

PHY 2170/2175

Course Information

Fall 2007

Lecture Time/Room: MTuWF 1:55-2:50

2009 Science Hall

NB *Tuesday* lectures will be used for problem solving and demonstrations.

Lecturer: G. Lawes
391 Physics
577-2774
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Office Hours: MW 11:00-12:00

Required Text: *Physics for Scientists and Engineers*, Serway and Jewett, 7th Edition

Grade Determination:

| | |
|---------------------------|-----|
| Exam #1 | 20% |
| Exam #2 | 20% |
| Exam #3 | 20% |
| Homework Quizzes | 10% |
| Final Exam | 30% |
| **BONUS** Reading Quizzes | 4% |
| **BONUS** Attendance | 2% |

Grading Scale: A 85%-100%; B 70%-85%; C 55%-70%; D 40%-55%; E 0%-40%.

Exams

There will be three in-class exams in addition to the cumulative final exam at the end of the semester. All of these exams will be closed book. The in-class exams will focus on selected chapters from the text, although you may be required to apply concepts from earlier chapters as well.

Tuesday Lectures

The lecture session on Tuesday will be used for solving additional sample problems to clarify the concepts covered in the MWF lectures, and to provide additional demonstrations. While *no new material* will be covered in the Tuesday lectures, attendance is still mandatory.

Quiz Sections and Homework Quizzes

Quiz sections meet once a week and give you the opportunity to discuss the solutions to homework problems and revisit concepts from the lectures. Homework problems will not be graded, but **doing the assigned homework is one of the most important methods of learning physics**. In addition to the homework problems assigned in the syllabus, you should work through every solved problem in each chapter. You are encouraged to work together with your classmates to solve the homework problems. You will be evaluated on the

homework problems by homework quizzes during your quiz section. At the end of semester, your two lowest quiz scores will be dropped. The homework quiz scores from each section will be curved to reflect the average performance on the in-class exams. There will be no make-up quizzes given.

Reading Quizzes

In order to prepare for class, you are encouraged to do the appropriate reading assignment before the lecture. Since we cover a great deal of material in this course, it is helpful to be acquainted with the subject matter before attending the lecture. In order to encourage this advance reading, there will be very short reading quizzes covering this assigned reading during lectures. These quizzes will give you the opportunity to earn *bonus points* towards your final grade. In order to participate in these reading quizzes you will need to bring an *Einstruction* RF response unit.

Einstruction RF Response Units

In order to provide interactive instruction, we will be using a classroom response system in the PHY2170/2175 lectures this semester. You will need to purchase the RF *response unit* and an *enrollment code* for the response unit at the WSU Bookstore. Registration instructions will be available on Blackboard. The class key for this course, which is needed to register your response unit, is **J32801B321**.

In-Class Policies

Out of consideration for the other students in the lecture please abide by the following rules of conduct: (1) Turn off all cell phones while in the lecture hall, (2) Please arrive on time for lecture and do not leave early, (3) Please be mindful of your classmates.

Academic Dishonesty

All of the graded assignments are designed to measure your individual understanding of the material. No forms of cheating on these graded assignments will be tolerated. Anyone found cheating on any graded activity will receive a grade of zero for that part of their grade, and may receive a failing grade for the course. NB: Homework is not graded, and students are encouraged to collaborate on homework assignments (but not the homework quizzes!).

Pre-requisites and Co-requisites

This course requires MAT2010. MAT2020 is a co-requisite. PHY2170 must normally be taken concurrently with PHY 2171.

Students with disabilities

If you have any impairment that may interfere with your ability to successfully complete the requirements of this course, or you require additional resources in lectures or during exams, please contact the Education Accessibility Services (EAS) in Room 583 of the Student Center Building to discuss appropriate accommodations on a confidential basis. EAS can also be reached by phone at 313-577-1851.

| Date | Lecture Topics | Reading Assignment |
|-------------|--|-----------------------------------|
| 9/5 | Introduction, SI units, dimensional analysis | 1.1-1.6 |
| 9/7 | 1D motion | 2.1-2.8 |
| 9/10 | Scalars and vectors | 3.1-3.4 |
| 9/12 | 2D motion, projectile motion | 4.1-4.3 |
| 9/14 | Circular motion, relative motion | 4.4-4.6 |
| 9/17 | Force, Newton's 1 st and 2 nd laws | 5.1-5.4 |
| 9/19 | Intro to gravity, Newton's 3 rd law | 5.5-5.6 |
| 9/21 | Friction | 5.7-5.8 |
| 9/24 | Uniform and non-uniform circular motion | 6.1-6.2 |
| 9/26 | Accelerated frames, resistive forces | 6.3-6.4 |
| 9/28 | MIDTERM 1 | |
| 10/1 | Work, kinetic energy | 7.1-7.5 |
| 10/3 | Potential energy, non-conservative forces | 7.6-7.7 |
| 10/5 | Equilibrium | 7.8-7.9 |
| 10/8 | Conservation of energy | 8.1-8.3 |
| 10/10 | Power | 8.4-8.5 |
| 10/12 | Impulse and momentum | 9.1-9.2 |
| 10/15 | Center of mass | 9.3-9.5 |
| 10/17 | Systems of particles, rocket propulsion | 9.6-9.8 |
| 10/19 | Rotational motion | 10.1-10.3 |
| 10/22 | Rotational kinetic energy, moment of inertia | 10.4-10.5 |
| 10/24 | Torque, rolling motion | 10.6-10.9 |
| 10/26 | MIDTERM 2 | |
| 10/29 | Angular momentum | 11.1-11.2 |
| 10/31 | Conservation of angular momentum | 11.3-11.4 |
| 11/2 | Precession | 11.5 |
| 11/5 | Equilibrium | 12.1-12.3 |
| 11/7 | Elastic properties, Universal gravitation | 12.4, 13.1-13.6 |
| 11/9 | Simple harmonic motion, pendulum | 15.1-15.5 |
| 11/12 | Oscillations | 15.6-15.7 |
| 11/14 | Waves, reflection and transmission | 16.1-16.5 |
| 11/16 | Wave equation, sound waves | 16.6, 17.1-17.3 |
| 11/19 | Doppler shifts, digital recording | 17.4-17.6 |
| 11/20 | <i>Scheduled as Thursday</i> | |
| 11/21 | Superposition, resonance | 18.1-18.7 |
| 11/22 | Thanksgiving | |
| 11/26 | Temperature, thermal expansion | 19.1-19.4 |
| 11/28 | Ideal gas, specific heat, latent heat | 19.5, 20.1-20.3 |
| 11/30 | MIDTERM 3 | |
| 12/3 | Work, thermodynamic processes | 20.4-20.7 |
| 12/5 | Kinetic theory of gases | 21.1-21.5 |
| 12/7 | Entropy, heat engines | 22.1-22.8 |
| 12/10 | Fluids | 14.1-14.7 |
| 12/12 | Review and catch-up | |
| 12/14 | 1:20 PM to 3:50 PM | FINAL EXAM (COMPREHENSIVE) |