

# SYLLABUS

## Physics for Scientists and Engineers II Phys 2220 Spring 2016

### TECHNICAL DETAILS

**Instructor:** Eric Held

**Office:** SER 224

**Phone:** 797-7166

**Email:** eric.held@usu.edu

**TAs:** Joseph Jepson, [joseph.jepson@aggiemail.usu.edu](mailto:joseph.jepson@aggiemail.usu.edu)

Brooke Wursten, [brooke.wursten@gmail.com](mailto:brooke.wursten@gmail.com)

**Office Hours:** 2:30–3:30 pm M,W at the Quadside Café (main library) with Dr. Held otherwise an appointment can be made via email with the TAs.

**Prerequisites:** MATH 1210 ; PHYS 2200 or PHYS 2210

**Text:** Essential University Physics by Wolfson [USU edition (hard copy)] or electronic version from homework site (<http://www.masteringphysics.com/>) or any other 3rd edition of Essential University Physics that you can find. The 2nd edition will work but some of the problem numbers in the online homework system may be different.

**Credits:** 4 semester credit hours – 3 for Lecture and 1 for Recitation

**Lecture:** MWF, Eccles Science Learning Center 130, 1:30 – 2:20 pm

**Recitation:** 501 - 7:30 am - 8:45 am – T - Engineering Laboratory 250

502 - 3:00 pm - 4:15 pm – T - Health Phys Ed & Recreation 114

503 - 4:30 pm - 5:45 pm – T - Engineering 205

504 - 12:00 pm - 1:15 pm – T - Geology 105

**Learning Center in SER 219:** Brooke and Joseph will have hours in the Physics Learning Center (SER 219). Check the schedule on the door.

**Course Website:** The official course website is on Canvas, <https://canvas.usu.edu/>. Here you will find the syllabus, schedule, annotated lecture powerpoints and equation sheets under the Files link at the left. Check the site frequently for updated information.

**Homework Website:** [www.masteringphysics.com/](http://www.masteringphysics.com/) is where you will complete the homework assignments throughout the semester.

### COMPONENTS

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

#### I. Lecture

The main purpose of the lectures is to give you a conceptual understanding of the material. **To prepare for lectures, you must read the text ahead of time.** This will provide an introduction to new vocabulary and important ideas which we will discuss in an interactive fashion during lecture. Lecture notes will be available under the Files link for the course website found at [https://canvas.usu.edu](https://canvas.usu.edu/). During lecture you will participate in “clicker” questions using the ABCD-card provided. Please bring it to class.

## II. Recitation

During recitation you will (i) be able to ask questions about and work on homework problems, and (ii) review prior to an exam.

## HOMWORK

In addition to attending and participating in lectures, you will be expected to put significant effort into the homework assignments which represents 25% of your grade. Doing homework is crucial to learning physics. YOU WILL LEARN THE MATERIAL MOST EFFICIENTLY IF YOU (1) PREPARE FOR LECTURE BY READING THE TEXT, (2) PARTICIPATE IN LECTURES, AND (3) START EARLY AND WORK STEADILY ON THE HOMEWORK ASSIGNMENTS WHICH WILL INCLUDE WATCHING PHYSICS VIDEOS THAT HAVE A SMALL PROBLEM SET AT THE END.

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

- (1) purchase the hard copy 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/](http://www.masteringphysics.com/). The cost is \$140.
- (2) etext option at the USU bookstore which also has the homework access code, \$135.
- (3) go to [www.masteringphysics.com/](http://www.masteringphysics.com/) and pay for the etext and homework access, \$111.50.
- (4) go to [www.masteringphysics.com/](http://www.masteringphysics.com/) and just pay for homework access, \$66, and then find cheaper 2nd or 3rd editions of the 2nd volume which starts with Chapter 20.

### Instructions for registering for homework:

- (1) Go to [www.masteringphysics.com/](http://www.masteringphysics.com/).
- (2) Click **Students** beneath the Register link and enter the course ID: MPHELD2220SPRING2016
- (3) Enter your access code (options (1) or (2) above) or buy one.
- (4) Sometime during the process you will enter your name. **Please use the same name that you use in USU's Canvas system.**
- (5) For the text, choose Wolfson, Essential University Physics, 3e.
- (5) You will then have the option to purchase the etext.
- (6) After paying, you will have your account set up.
- (7) Finally, log in to [masteringphysics.com](http://masteringphysics.com), join the course and enter **your full A# (including the A) for your student ID.**

Due dates for the homeworks vary. Carefully check the class schedule or better yet, check the assignment schedule at [masteringphysics.com](http://masteringphysics.com). The time when they are due will always be **1:00 am, i.e. , very early in the morning of the day they are due. No credit will be given for late homework.**

## 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 exam score counts for **75%** of your total grade. At each exam you may use the following: (1) a #2 pencil, (2) a calculator, and (3) 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 Wednesday, May 4, 2016, 1:30 p.m. - 3:20 p.m.**

### III. Exam Questions

Each exam will consist of 22 questions (1-2 True/False and 20-21 multiple-choice questions). Answers will be submitted using scantrons which will be provided by the Physics Department. Exam questions will be split between more conceptual versus more quantitative problems. The number of questions is chosen as a balance between a number of simple questions and a small amount of more difficult questions. Reviewing lecture notes and homework problems is critical preparation for the exam.

### IV. Exam Results

Once all of 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).

## LEARNING ASSESSMENT (GRADING)

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

### I. Homework Assignments (25% of grade)

Each problem is worth 1 point toward your total homework score. You will get five attempts to get a problem correct. There is no penalty for incorrect attempts. You may also have to watch online videos and complete the simple problem sets at the end for two points.

### II. Exams (75% of grade)

The four exams will test on material in the lectures, text, and homework assignments. Exams will consist of both conceptual and quantitative problems.

## GRADING BREAKDOWN

USU's grading scale is shown below to give you a rough indication of your final letter grade. The instructor reserves the right to lower any of the stated percentages.

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%,	

## NEED HELP?

If you find yourself confused or stuck on a particular topic, or are spending too much time on a given homework problem, you should try one or more of the following.

- (1) Review the relevant chapter and/or lecture 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.
- (5) Visit the Physics Learning Center in **SER 219**. It is staffed during much of the business day.
- (6) Seek additional help from the TAs or Dr. Held.

## 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 classes.

**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 lecture by reading the text, actively participating in lecture, working hard on 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.

### **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 AND PARTICPATE during 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 internalize exam material.
1. **Finish up with a positive attitude!**

## **POSSIBLE ERRORS**

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

### **Fees**

There is a \$10.00 fee for this class. It covers classroom supplies, as well as equipment, maintenance and supplies for demonstrations. (Note: some scholarships will not pay for this fee, even though they pay full tuition costs. Scholarship students have been dropped from this class without notice for not paying the fee.)