

# Syllabus – Mathematical methods in quantum theory

## Spring 2010

**Course:** MTH 5V92 – Mathematical methods in quantum theory

**Time:** TR 12:30–1:45

**Room:** SDRICH 333

**Instructor:** Dr Jon Harrison

**e-mail:** jon\_harrison@baylor.edu

**Office:** SDRIC 332C

**Phone:** (254) 710–3723

**Office hours:** 1:45–2:45 TR and by appointment.

### Course Description

(CREDIT 3) The course will introduce the elements of quantum theory from a mathematical perspective. Starting with the basis of classical Lagrangian and Hamiltonian mechanics, we introduce the principles of quantum mechanics, uncertainty relations, quantization and the Schrodinger equation, symmetry and spin. Finally some more advanced methods will be discussed including the WKB method, semi-classical asymptotics, trace formulae and quantum chaos.

**Course Text:** G. W. Mackey, *Mathematical foundations of quantum mechanics*, (Dover 2004), ISBN: 0486435172.

### Grading

Your grade will be determined by homework and a final exam weighted to give the final grade.

	Homework	Final Exam
Weight	60%	40%
Date		May 10, 2pm

### Course grades:

A(90–100%), B+(85–89%), B(80–84%), C+(75–79%), C(70–74%), D(60–69%), F(0–59%).

**Attendance:** University policy requires that to earn credit in a course the student must attend at least 75% of all class meetings. Any University-related activity necessitating an absence from class shall count as an absence when determining whether a student has attended the required 75% of class meetings.

**Make-up policy:** Make-ups for missed quizzes and exams will only be allowed for a university approved excuse in writing. Wherever possible, students should inform the professor before an exam or quiz is missed. Students are required to notify the professor by the end of the next working day after missing an exam or quiz. Otherwise, they forfeit their rights to a make-up.

**Scholastic dishonesty:** Copying work done by others, either in-class or out of class, is an act of scholastic dishonesty and will be prosecuted to the full extent allowed by the academic integrity and honor code. Collaboration on assignments, either in-class or out-of-class, is forbidden unless permission to do so is granted. The academic integrity and honor code is available on the web <http://www.baylor.edu/honorcode/>.

**Students with disabilities:** Any student with a documented disability needing accommodations should contact the Office of Access and Learning Accommodation (OALA). The student is responsible for obtaining appropriate documentation and information regarding needed accommodations from the OALA and providing it to the professor early in the semester. The OALA phone number is (254) 710-3605 and the office is in SDRIC.