

P222 Physics II, Indiana University Northwest, Spring 2016

Text: *Physics for Scientists and Engineers*, by R. Knight with *Mastering Physics* online system.

Prerequisite: P221

Goal: To understand Maxwell's equations, their prediction that electromagnetic waves are light waves, and to appreciate their relativistic nature through an introductory study of Einstein's theory of special relativity. And to have some fun!

Grades: There will be regular homework, three midterm exams (no make-up exams, the lowest score is dropped), one final exam (cumulative, no make-up), a laboratory grade, and extra credit. Grades will be posted on Oncourse (oncourse.iu.edu/portal, course 1811). The class will be graded on a curve. The percentages of the total grade from the various components are as follows:

Homework: 20%

Lab: 20%

Best Midterm: 20%

2nd Best Midterm: 20%

Final: 20%

Extra Credit: 3%

Homework: Online through *Mastering Physics*: www.masteringphysics.com, Course ID: **P222SPRING16**. Use the *Student Access Code Card* that came with your textbook to register. There is a 10% deduction on late homework. 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).

Handouts: Print these out from Oncourse (under Resources/handouts) and bring to class on the date specified. They are collections of practice problems on which we will work together in class.

Exams: Midterm exam questions that are not answered entirely correctly may be redone for partial credit (average of the two scores). Exam corrections are due at the start of the final exam. 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.

Discussion: Attendance is required. Discussion is mainly an extension of the lecture period.

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.

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Tentative Schedule		
Week	Monday: Topic	Wednesday: Topic
1	Jan. 11: Ch 20, 21: Waves	Jan. 13: Ch 20, 21: Waves,
2	Jan. 18: MARTIN LUTHER KING, JR. DAY, NO CLASS	Jan. 20: Ch 25, 26, 27: Charge, Gauss's Law, Electric Field, and Lorentz Force Law
3	Jan. 25: Ch 25, 26, 27: Charge, Gauss's Law, Electric Field, and Lorentz Force Law	Jan. 27: Ch 25, 26, 27: Gauss's law, Coulomb's law, Conductors, Insulators
4	Feb. 1: Ch 25, 26, 27: Gauss's law, Coulomb's law, Conductors, Insulators	Feb. 3: Ch 28, 29: Voltage, Midterm Review 1
5	Feb. 8: MIDTERM EXAM 1	Feb. 10: Ch 28, 29: Voltage
6	Feb. 15: Ch 29: Capacitance	Feb. 17: Ch 30: Current, Resistance
7	Feb. 22: NO LECTURE	Feb. 24: Ch 31: Electrical Circuits
8	Feb. 29: Ch 31: Electrical Circuits	Mar 2: Ch 32.1-32.7: Ampere's Law Midterm Review 2
9	Mar. 7: MIDTERM EXAM 2	Mar. 9: Ch 32.1-32.7: Ampere's Law
Mar. 14 – 20: SPRING BREAK!!!!!!!!!!!!		
10	Mar. 21: Ch 32.8-32.10: Magnetic Force, Torque	Mar. 23: Ch 33: Faraday's Law
11	Mar. 28: Ch 33: Faraday's Law	Mar. 30: Ch 35: AC Circuits
12	Apr. 4: Ch 35: AC Circuits	Apr. 6: Ch 34: Electromagnetic Fields
13	Apr. 11: Ch 22 – 23.4: Light: Interference, Reflection, and Refraction	Apr. 13: Ch 23.5-24: Light: Color, Lenses, Midterm Review 3
14	Apr. 18: MIDTERM EXAM 3	Apr. 20: Ch 23.5-24: Light: Color, Lenses, and Mirrors
15	Apr. 25: Ch 36: Relativity	Apr. 27: Final Review, Cumulative
FINALS		May 4: FINAL EXAM, Cumulative

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: 219-980-6942, 237HH.

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.