

## **P101 Physics in the Modern World**, Indiana University Northwest, Fall 2015

**Text:** *Conceptual Physics* 12<sup>th</sup> Ed. by P. Hewitt, with *Mastering Physics* online system

**Prerequisites:** None

**Goal:** To acquire an introductory and basic understanding of the concepts of physics, ranging from Newton's Laws to Quantum Theory and Einstein's Theory of 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 (no make-up labs, lowest two are dropped), and extra credit. Grades will be posted on Oncourse ([oncourse.iu.edu/portal](http://oncourse.iu.edu/portal), course 1404). The class will be graded on a curve. The percentages of the total grade from the various components are as follows:

Homework: 20.3%

Lab: 20%

Best Midterm: 20%

2nd Best Midterm: 20%

Final: 20%

Extra Credit: 2%

**Homework:** Online through *Mastering Physics*: [www.masteringphysics.com](http://www.masteringphysics.com), Course ID: **P101FALL2015**. Use the *Student Access Code Card* that came with your textbook to register. There is a 10% deduction on late homework. In addition, hand-written extra credit problems will be assigned in class and can be turned in at any time up until the last day of class (the week before the final exam).

**Exams:** Weeks that you have an exam (see schedule, next page), there will be an ungraded practice exam the Monday before. We will review the practice exam once everyone is finished. This review will extend into the laboratory period and be held entirely in the lecture room. Exams will be based primarily on the homework, practice problems, practice exams, and lab. Exams may also contain material from lecture not specifically addressed in the homework, practice problems, practice exams, and lab.

**Readings:** Read the relevant sections of the textbook as you would a newspaper before coming to class (see tentative schedule, next page). Reread the textbook after class, focusing closer on the things that were covered in class, 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.

**Laboratory:** Print out the lab instructions and worksheet from Oncourse (under Resources/Lab) before coming to lab each week (see schedule next page). Lab worksheets are due at the end of the lab. There are no make-up labs though your lowest two lab scores are dropped. On exam weeks, there will be a test review in lieu of the lab (see above under Exams) that will be held in the lecture room.

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

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Exam dates, Lab schedule, tentative schedule of lecture topics			
Week	Monday: Lecture	Monday: Lab	Wednesday: Lecture
1	<b>Aug. 24:</b> Ch. 1,2: What is Physics? Newton's 1st Law	Acceleration	<b>Aug. 26:</b> Ch 2: Newton's 1st Law
2	<b>Aug. 31:</b> Ch 3: Linear Motion	Newton's 2 <sup>nd</sup> Law	<b>Sep. 2:</b> Ch 4,5,6: Newton's Laws, Momentum
3	<b>Sep. 7: LABOR DAY! NO CLASS!!!!!!</b>		<b>Sep. 9:</b> Ch 4,5,6: Newton's Laws, Momentum
4	<b>Sep. 14:</b> Ch 4,5,6: Newton's Laws, Momentum	Momentum	<b>Sep. 16:</b> Ch 7: Energy
5	<b>Sep. 21:</b> Practice Exam and Review 1		<b>Sep. 23: MIDTERM EXAM 1</b>
6	<b>Sep. 28:</b> Ch 7: Energy	Work	<b>Sep. 30:</b> Ch 7: Energy
7	<b>Oct. 5:</b> Ch 8: Rotation, Torque, Angular Momentum	Torque	<b>Oct. 7:</b> Ch 9, 10: Gravity, Projectile and Satellite Motion
8	<b>Oct. 12:</b> Ch 11-14: Atoms, Solids, Liquids, and Gases	Heat	<b>Oct. 14:</b> Ch 15-18: Thermodynamics
9	<b>Oct. 19:</b> Practice Exam and Review 2		<b>Oct. 21: MIDTERM EXAM 2</b>
10	<b>Oct. 26:</b> Ch 19-21: Sound and Music	Waves	<b>Oct. 28:</b> Ch 19-21: Sound and Music
11	<b>Nov. 2:</b> Ch 22: Electrostatics	Electricity	<b>Nov. 4:</b> Ch 23 Electric Current
12	<b>Nov. 9:</b> Ch 24, 25: Magnetism and Induction	Magnetism	<b>Nov. 11:</b> Ch 26, 27: Electromagnetism, light, and color.
13	<b>Nov. 16:</b> Practice Exam and Review 3		<b>Nov. 18: MIDTERM EXAM 3</b>
<b>Nov. 22 – Nov. 29: THANKSGIVING BREAK!!!!</b>			
14	<b>Nov. 30:</b> Ch 28 - 31: Light and Quantum Physics	Light	<b>Dec. 2:</b> Ch 32 - 35: Nuclear Physics
15	<b>Dec. 7:</b> Ch 35, 36: Relativity	Photoelectric Effect	<b>Dec. 9: FINAL REVIEW, Cumulative</b>
<b>FINALS</b>	<b>Dec. 14: FINAL EXAM, Cumulative</b>		

**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 at 219-980-6942, 237 HH.

**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 and lab and completing the homework, exams, and labs at least 50% of the time.