Intro to Modern Physics (PHYS 2213)
Public Course Syllabus

Georgia Institute of Technology

Fall 2026

Course Identification

Course Title: Intro to Modern Physics
Course Number: PHYS 2213
Credit Hours: 3
Semester: Fall 2026
Instructional Modality: In person
Meeting Schedule: Tuesdays & Thursdays, 2:00–3:15 PM
Meeting Location: TBD

Instructor Information

Instructor Name: Phillip N. First
Official GT Email Address: first@physics.gatech.edu
Office Location: Howey N018
Office Hours: TBD

Teaching Assistants

Teaching assistants may be assigned for this course.

- Names: TBD
- Email Addresses: TBD
- Office Hours and Location: TBD

Course Description

This course provides an introduction to modern physics, emphasizing the experimental and theoretical foundations of special relativity and quantum mechanics. Applications to atomic physics, solid-state physics, nuclear physics, and cosmology are discussed, with attention to both conceptual understanding and quantitative problem solving.

Student Learning Outcomes

Upon successful completion of this course, students should be able to:

- Describe the fundamental concepts and terminology of modern physics;
- Apply relativistic kinematics and energy–momentum relations;
- Analyze simple quantum mechanical systems using wavefunctions and operators;
- Interpret experimental phenomena that motivated the development of quantum theory;
- Communicate scientific reasoning clearly in written and oral form.

Prerequisites

Physics 2211/2231 and Physics 2212/2232 or equivalent. Prior or concurrent completion of integral calculus and linear algebra is expected.

Required Materials

Primary Text: Kenneth Krane, *Modern Physics*, 4th Edition, Wiley, 2020. Additional instructional materials may be provided by the instructor during the semester.

Evaluation and Grading

Student performance will be evaluated using the following components:

- Homework assignments and in-class activities: 20%
- In-class examinations (3): 60%
- Final group project and presentation: 20%

Final letter grades will be assigned based on the aggregate percentage score using the standard Georgia Tech grading scale.

Academic Integrity

Students are expected to uphold the highest standards of academic integrity. All work submitted must be the student's own and must comply with Georgia Tech policies regarding academic honesty and misconduct.

Accessibility and Accommodations

Georgia Tech is committed to providing reasonable accommodations for students with disabilities or other documented needs. Students requiring accommodations should follow official institute procedures and notify the instructor as early as possible.

Institutional Resources and Student Support

Georgia Tech offers academic, wellness, and support services to assist students in achieving success. Students are encouraged to take advantage of these resources as needed throughout the semester.