

# Phys 1370, Quantum Mechanics I, Fall 2024

**Instructor:** Prof. Gurudev Dutt, 224 Allen, phone: 383-6487, e-mail: [gdutt@pitt.edu](mailto:gdutt@pitt.edu), Office hours: after lecture, and by appointment.

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Lectures	MWF 11:00-11:50 am	104 Thaw	G. Dutt
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## **Grader contact :**

**Bobby, 524 Allen, e-mail :** [BON7@pitt.edu](mailto:BON7@pitt.edu)

**E-mail:** I frequently use Canvas for announcements and distributing course material. Please make sure to have Canvas notifications set, email set to forward to your Pitt email, read your e-mail regularly, and make sure that your account is not over quota!

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## **Lectures**

The three (3) weekly lectures cover the theory of quantum mechanics. Quantum mechanics is our most precise theory of the universe (tested to parts in trillion), and forms the foundation for many of the technological advances over the last hundred years such as microprocessors, lasers, solar cells, magnetic storage, MRI scanners, electron microscopes, atomic clocks used for GPS, and many others. The weekly lectures will be in-person, with occasional use of lecture videos or zoom sessions. The lectures will closely follow the textbook, and many of the assignments will be drawn from the textbook. Therefore, it is a good idea to have access to the textbook as soon as possible. There may also be assignments, covering the relevant materials, from outside the textbook. In this semester, we will aim to cover Chapters 1-7, 9 and 10 of the book.

## **Textbook**

Author: John S. Townsend

Title: A Modern Approach to Quantum Mechanics (2<sup>nd</sup> edition)

University Science Books, ISBN: 978-1-891389-78-8

## **Prerequisites**

Understanding of the material covered by the following courses will be assumed:

PHYS 0477 or 0479: Principles of modern physics

MATH 0280 or 1180 or 1185: Linear algebra

PHYS 1331: Mechanics

PHYS 1351: Electricity and Magnetism

## **Homework**

The homework is integral part of the course and learning quantum mechanics. Homework will be usually assigned on Friday of each week, and will be due the following Friday. Students are strongly encouraged to discuss homework problems with each other, but copying solutions is of course prohibited. You will have automatic 24 hour extension, there is no need to request it, but once the solutions are posted (usually within 24 hours), late homeworks will not be accepted. We will aim to return your graded homework within a week after submission. If you have a question as to how your homework was graded, please contact the grader with a week of when your homework was returned.

## **Assessment**

Course grades are based on:

- (a) **Homework --- 25 %**,
- (b) **Midterm exam --- 25%**

The midterm exam will be held in class on Friday, October 18.

- (c) **Final exam --- 40%**

The final exam is scheduled by the registrar for 4-5:50 pm on Friday, December 13

- (d) **In-class clicker questions 10%**

The clicker questions will be awarded 1 point for correct answers and 0.8 points for incorrect answers. The goal of the clicker questions is to encourage class participation and provide me with feedback on your understanding of the concepts covered in class.

## Office Hours

The best time to find me is immediately following the lecture. If you need to talk to me at some other time, please schedule an appointment by email.

**Extra Credit:** Discussion boards, reading, and other assignments that are posted on Canvas will be used for extra credit accounting for 2.5%. This implies you can get a total of 102.5% as your final score, or equivalently you could drop ~1 homework and make up for it by doing all of the extra credit.

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## Academic Integrity

All students and instructors in this course are expected to follow the University of Pittsburgh : [Guidelines on Academic Integrity](#) . If you are not aware of the specifics, you should obtain a copy of these guidelines from the CAS Dean's Office, 140 Thackeray Hall, or at the link given above. Violations of these guidelines by a student may result in a zero score for an examination or a failing grade for the entire course.

## Statement on use of Generative AI

The use of generative AI writing tools (such as ChatGPT, GrammarlyGO, GPT-3, GPT-4, BERT, or others) is allowed in this class within specific contexts and only if such use is properly acknowledged. Assignments for the course have been designed to help you develop as a writer, and some of them may call on you to practice writing with the help of such tools. As your instructor, I will assume that any use of these tools will be only within the contexts the assignment allows (for instance, you can use ChatGPT for brainstorming if the assignment asks you to do so, or to generate coherent, grammatical text from raw text that you wrote). You must acknowledge the use of AI in your assignment in an

"Acknowledgement of AI Use" statement that:

- Specifies which technology was used and on what date (ChatGPT, GPT-3, etc)
- Includes explicit descriptions of how the information was generated
- Identifies the prompts used
- Explains how the output was used in your work

Examples of such Acknowledgments of AI Use can be found on [Monash University's website](#). Please see me if you have any questions about this policy.

## Student Health and Wellness Resources

You may access information and support resources for Pitt's Wellness Center (University Counseling Center and Student Health Services), Sexual Assault Resources (on-campus, regional and national), as well as Basic Needs Resources here: [Student Health and Wellness Resource Links to an external site.](#)

**Code of Conduct:**

Communication is key to a productive learning environment, and we can maintain productive communication by exhibiting respect for one another. The success of the course for yourself and others depends on all of our commitment to behavior that demonstrates respect for differences, understanding towards others and a willingness to listen and learn. For these reasons, it is unacceptable to harass, discriminate against, or abuse anyone because of race, ethnicity, gender, disability, religious affiliation, sexual orientation, or age. If you witness or are subject to such harassment, please report it to the instructor or to the Office of Diversity and Inclusion.

**Disability Services:**

If you have a disability that requires special testing accommodations or other classroom modifications, you need to notify both the instructor and Disability Resources and Services no later than the second week of the term. You may be asked to provide documentation of your disability to determine the appropriateness of accommodations. To notify Disability Resources and Services, call (412) 648-7890 to schedule an appointment. The Disability Resources and Services office is located at 140 William Pitt Union, and is open Monday-Friday from 8:30AM to 5:00PM.

**Title IX:**

Legal text: "No person in the United States shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity receiving Federal financial assistance." As a professor I am a mandatory reporter, and I am required to report violations of Title IX that I observe or am made aware of to the Title IX office, Title IX violations include, but are not limited to, sexual harassment, sexual violence and verbal or sexual abuse. Within the classroom, behavior in violation might appear as: suggestive jokes or innuendos, inappropriate touching, and unwanted sexual behavior or advances, but my capacity and obligation to report does not end at the classroom.

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