

SYLLABUS

General Physics – Life Sciences I PHYS 2110 Fall 2016

Instructor: Dr. Boyd F. Edwards

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Office Hours: 3 – 4 pm MWF, or by appointment

Prerequisites: Math 1100 or 1210 (can be taken concurrently with PHYS 2120), and PHYS 2110

Texts: (1) *Physics*, Cutnell and Johnson, currently in its tenth edition; the eighth or ninth edition are also acceptable. An electronic copy of the tenth edition is available at <http://www.webassign.net/>.

(2) *Laboratory Manual*, available at the campus bookstore

Credits: 4 credit hours

Lecture: MW 5:15 - 6:30 PM

Brigham City: Brigham 151

Logan: DE 012

Vernal: B 129

Recitation: M 6:30 - 7:45 PM (same location as lecture)

Laboratory: W 6:45 - 8:35 PM (8 sessions total, see schedule below)

Brigham City: Brigham 151

Logan: SER 112

Vernal: B 134

Course Website: <http://canvas.usu.edu/>

Homework Website: <http://www.webassign.net/>

OUTCOMES

After successfully completing this class, students will be able to:

- Analyze translational motion of objects using their positions, velocities, and accelerations
- Analyze rotational motion of objects using their angular positions, velocities, and accelerations
- Identify forces and torques on objects, and use Newton's laws to predict their motion
- Apply conservation of energy, linear momentum, and angular momentum to solve problems
- Understand fluid buoyancy and the interplay between pressure and velocity
- Describe internal energy, temperature, heat flow, and the increase of entropy
- Describe biomedical applications of these principles

CONCEPTS

Students are expected to commit certain fundamental concepts to memory, and to apply them in solving problems on homework and examinations. Concepts will be clearly identified in the lecture PowerPoint presentations and will be covered thoroughly in class. Note cards are not permitted during examinations.

COMPONENTS

The course has three components: lecture, recitation, and laboratory:

I. Lecture

Lectures will be delivered via interactive video conferencing (IVC), and will cover concepts and examples to prepare you for homework assignments and exams. Reading the pertinent sections of the textbook beforehand (see schedule below) will help you prepare for each lecture. Lecture PowerPoints will be posted to Canvas prior to class, and annotated PowerPoints will be posted after class. Panopto video recordings of all lectures will also be posted to Canvas.

II. Recitation

Weekly recitation sections are offered via IVC to give you the opportunity to ask questions about the homework or the lectures in order to deepen your understanding of the material. Recitations will begin the third week of class. Panopto video recordings of all recitations will be posted to Canvas.

III. Laboratory

Eight two-hour labs are scheduled throughout the semester (see schedule below) to assist you in learning the material through hands-on experience. No video recordings are made of the laboratories.

ASSESSMENTS

Your learning will be assessed through homework assignments, lab quizzes, and examinations.

I. Homework (25% of grade)

On WebAssign, each question is worth 1 point toward your total homework score. Your homework average is the number of correct answers divided by the total number of questions. No credit will be given for homework completed after the deadline. Requests to extend a homework deadline must be accompanied by proof of personal illness, death in the immediate family, or a conflicting university-related event.

II. Lab Quizzes (15% of grade)

After completing each laboratory, you will be given a quiz consisting of three multiple-choice questions. These questions pertain directly to the laboratory material and encourage you to participate actively in the laboratory. Each quiz is worth 5 points: 2 points for taking the quiz and 1 point for each correct answer. Requests to reschedule a laboratory must be made prior to the laboratory, and must be accompanied by proof of personal illness, death in the immediate family, or a conflicting university-related event. Such requests are subject to the availability and willingness of the laboratory teaching assistant.

III. Exams (60% of grade)

There will be four exams, three during the course of the semester and one during finals week. Each exam counts for 15% of the grade, and will cover approximately one fourth of the material in the course; the final examination will not be comprehensive. Each exam will have 25 multiple-choice questions. Like the homework, the exams will include both conceptual and quantitative problems. Some questions will test your knowledge of concepts identified in class. Others will be variations on homework problems and in-class examples, while yet others will test your ability to extend concepts to new problems. Requests to reschedule an exam must be made prior to the exam, and must be accompanied by proof of personal illness, death in the immediate family, or a conflicting university-related event. You will take these exams at a USU testing center that is convenient to you, using a testing center computer. Each exam may be taken any time during a three-day window allotted for that exam, according to the schedule below. You will be given one hour to complete each exam.

Please visit <https://www.usu.edu/campuses/testing/> to determine the hours of your local testing center and to schedule an appointment to take each exam. Scheduling an appointment ensures an open slot for you to take the exam, and is mandatory for some testing centers and strongly recommended for the rest. Please bring a photo ID, a writing utensil, and a calculator to the exam. Backpacks, books, note cards, equation sheets, and other materials are not permitted during the exam. Scratch paper will be provided by the testing center, and must be left at the testing center after you complete the exam. Internet use during exams is restricted to Canvas, through which the exam will be administered on a testing center computer. No other Internet access is permitted, including access through your phone or calculator. Your phone must be turned completely off before entering the testing room, and must remain off and unused during the exam. Students desiring to use their graphing calculators (those with large screens and "y=" buttons) must clear all memory and apps from them before taking the exam, and must display their reset screen to the testing proctor before taking the exam. Instructions for resetting TI calculators may be found at <https://education.ti.com/en/us/solutions/test-preparation-tools/tabs/exam-acceptance>. Testing centers typically stock a variety of graphing and non-graphing calculators that students may use, including TI-83, TI-84, and TI-89 graphing calculators. Students desiring to use a testing center calculator are encouraged to check first with the testing center to ensure that the calculator of their choice will be available during the exam.

