomatics of quantum mechanics
- applications to theory of quantum information

Type of Instruction

Lectures and seminars. Compulsory assignments may be given during the course.

Examination

The course is assessed with the grades Fail (U), Pass (G) or Pass with Distinction (VG).

The student's knowledge is assessed in the form of oral and/or written examination.

On request, students may have their credits translated to ECTS-marks. Such a request must be sent to the examiner before the grading process starts.

Course Evaluation

A course evaluation will be carried out at the end of the course in accordance with the guidelines of the University. The result of the course evaluation will be filed at the department.

Required Reading and Additional Study Material

Required reading

Ballentine L. Quantum Mechanics, A Modern Development,
World Scientific Publ., Singapore, 1998. 653 pages