

Non-Relativistic Quantum Mechanics 2
Physics 2566 Spring 2021
Syllabus

Zoom <https://pitt.zoom.us/j/96353541614>, Passcode: qm2pitt

Lecture: MWF, 11:05-11:55 AM

Instructor Brian Batell

E-mail batell@pitt.edu

Course Website We will use the Pitt Canvas site for this course:

<https://canvas.pitt.edu>

Log in with your University ID and password and navigate to the PHYS 2566 page. Here you will find announcements, lecture notes, homework assignments and solutions, grades, the syllabus, and other important materials. Please check this site regularly for course announcements.

Text *Principles of Quantum Mechanics*, 2nd Edition, Ramamurti Shankar. This is the same text used by Dr. Leibovich in 2565 Fall 2020.

Office Hours I hold regular office hours during the following times:

- Mondays, 12:00pm-1:00pm
- Thursdays, 1:00pm-2:00pm
- Fridays, 12:00pm-1:00pm

I strongly encourage you to take advantage of office hours. If my office hours do not fit within your schedule for any reason, please email me to set up an appointment to meet outside of these times.

Course Description The second term of this course applies the previously developed abstract form of quantum mechanics to more complicated systems. The following topics will be covered: spin, addition of angular momenta, variational and WKB methods, time-independent perturbation theory, time-dependent perturbation theory, and scattering theory. Time permitting, certain advanced topics such as path integrals and relativistic quantum mechanics may be discussed.

Learning Objectives Develop an understanding of the principles of quantum mechanics and gain facility with the technical methods used to describe the dynamics and compute observables in a variety quantum mechanical systems.

Homework Homework will be assigned every 1-2 weeks and will be due the following week. Homework will be graded and solutions to the homework will be made available after all students have turned in the assignment. Late assignments will be accepted if turned in no later than one week after the original due date and will be awarded 50% of the total credit. If there are outstanding circumstances that prevent you from completing the assignment on time, please see me to discuss the matter. I strongly encourage you to discuss the homework problems with your classmates. However, each student must write their own solutions to the homework problems.

Exams There will be one midterm exam and one final comprehensive exam during the semester. The tentative dates for these are Friday, March 19 (midterm) and Friday, April 30. The formats of these exams are still under consideration and will be announced at a later date.

Grading The final letter grade will be awarded according to the weighted credit for homework (30%), mid-term exam (30%), and final exam (40%) and will be based on the following scale:

90-100%	A ⁺	75-80%	B ⁺	60-65%	C ⁺	45-50%	D ⁺	<35% F
85-90%	A	70-75%	B	55-60%	C	40-45%	D	
80-85%	A ⁻	65-70%	B ⁻	50-55%	C ⁻	35-40%	D ⁻	

Academic Integrity Students in this course will be expected to comply with the [University of Pittsburgh's Policy on Academic Integrity](#). Any student suspected of violating this obligation for any reason during the semester will be required to participate in the procedural process, initiated at the instructor level, as outlined in the University Guidelines on Academic Integrity. This may include, but is not limited to, the confiscation of the examination of any individual suspected of violating University Policy. Furthermore, no student may bring any unauthorized materials to an exam, including dictionaries and programmable calculators.

To learn more about Academic Integrity, visit the [Academic Integrity Guide](#) for an overview of the topic. For hands-on practice, complete the [Understanding and Avoiding Plagiarism tutorial](#).

Disability Services If you have a disability for which you are or may be requesting an accommodation, you are encouraged to contact both your instructor and [Disability Resources and Services \(DRS\)](#), 140 William Pitt Union, (412) 648-7890, drsrecep@pitt.edu, (412) 228-5347 for P3 ASL users, as early as possible in the term. DRS will verify your disability and determine reasonable accommodations for this course.

