

# Quantum Mechanics III

<http://www.rpi.edu/~napolj/Courses/QMIII/>

## Course Information for Fall 2005

*August 29, 2005*

Course Number: PHYS6530  
Course Name: Quantum Mechanics III  
Meeting Times: Wednesdays 10-11:30am & Thursdays 8:30-10:00am  
Classroom: DCC 236  
Email list: PHYS6530-l@lists.rpi.edu

Instructor:	Jim Napolitano	Grader:	Anthony Villano
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Office Hours:	Thursday 2-4pm	Hours:	Monday 2-4pm; Friday 10am-Noon

This is a second year graduate level course in Quantum Mechanics. Prerequisite materials include the equivalent of courses PHYS6510 and PHYS6520, Quantum Mechanics I and II, and a thorough background in undergraduate physics and mathematics.

See the class schedule as published on the course web page, which includes reading assignments. The outline may change as we go along. We will start with the basics of quantum field theory, including its formulation in terms of path integrals. As we develop the theory by including different types of fields, we'll refer to modern applications wherever practical. Some advanced topics will be discussed towards the end of the course. I will make a special effort to discuss topics in condensed matter physics, namely superfluidity, Landau-Ginzburg theory, and superconductivity.

A textbook list is also available at the course web site. We will mainly follow "Quantum Field Theory in a Nutshell", by A. Zee. **This is the only required textbook.** I will frequently draw on material from the other books in that list, and I will be clear about that when presenting this material in class.

Your grade will be based on seven homework sets. You are strongly encouraged to collaborate with other students on working these problem sets *except for the midterm and final sets on which you must work independently.* I'm afraid I need to be pretty strict about the due dates, but if you have some special problem, please let me know. The midterm and final problem sets will account for about half the total course grade.

*Academic Integrity Statement:* Collaboration does not extend to copying someone else's solution to the homework and handing it in as your own. The first time it happens, you will receive a grade of zero for that problem set. If it happens again, you will be reported to the Dean of Students. Regarding the midterm and final problem sets, if I suspect that you have cheated, I shall ask for an explanation. If your explanation is unsatisfactory, you will be given a grade of zero and reported to the Dean of Students.