PHYS 911: Quantum Mechanics 2  
Lecture: TU 2:30, CW 145  
Fall 2016

Instructor:  
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CW 325  
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Textbook:  

Supplements:  
In roughly the order of increasing difficulty level:

- Introduction to Quantum Mechanics, Griffiths
- Quantum Mechanics, Zettili
- Quantum Mechanics, Cohen-Tannoudji, Diu, and Laloe
- Modern Quantum Mechanics, Sakurai
- Quantum Mechanics, Merzbacher

Grading:  
<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
<th>Grade Range</th>
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<tbody>
<tr>
<td>Exam 1</td>
<td>15%</td>
<td>A 85–100</td>
</tr>
<tr>
<td>Exam 2</td>
<td>15%</td>
<td>B 75–84</td>
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<tr>
<td>Final</td>
<td>20%</td>
<td>C 65–74</td>
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<tr>
<td>Homework</td>
<td>50%</td>
<td>D 55–64</td>
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Course philosophy:  
This course will challenge you. I expect that you will learn the most from the homework, so there will be quite a bit of it: assignments will be given roughly once per week and will likely take 10 or more hours each. Some assignments will require numerical solutions using your own codes, Mathematica, or your favorite numerical package.

Guidelines for homework:

- Discuss your homework with classmates as much as you like, but write your homework solutions on your own! Do not copy a classmate’s work and do not ask for, accept, or use copies of my solutions from previous semesters. This is the best way for you to learn the material as well as an issue of academic honesty.

- As a scientist in training, you need to learn to communicate scientific information in an effective, efficient manner. You should consider homework assignments as practice in this art. It is your responsibility to present your homework solutions in a readable, logical manner—not mine to decipher and interpret them.

- Also as a scientist in training, you need to clearly acknowledge the contributions of others to your work. For example, if you benefitted from discussing the homework with someone, you should acknowledge them. Or, if you found the solution on the web (in a book or elsewhere) and copied it—even if not verbatim—then you should cite the source. If you use computer code that you did not write, you should cite the source of that code. These are issues of professional ethics and academic honesty.

- You will often be required to plot your results. You should do this on your own to develop your own sense of how to best present scientific results. Similarly, if you are required to carry out a numerical solution, do so on your own. You may use a code that you did not write, but you should run it to produce the needed results on your own.

- In an incorrect solution, I will reward statements that show you know it is incorrect and why. I will also reward (correct!) effort sufficiently above and beyond what is explicitly asked for in a problem. Conversely, if you give a grossly incorrect solution, but make no indication that you know it is grossly incorrect, there will be a grade penalty beyond just getting the problem wrong.

Tentative Course Outline:
We will tentatively cover the following topics (in no particular order):

- Identical particles
- Variational principle
- Dynamics and time-dependent perturbation theory
- Three-dimensional scattering
- Symmetries and quantum numbers
- Angular momentum: orbital and spin
- Many-body systems

The exact topics covered will evolve somewhat during the semester and will likely include some not listed here.

Required statements:

Statement Regarding Academic Honesty:  
Kansas State University has an Honor and Integrity System based on personal integrity, which is presumed to be sufficient assurance that, in academic matters, one’s work is performed honestly and without unauthorized assistance. Undergraduate and graduate students, by registration, acknowledge the jurisdiction of the Honor and Integrity System. The policies and procedures of the Honor and Integrity System apply to all full and part-time students enrolled in undergraduate and graduate courses on-campus, off-campus, and via distance learning. The Honor and Integrity System website can be reached via the following URL: www.k-state.edu/honor. A component vital to the Honor and Integrity System is the inclusion of the Honor Pledge which applies to all assignments, examinations, or other course work undertaken by students. The Honor Pledge is implied, whether or not it is stated: “On my honor, as a student, I have neither given nor received unauthorized aid on this academic work.” A grade of XF can result from a breach of academic honesty. The F indicates failure in the course; the X indicates the reason is an Honor Pledge violation.

Statement Regarding Students with Disabilities:  
Students with disabilities who need classroom accommodations, access to technology, or information about emergency building/campus evacuation processes should contact the Student Access Center and/or their instructor. Services are available to students with a wide range of disabilities including, but not limited to, physical disabilities, medical conditions, learning disabilities, attention deficit disorder, depression, and anxiety. If you are a student enrolled in campus/online courses through the Manhattan or Olathe campuses, contact the Student Access Center at accesscenter@k-state.edu, 785-532-6441; for K-State Polytechnic campus, contact Academic and Student Services at polytechnicadvising@ksu.edu or call 785-826-2974.

Statement Defining Expectations for Classroom Conduct:  
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Statement for Copyright Notification:

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