Equity, Diversity, and Inclusion The University of Pittsburgh does not tolerate any form of discrimination, harassment, or retaliation based on disability, race, color, religion, national origin, ancestry, genetic information, marital status, familial status, sex, age, sexual orientation, veteran status or gender identity or other factors as stated in the University's Title IX policy. The University is committed to taking prompt action to end a hostile environment that interferes with the University's mission. For more information about policies, procedures, and practices, visit the [Civil Rights and Title IX Compliance web page](#).

I ask that everyone in the class strive to help ensure that other members of this class can learn in a supportive and respectful environment. If there are instances of the aforementioned issues, please contact the Title IX Coordinator, by calling 412-648-7860, or e-mailing titleixcoordinator@pitt.edu. Reports can also be [filed online](#). You may also choose to report this to a faculty/staff member; they are required to communicate this to the University's Office of Diversity and Inclusion. If you wish to maintain complete confidentiality, you may also contact the University Counseling Center (412-648-7930).

Gender Inclusive Language Statement Language is gender-inclusive and non-sexist when we use words that affirm and respect how people describe, express, and experience their gender. Just as sexist language excludes womens experiences, non-gender-inclusive language excludes the experiences of individuals whose identities may not fit the gender binary, and/or who may not identify with the sex they were assigned at birth. Identities including trans, intersex, and genderqueer reflect personal descriptions, expressions, and experiences. Gender-inclusive/non-sexist language

acknowledges people of any gender (for example, first year student versus freshman, chair versus chairman, humankind versus mankind, etc.). It also affirms non-binary gender identifications, and recognizes the difference between biological sex and gender expression. Students, faculty, and staff may share their preferred pronouns and names, and these gender identities and gender expressions should be honored.

From the [Gender, Sexuality, and Womens Studies Program](#).

Health and Safety Statement In the midst of this pandemic, it is extremely important that you abide by public health regulations and University of Pittsburgh health standards and guidelines. While in class, at a minimum this means that you must wear a face covering and comply with physical distancing requirements; other requirements may be added by the University during the semester. These rules have been developed to protect the health and safety of all community members. Failure to comply with these requirements will result in you not being permitted to attend class in person and could result in a Student Conduct violation. For the most up-to-date information and guidance, please visit <https://www.coronavirus.pitt.edu> and check your Pitt email for updates before each class.

Religious Observances The observance of religious holidays (activities observed by a religious group of which a student is a member) and cultural practices are an important reflection of diversity. As your instructor, I am committed to providing equivalent educational opportunities to students of all belief systems. At the beginning of the semester, you should review the course requirements to identify foreseeable conflicts with assignments, exams, or other required attendance. If at all possible, please contact me (your course coordinator/s) within the first two weeks of the first class meeting to allow time for us to discuss and make fair and reasonable adjustments to the schedule and/or tasks.

Your Well-being Matters College/Graduate school can be an exciting and challenging time for students. Taking time to care for yourself and seeking appropriate support can help you achieve your academic and professional goals. You are encouraged to maintain a healthy lifestyle by eating a balanced diet, exercising regularly, avoiding drugs and alcohol, getting enough sleep, and taking time to relax.

It can be helpful to remember that we all benefit from assistance and guidance at times, and there are many resources available to support your well-being while you are at Pitt. If you or anyone you know experiences overwhelming academic stress, persistent difficult feelings and/or challenging life events, you are strongly encouraged to seek support. In addition to reaching out to friends and loved ones, consider connecting with a faculty member you trust for assistance connecting to helpful resources. The University Counseling Center is also here for you. You can call 412-648-7930 at any time to connect with a clinician. You can also [visit the Counseling Center website](#).

If you or someone you know is feeling suicidal, please call the University Counseling Center at any time at 412-648-7930.

You can also contact Resolve Crisis Network at 888-796-8226. If the situation is life threatening, call Pitt Police at 412-624-2121 or dial 911.

If the situation is life threatening, call the Police:

- On-campus: Pitt Police: 412-268-2121
- Off-campus: 911

If you have any concerns about the course, please do not hesitate to contact me.