Course: Mathematical aspects of quantum physics	
Course instructors: Marko Nedeljkov	
Course type: elective	
Credit points ECTS: 12	
Prerequisites: Functional analysis	

Course objectives:
Invite students into the mathematical theory of quantum physics.

Learning outcomes:
Understanding of the basic principles of quantum physics.

Course description (outline):
Theoretical classes
Unitary groups of operators on Hilbert spaces, axioms of quantum mechanics, Schrödinger equation, applications of spectral properties of self-adjoint operators, bound states and scattering states, angular momentum, the simplest atomic systems; Dirac equation.

References:
1. M. Reed and B. Simon, Methods of modern mathematical physics, 4 volumes, Ac.Press 1975-80.
2. B. C. Hall, Quantum theory for Mathematicians, Springer 2013.
3. M. Schechter, Operator methods in quantum mechanics, Elsevier 1981.
4. B. Thaller, The Dirac equation, Springer 1992.
5. G. B. Folland, Quantum field theorya tourist guide for mathematicians, Amer. Math. Soc. 2008.
6. W. Thirring, Quantum mathematical physicsatoms, molecules and large systems, Springer, 2nd ed. 2002.

Active teaching hours: 5	Theoretical classes: 5	Practice classes:

Methods of teaching:
Lectures and independent work of students

Grading structure (100 points)
50 Colloquia, 50 Exam