

SYLLABUS

Physics for Scientists and Engineers I
Phys 2210 (Phys 2200)
Fall 2013

TECHNICAL DETAILS

Instructor: Eric Held

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Office Hours: 3:00 – 4:00 pm MWF at the **Quadside Café**; otherwise, an appointment can be made via email with Dr Held or the TA's, David Hansen and Jordan Rozum.

Prerequisites: Math 1210

Text: Essential University Physics by Wolfson [USU edition (hard copy)] or electronic version from homework site (<http://www.masteringphysics.com/>) or any other 2nd edition of Essential University Physics that you can find.

Credits: 4 semester credit hours

Lecture: MWF, Eccles Science Learning Center 130, 2:00 – 2:50 pm

Course Website: The official course website is on Canvas, <https://online.usu.edu/>. Here you will find other material related to the course. Check the site frequently for updated information.

Homework Website: www.masteringphysics.com/

COMPONENTS

There are two scheduled components to the course: lecture and recitation. You must be enrolled in both components of the course.

I. Lecture

In lecture we focus on the CONCEPTS related to the material. The main purpose of the lectures is to give you a running start on the material, which you will more directly engage as you later study the lectures notes and textbook and work on the homework problems. You will likely get more out of the lecture if you read the book ahead of time. EXAMS also happen during scheduled lecture periods.

II. Recitation

During recitation you will (i) work on problems germane to the course, (ii) be able to ask questions about the homework problems, and (iii) review multiple-choice questions similar to those on exams.

HOMEWORK

Simply attending lectures is NOT sufficient for learning physics. Your most active engagement with the material happens as you are doing the homework. Because of this, many experts feel that doing homework is the KEY to learning physics. YOU WILL PROBABLY LEARN THE MATERIAL MOST EFFICIENTLY IF YOU APPROACH THE HOMEWORK ASSIGNMENTS AS YOUR BEST OPPORTUNITY TO INTERNALIZE THE PHYSICS CONCEPTS AND HOW THEY ARE APPLIED.

The homework for this course is administered through an online homework system at www.masteringphysics.com/ which you will gain access to by one of the 4 options below:

(1) purchase the hard copy, special USU Wolfson text at the USU bookstore. This includes both volumes for the fall and spring semester. With it comes an access code to the online homework which you can activate by going to www.masteringphysics.com/. The cost is \$140.

(2) purchase etext option at the USU bookstore which also has the homework access code, \$130.

(3) go to www.masteringphysics.com/ and pay for the etext and homework access, \$110.

(4) go to www.masteringphysics.com/ and just pay for homework access, \$66, and then find cheaper 2nd edition of both volumes.

Instructions for registering for homework:

(1) Go to the site www.masteringphysics.com/.

(2) Enter access code (options (1) or (2) above) or purchase online access (options (3) or (4) above).

(3) Choose Wolfson, Essential University Physics, 2e as the text.

(4) You will then have the option to purchase the etext.

(5) Your class ID will be your A#.

(6) The course ID is MPHELD47677.

(7) If your browser ever complains, it may help to point it to <http://browsertuneup.pearsoncmg.com/> and follow the instructions. Most browsers will do fine, though.

Homework assignments will be posted at least one week before they are due. The first seven are due **Friday mornings at 1:00 am**, the next seven are due **Monday mornings at 1:00am**. **No credit will be given for late homework.**

SCHEDULE

Week of	Monday (lecture)	Tu	Wednesday (lecture)	Thursday (Recitation)	Friday (lecture)
Aug 26	Syllabus		Ch1 (Units and Doing Physics)	HW practice no due date	Ch 2 (1D Motion)
Sept 2	Labor Day Holiday		Ch 2 (1D Motion)	HW 1 due (Ch 1-2) F 1:00 am	Ch 3 (2D and 3D Motion)
Sept 9	Ch 3 (2D and 3D Motion)		Ch 4 (Newton's Laws)	HW 2 due (Ch 3) F 1:00 am	Ch 4 (Forces and Motion)
Sept 16	Ch 5 (Applying Newton)		Ch 5 (Applying Newton)	HW 3 due (Ch 4-5) F 1:00 am	EXAM I (Ch 1-5) Homework 1-3
Sept 23	Ch 6 (Work and Energy)		Ch 6 (Work and Energy)	HW 4 due (Ch 6) F 1:00 am	Ch 7 (Energy Conservation)
Sept 30	Ch 7 (Energy Conservation)		Ch 8 (Gravity)	HW 5 due (Ch 7-8) F 1:00 am	Ch 9 (Systems of Particles)
Oct 7	Ch 9 (Systems of Particles)		Ch 10 (Rotation)	HW 6 due (Ch 9) F 1:00 am	Ch 10 (Rotation)
Oct 14	Ch 11 (Angular Momentum)		Ch 11 (Angular Momentum)	EXAM II (Ch 6-11) Homework 4-7 HW 7 due (Ch 10-11) F 1:00 am	Fall Break
Oct 21	Ch 12 (Statics and Equilibrium)		Ch 12 (Statics and Equilibrium)	Recitation Only	Ch 13 Oscillations

