

Modern Physics for Engineers - Physics 321 Fall 2022

Instructor: Gabriele Grosso
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Schedule: Tuesday & Thursday, 2:00 pm – 3:15 pm MS-117

Course description: This course is a journey through the physics of the 20th century and it will cover the most fundamental theories developed since the beginning of 1900 until today. Students will learn the fundamentals of the most important physical theories that set the basis for modern physics. The following topics will be covered:

- Historical background
- Special relativity
- Elementary quantum theory
- Physics of one-electron atoms
- Atomic shell structure and periodic table
- Elementary nuclear physics and particle physics
- Semiconductor devices and modern electronics
- The future of quantum technologies

Textbook: Modern Physics for Scientists and Engineers, Author: THORNTON/REX, Publisher: Cengage, Edition: 4, Year Published: 2012, ISBN: 978-1133103721

Homework: Problems will be posted on Blackboard - Biweekly

Office Hours: Tuesdays & Thursdays, 3:30 pm – 4:30 pm, ASRC 2.314 with appointment

Note: Since there are no perfect textbooks for Modern physics, I will also be using material from a very well thought out course/syllabus that was developed by the Physics Education team at University of Colorado.

<https://physicscourses.colorado.edu/EducationIssues/ModernPhysics/>

I will be posting lecture slides and often notes from various sources as supplementary reading material. The lectures will follow topics in the prescribed text book. You should go over the slides, relevant sections in the textbook and supplementary reading materials if any before you come to the lecture. All material relevant to the course will be posted on the course website (on blackboard).

Grading Policy:

- **Homework: 15%:** Bi-Weekly
- **Midterm exams (2): 50% (25% each)**
- **Final exam: 30%**
- **Class participation: 5%**

Statement of Academic Integrity: As stated in Appendix B.3 of the 2009-2011 City College Bulletin, p. 313: Academic Dishonesty is prohibited by the City University of New York and is punishable by penalties including failing grades and expulsion