

P301 Physics III, Indiana University Northwest, Spring 2016

Text: *Modern Physics 2nd Ed.*, by Randy Harris and *Introduction to Elementary Particles* (online) by David Griffiths.

Prerequisites: P222 or P202 and M216

Goal: To understand the basics of relativity, quantum mechanics, and relativistic quantum mechanics.

Grades: There will be regular homework (lowest score is dropped), three midterm exams (no make-up exams, the lowest score is dropped), a final exam (cumulative, no make-ups), and extra credit. Grades will be posted on Oncourse (oncourse.iu.edu/portal, course 30557). The class will be graded on a curve. The percentages of the total grade from the various components are as follows:

Homework: 25%

Best Midterm: 25%

2nd Best Midterm: 25%

Final: 25%

Extra Credit: 3%

Homework: Assignments will be posted on Oncourse. Extra credit problems must be written out on paper and are due during the final lecture of the semester (the week before the final exam).

Exams: Exams will be based primarily on the homework and lectures, but may also contain material from the textbook not covered in the lecture and homework. A practice exam will be posted on Oncourse the week before an exam. We will review the practice exam during the midterm review (see tentative schedule, next page). For take-home exams, there will be no practice exam posted prior.

Lecture and Discussion: Attendance is required. Discussions will contain lecture material. Bring your textbook to lecture and discussion as together we will do example problems out of the book.

Readings: Read the relevant sections of the textbook as you would a newspaper/website before coming to class (see tentative schedule, next page). Reread the textbook after class, focusing closer on the things that were covered in class, and cross-referencing with your notes.

Notes: Write down everything that is written on the board. Colored pencils are recommended for note taking as pictures and diagrams are often drawn with colored chalk. The recommended minimum set of colors is: red, orange, green, blue, violet, and your favorite sixth color to substitute for yellow.

Math Lab: Walk in tutoring for math, including calculus: 436 HH, (219) 980-6979.

Disability Policy: If you need assistance with a learning, physical, or psychological disability that may affect your academic progress, please contact the Disability Services Coordinator: 219-980-6943, 237HH.

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Tentative Schedule			
Week	Tuesday: Lecture	Wednesday: Discussion	Thursday: Lecture
1	Jan. 12-14: Ch 1, 2: Relativity		
2	Jan. 19-21: Ch 2: Relativity		
3	Jan. 26-27: Ch 2: Relativity		Jan. 28: Ch 3: Light Waves Behaving as Particles
4	Feb. 2-4: Calculus Review		
5	Feb. 9: de Moivre's Identity and the Factorial Function	Feb. 10: Midterm Review 1	Feb. 11: MIDTERM EXAM 1
6	Feb. 16: NO CLASS	Feb. 17-18: Differential Equations, Partial Derivatives, and Partial Differential Equations	
7	Feb 23: NO CLASS	Feb. 24: Ch 4: Particles Behaving as Waves	Feb. 25: Ch 5: Bound States
8	Mar. 1-3: Ch 5: Bound States		
9	Mar. 8: : Ch 5: Bound States	Mar. 9: Midterm Review 2	Mar. 10: MIDTERM EXAM 2
Mar. 14 – 20: SPRING BREAK!!!!!!!!!!!!			
10	Mar. 22-24: Ch 6: Unbound States		
11	Mar. 29-31: Ch 7: The Hydrogen Atom		
12	Apr. 5: Ch 8: Spin	Apr. 7: Griffiths Ch 7 (online): Relativistic Quantum Mechanics	
13	Apr. 12-14: Griffiths Ch 7 (online): Relativistic Quantum Mechanics		
14	Apr. 19: Ch 11: Nuclear Physics	Apr. 20: Midterm Review 2	Apr. 21: MIDTERM EXAM 3
15	Apr. 26: Ch 12: Particle Physics	Apr. 27-28: Final Review	
FINALS			May 5: FINAL EXAM, Cumulative

Attendance: Attendance is required. If you do not attend, you may be withdrawn from the course. This course has been approved to enforce the IU Northwest Attendance and Course Commitment Policy and the full text of this policy is available at: <http://www.iun.edu/registrar/attendance-policies.htm>. Students who do not actively participate may be administratively withdrawn from the course, which may have an impact on financial aid awards and/or student visa status. I define active participation as attending lecture, discussion, and labs and completing the homework, labs, and exams at least 50% of the time.