Linnæus University

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 Organisational Committee 2009-12-01

The course syllabus is valid from autumn semester 2010

Prerequisites
15 higher education credits at bachelor 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.

Course Evaluation

After the course a written evaluation of the course will take place according to the University guidelines.

Required Reading and Additional Study Material

Required reading

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