Week of	Monday (lecture)	Tu	Wednesday (lecture)	Thursday (Recitation)	Friday (lecture)
Oct 28	Ch 13 Oscillations HW 8 due (Ch 12) M 1:00 am		Ch 14 Waves		Ch 14 Waves
Nov 4	Ch 15 Fluids HW 9 due (Ch 13-14) M 1:00 am		Ch 15 Fluids		Ch 15 Fluids
Nov 11	EXAM III (Ch 12-15, HW 8-10) HW 10 due (Ch 15) M 1:00 am		Ch 16 Temperature		Ch 16 Temperature
Nov 18	Ch 17 Thermal Behavior HW 11 due (Ch 16) M 1:00 am		Ch 17 Thermal Behavior		Ch 18 1 st Law of Thermodynamics
Nov 25	Ch 18 1 st Law of Thermodynamics HW 12 due (Ch 17) M 1:00 am		Ch 18 1 st Law of Thermodynamics	Thanksgiving	Break
Dec 2	Ch 19 2 nd Law of Thermodynamics HW 13 due (Ch 18) M 1:00 am		Ch 19 2 nd Law of Thermodynamics		Ch 19 2 nd Law of Thermodynamics
Dec 9	FINAL (Ch 16-19, HW 11-14) Monday, December 9, 2013, 1:30 a.m. – 3:20 p.m. HW 14 due (Ch 19) M 1:00 am				

EXAMS

I. Overview

There will be four total exams, three during the semester and one during the final-exam time slot. The fourth exam is not comprehensive. Your **three highest exam** grades will be used in computing your overall exam score which counts for **75%** of your total grade. At each exam you may use the following: (1) a #2 pencil, (2) a calculator, and (3) a the equation sheet provided at the exam.

II. Rescheduling

There are **only** two valid reasons for rescheduling one of the first three exams. Documentation must be provided for both reasons, as described below. The instructor must be notified **before** the exam.

(1) **Medical.** You may reschedule an exam if you are too sick to take the exam. If you are too sick to take the exam, then you are sick enough to visit the infirmary and obtain an note explaining the extent of your illness. **You must provide the instructor with such a note in order to reschedule an exam for medical reasons.**

(2) **University business.** If you are on travel for university business, then you may reschedule an exam. **Again, you must provide written documentation from the sponsoring organization of your participation in said university business.**

The final exam must be taken during the scheduled time. The final exam is scheduled for Monday, December 9, 2013, 1:30 a.m. – 3:20 p.m.

II. Exam Questions

Each exam will consist of roughly 5 True/False and 20 multiple-choice questions. Answers will be submitted using scantrons. As is the case for the homework questions, exam question will require either qualitative or quantitative answers. The number of questions is chosen as a balance between a number of simple questions and a small amount of more difficult questions.

Exam questions will be based on the concepts and principles covered in lectures and the assigned readings, which you will have grappled with in doing the homework assignments. They will be similar to the homework problems (both qualitative and quantitative answers). **TO BE SUCCESSFUL ON THE EXAMS YOU WILL NEED TO APPLY PHYSICS PRINCIPLES TO THE PROBLEMS AT HAND.**

III. Exam Results

I'll make every effort to get the scantrons submitted in as timely a fashion as possible. However, in a class this large there is often an individual or two who must reschedule the exam (for either school or medical reasons). For obvious reasons, I cannot submit the scantrons until everyone has taken the exam. Once the scantrons have been submitted, I'll post a copy of the exam on the class website so that you can see which questions you missed (if any).

EXPECTATIONS

I. What to expect from the course

A. Content. This course is a BASIC PHYSICS COURSE. We will start with the fundamentals: MOTION, FORCES, ENERGY, MOMENTUM, ROTATIONAL MOTION, and OSCILLATIONS. We will then study FLUIDS. The end of the course will focus on THERMAL PHYSICS.