All work on exams is expected to be independent of other students and to be free of unauthorized aid. The minimum penalty for academic dishonesty on an exam is a zero on that exam.

GRADE SCALE

The following grade scale will be used:

A \geq 93%,	B \geq 83%,	C \geq 73%,	D \geq 63%,
A- \geq 90%,	B- \geq 80%,	C- \geq 70%,	D- \geq 60
B+ \geq 87%,	C+ \geq 77%,	D+ \geq 67%,	

NEED HELP?

If you find yourself stuck on a particular topic or problem, you may try one or more of the following.

- Review the relevant chapter, concepts, and class notes, and study any relevant example problems.
- Try to solve a similar problem. The answers to odd numbered problems are given in the back of the textbook. WebAssign sometimes offers practice problems that are similar to the problem you're working on.
- Talk with other students in the class. Ask them to explain things to you rather than solving the problem for you. Study groups are encouraged.
- Ask for help in recitation.
- Take advantage of any local tutoring services. In Logan, there is a physics help center in SER 219 that is staffed during much of the business day.
- Seek help from the instructor, via e-mail, Skype, telephone, or in person.

ENVIRONMENT

We are committed to fostering a nurturing learning environment based upon open communication, mutual respect, and non-discrimination on the basis of race, sex, age, disability, veteran status, religion, sexual orientation, color, or national origin. Academic integrity is expected of all students, and is strictly enforced.

Please advise the instructor if you are a person with a disability and anticipate needing any type of accommodation in order to participate in this class. Accommodations for ADA-documented physical, sensory, emotional, or medical impairments must be 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. Alternate format materials (Braille, large print or digital) are available with advance notice. Veterans may be eligible for accommodations.

WEBASSIGN

Homework is online at www.webassign.net, with assignments due on Tuesday nights at 11:59 PM. For one semester access, the cost is \$45.95 for the homework alone and \$90.70 for both the homework and the electronic textbook (eBook), payable online. For lifetime access, the cost is \$71.00 for the homework alone and \$121.00 for both the homework and the eBook. Since WebAssign will be used for online homework for PHYS 2110 in Fall 2016 and for PHYS 2120 in Spring 2017, students planning to take both courses this year will save money by purchasing lifetime access. You may access the homework and the eBook without paying for them until September 12, when the grace period ends and payment comes due.

Instructions for registering for homework:

- (1) Go to the site www.webassign.net/. Click on the **ENTER CLASS KEY** button.
- (2) Enter the class key: **USU** in the first box, **4301** in the second box, and **3893** in the third box. Click the **SUBMIT** button. If you have correctly entered the class key, the class information

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should appear. If so, click the **YES, THIS IS MY CLASS** button.

- (3) On the next webpage leave "I need to create a WebAssign account" selected and click on the **Continue** button.
- (4) Fill in the 7 boxes with the required information. **Important:** In the box that asks for your **Student ID number**, use your **A-Number, starting with a capital A**. Doing so will ensure that you receive course credit for your WebAssign homework.
- (5) Select **CREATE MY ACCOUNT**.
- (6) On the next webpage select **LOG IN NOW**.
- (7) You should now be at your **Home** page. At this point you can purchase access to the homework and/or the electronic textbook, as described above.

SCHEDULE

Week of	Monday (Lecture, Recitation)	Tuesday (HW due 11:59 PM)	Wednesday (Lecture, Lab)
Aug 29	1.1-1.8		2.1-2.4 Lab 1
Sept 5	Labor Day Holiday	HW 1	2.5-2.7
Sept 12	3.1-3.3	HW 2	4.1-4.5 Lab 2
Sept 19	4.6-4.10 Exam 1 (Ch 1-3)	HW 3 Exam 1 (Ch 1-3)	No Lecture Exam 1 (Ch 1-3)
Sept 26	4.11-4.12	HW 4	5.1-5.3 Lab 3
Oct 3	6.1-6.4	HW 5	6.5-6.7
Oct 10	7.1-7.5	HW 6	8.1-8.3 Lab 4
Oct 17	8.4-8.6 Exam 2 (Ch 4-7)	HW 7 Exam 2 (Ch 4-7)	No Lecture Exam 2 (Ch 4-7)
Oct 24	9.1-9.6	HW 8	10.1-10.3 Lab 5
Oct 31	10.4-10.6	HW 9	11.1-11.5 Lab 6
Nov 7	11.6-11.11	HW 10	12.1-12.5 Lab 7
Nov 14	12.6-12.8 Exam 3 (Ch 8-11)	HW 11 Exam 3 (Ch 8-11)	No Lecture Exam 3 (Ch 8-11)
Nov 21	13.1-13.4	HW 12	Thanksgiving Break
Nov 28	14.1-14.4	HW 13	15.1-15.5
Dec 5	15.6-15.11	HW 14	Review, HW 15 Lab 8
Dec 12	Finals Week Exam 4 (Ch 12-15)	Finals Week Exam 4 (Ch 12-15)	Finals Week Exam 4 (Ch 12-15)