Physics 341 Fall 2025 Syllabus

Paul Nakroshis

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UNIVERSITY OF SOUTHERN MAINE
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Welcome to Physics 341: Quantum Mechanics
Tu Th 11:00-12:15; SCI 157
This is a one semester course that deals with the physics of matter and energy at a small scale. Objects the size of atoms do not behave like anything that you have any direct experience with, and this course will discuss the weirdness directly and explain the rules that allow us to calculate the *probability* of a particular occurrence in a given situation.

I expect that you will have had 3 semesters of calculus, as well as taken the classical physics sequence and hopefully differential equations too. This is not an easy class, (but it will be fun) and expect to put in a fair amount of work reading and working on weekly problem sets.

Instructor

Paul Nakroshis
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207-780-4158 (office)
Office hours: by appointment.

This document

Should you lose this syllabus, an electronic .pdf version of this file (with clickable hyperlinks) is available online at the course homepage which can be found at
http://people.usm.maine.edu/pauln/physics341/.
Information about other physics courses can be found at the Physics Department Homepage.

Outside Help/Office Hours

In general, if my office door is open and I have time, I am happy to help you, so feel free to stop in and ask questions. If you need to meet with me at some specific time, just ask and make a time to meet. Times I am **not** available: Tu Th before class (I am taking French 301) and twice a month, I have meetings on Friday afternoons. I am in Monday through Friday and pretty easy to find either in my office or my lab.

Technology:

You may use a **scientific calculator** on the exams, but no cell phones or mobile devices may be used. There is no need to purchase an expensive graphing calculator (although they are fine if you have one).

Attendance/Participation/Missed Exam Policy

I expect that all of you will attend class and actively participate. I try to make a class a valuable learning space, so it's to your advantage to attend; I will not take formal attendance. *If you are late to class or miss a class in which a quiz or test is given, you* **will not** *be given a makeup except in extraordinarily exceptional cases, or if you have prearranged due to a conflict.*

Required Textbook:

Introduction to Quantum Mechanics, 3rd Edition, by David J. Griffiths and Darrell F. Schroeter

This is the only **required** textbook for the course, and we will make extensive use of it, from readings to homework problems. It is available at the Portland USM bookstore, or online through Amazon.com or many other booksellers.

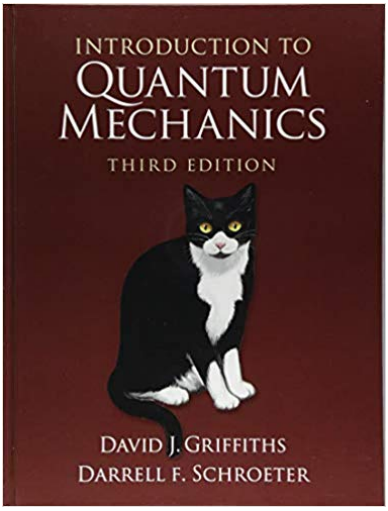

Figure 1: Our text!

Students with disabilities

If you need accommodations due to a disability, please contact the Disability Services Center for confidential assistance and accommodation authorization. Timely notification of accommodations is essential. For more information, visit, http://usm.maine.edu/dsc University Health and Counseling Services is a student resource that promotes the health and well-being of the USM community. More information can be found at www.usm.maine.edu/uhcs.

Academic Integrity

I expect the utmost academic honesty. If I find that you have been cheating in any way, you will receive a failing grade, be asked to leave the course, and I will send a letter documenting the offense to the Office of Student Judicial Affairs and the Dean of Students.

Assessment

Your grade in this course will be based on my subjective opinion of your level of understanding of the physics topics we discuss in this course. Your best way of being successful in achieving a good grade is to study the text and work to *understand* all the Problem Set questions so that you score well on the 2 exams and the final. **Using AI to solve homework questions is not allowed.** Of course, this is very hard to police—but I can tell you that a necessary part of learning Quantum Mechanics (as in any other physics course) is to struggle with the homework problems, go down wrong pathways, become stumped, and wrestle with the questions. If you shortchange this process with AI, this will come back to bite you on the exams, where you will have to demonstrate your understanding with pen and paper.

Exams

There are two exams and a final. I may give occasional quizzes too.

- No cell phone or mobile device use during exams. Please bring an inexpensive scientific calculator instead. There is no need for a graphing calculator, but they are allowed.

- Exams are closed book, closed notes but you may bring in *one sheet* (8.5" x 11") of crib notes for each exam.

Here are the exam dates for the semester and the point values for each item; put these dates on your calendar—if you have another class with exams on the same date, please prepare accordingly.

Exam # 1	Thursday 2 Oct 2025	250 pts
Exam # 2	Thursday 06 Nov 2025	250 pts
Quizes & Problem Sets	Throughout Semester	200 pts
Comprehensive Final Exam	Thursday, December 18 from 11-1	300 pts
Total Points:		1000 pts

Problem Sets

You can expect weekly problem sets; these problems sets are vital to learning, and although I encourage you to work together on them, I ask that you write up your solutions separately. In grading each question, I will be assign a score between 0 (not done) and 5 (excellent), and will be looking for the following:

- A statement of the original question.
- A logical handwritten solution of the question, with your reasoning clearly laid out in **both** prose and equations.
- There should be a brief description narrating how you proceed from one equation to the next in your solution.
- Credit given to those due credit; i.e. if you worked together with Jim Smith, you might say "...as a result of discussions with Jim Smith."
- A figure to help explain the problem and solution will *almost* always be a component of a good solution.
- A clearly visually indicated final numerical solution value or equation when appropriate (which is almost always the case).
- A homework problem solution with only equations and no reasoning will receive a score no higher than a 3.5/5.

Grading Scale

Here is the percentage scale used for assigning letter grades.

Letter Grade	Numerical Percentage
A	93.0 -100
A-	90.0 - 92.9
B+	87.0 - 89.9
B	83.0 - 86.9
B-	80.0 - 82.9
C+	77.0 -79.9
C	73.0 - 76.9
C-	70.0 - 72.9
D+	67-69.9
D	63-66.9
D-	60.0 - 62.9
F	0 - 59.9

Detailed Reading and Assignment Schedule

The schedule below is tentative, although I will do my best to keep the exam dates fixed.

Date	Reading	Events
02 Sep	1.1 – 1.6	
04 Sep	1.1 –1.6	
09 Sep	2.1 –2.2	
11 Sep	2.3	
16 Sep	2.5, 2.6	
18 Sep	Appendix & 3.1	
23 Sep	3.2–3.3	
25 Sep	3.4–3.5	
30 Sep	3.6	
02 Oct	EXAM 1	**EXAM 1**
07 Oct	4.1	
09 Oct	4.2	
14 Oct	no class	Indigenous Peoples' Day)
16 Oct	4.3	
21 Oct	4.4	
23 Oct	4.4-4.5	
28 Oct	5.1	
30 Oct	5.2	
04 Nov	5.3	
06 Nov	EXAM 2	**EXAM 2**
11 Nov	no class	Veterans' Day
13 Nov	6.1–6.2	
18 Nov	6.3–6.4	
20 Nov	6.5–6.6	
25 Nov	6.7	
27 Nov	no class	Thanksgiving break
02 Dec	6.8	
04 Dec	7.1	
09 Dec	7.2	
11 Dec	7.3	
18 Dec	**FINAL EXAM**	11:00 - 13:00