B. Level of Difficulty. Although this is a 2000 level course, do not expect it to necessarily be easy. First, there is a lot of material to learn. Second, physics requires you to be able to apply the principles and concepts to a variety of situations. This requires a level of logical thinking that is not required in many disciplines.

C. No Extra Credit. Often, students come to me with a request that goes something like "I'm not doing as well as I would like. Is there anything extra that I can do to improve my grade?" The only answer I can offer is "Do better on the remaining assignments." There is no extra credit.

III. What the instructor expects from you

A. Participation. The instructor expects you to participate in all aspects of the course. This includes preparing for and attending the lecture, reading the text, doing the homework and attending recitation.

B. Effort. The instructor expects you to put in the requisite effort to learn the material in the course so that you are prepared to pass the exams. In addition to the items listed under A. Participation, this includes the steps listed below to get additional help, if needed.

C. Ownership of Learning. The instructor expects you, the student, to take ownership of the learning process. You are ultimately responsible for what you learn.

II. What to expect from the instructor

A. Facilitator. Expect the instructor to be prepared for each lecture, which is where you will be introduced to the different topics in this course. Expect the instructor to answer your questions regarding the material, during class, after class, or during office hours.

B. Evaluator. Expect the instructor to prepare exams that will test you on the material. Do not expect the instructor to be a facilitator during these exams.

NEED HELP?

If you find yourself confused or stuck on a particular topic or are spending an inordinate amount of time on any given homework problem you should try one or more of the following.

- (1) Review the relevant chapter and/or class notes, noting any relevant example problems.
- (2) Try to solve a similar problem. (The solutions to odd numbered problems are given in the back of the textbook.)
- (3) Talk with other students in your class. Ask them to explain things to you (rather than solving the problem for you).
- (4) Ask questions in recitation (be prepared to show your work and explain where the problem arises). This will lead to a better understanding for you and will result in a positive discussion for the whole class too.
- (5) Seek additional help from the class instructor (Dr. Eric Held) or one of the recitation teaching assistants, David Hansen or Jordan Rozum, preferably during designated office hours (or make an appointment). In addition, the Physics Department maintains a help center in **SER 219** that is staffed during much of the business day.

LEARNING ASSESSMENT

The assessment of your learning will be done via the homework assignments and four examinations.

I. Homework Assignments (25% of grade)

Each answer is worth 1 point towards your total homework score. Your raw homework average will be the number of correct answers divided by the total number of answers. **Although you may miss one exam, your grade still depends on the homework related to that exam.**

In order to account for the rare homework problem that will not give you credit (when your answer is indeed correct), your raw homework average will be multiplied by 1.03 to produce your final homework average. For example, if your raw homework average is 85%, then your final homework average will be $85\% \times 1.03 = 87.55\%$.

II. Exams (75% of grade)

The exams will test on material in the **lectures, reading assignments, and homework assignments**. Similar to the homework assignments, the exams will consist of both conceptual and quantitative problems.

GRADING BREAKDOWN

The grading scale is not flexible: that is, grading will not be curved. Your course grade will solely depend on how you do related to the following scale.

A \geq 93%,	B \geq 83%,	C \geq 73%,	D \geq 60%
A- \geq 90%,	B- \geq 80%,	C- \geq 70%,	
B+ \geq 87%,	C+ \geq 77%,	D+ \geq 67%,	

Disability Resource Center

Students with ADA-Documented physical, sensory, emotional or medical impairments may be eligible for reasonable accommodations. Veterans may also be eligible for services. All accommodations are coordinated through the Disability Resource Center (DRC) in Room 101 of the University Inn. (435)797-2444 voice, (435)797-0740 TTY, (435)797-2444 VP, or toll free at 1-800-259-2966. Please contact the DRC as early in the semester as possible. Alternate format materials (Braille, large print or digital) are available with advance notice.

Honor Code

The honor code will be strictly enforced in this course. Any suspected violations of the honor code will be promptly reported to the honor system. For more information please visit:

<http://www.usu.edu/policies/PDF/Acad-Integrity.pdf>

TOP TEN LIST

The following are the top ten items that will help you succeed in the course.

10. **Start with a positive attitude!**
9. READ the text BEFORE the lecture.
8. ACTIVELY LISTEN to the lectures.
7. READ the text again soon after the lecture.
6. Use the homework as an opportunity to INTERNALIZE the material.
5. GO TO recitation.
4. Ask Questions / GET HELP when you need it.
3. Work with your classmates on homework.
2. Use the equation sheet provided to review exam material.
1. **Finish up with a positive attitude!**

POSSIBLE ERRORS

The instructor reserves the right to correct any possible errors to this syllabus.