DRAFT – January 29, 2016

Physics 1210: Engineering Physics I

Time:	MWF 12:00-12:50pm
Location:	Classroom Building 314
Instructor:	Prof. Hannah Jang-Condell
Email:	hjangcon@uwyo.edu
Office:	329 Physical Sciences
Phone:	766-3680
Office Hours:	Monday 1-2pm, Thursday 1-3pm, or by appt.

Teaching Assistants	email	office	office hours
Shane Allison	salliso1@uwyo.edu	PS 109	Tuesday 1-2:40pm
Cody Minns	cminns@uwyo.edu	PS 109	Wednesday 1-4pm
Subash Kattel	skattel@uwyo.edu	PS 103B	Monday 4-5pm

Prerequisites: MATH 2200.

Required Materials:

- Sears & Zemansky's *University Physics with Modern Physics*, 13th Edition by Young & Freedman.
- Mastering Physics: `http://www.masteringphysics.com`. Access kit bundled with new text, or available from the bookstore.
- Lab manual: *Calculus-based University Physics* by Rudi Michalak.
- polleverywhere registration.

Web Page: `http://physics.uwyo.edu/~hannah/teaching/PHYS1210/`

USP Credit: This class satisifies the PN (USP15) and SP (USP03) categories of the University Studies Program.

Laboratory and Discussion Sections

You must register for one of each.

Discussions (STEM 195)			
1210-20	Mon	1:10-2pm	Minns
1210-21	Mon	2:10-3pm	Minns
1210-23	Tue	2:45-3:35pm	Allison
1210-24	Tue	4:10-5pm	Allison

Labs (STEM 195)			
1210-10	Wed	3:10-5pm	Jang-Condell
1210-11	Wed	7:10-9pm	Minns
1210-12	Thu	11am-12:50pm	Kattel
1210-13	Thu	1:10-2pm	Kattel

Course Content

Welcome to our introductory physics course for engineers and scientists! This course is an introduction to the fundamental physical forces that shape our universe. We will cover topics including linear and rotational motion, energy, work, gravity, oscillations/waves, etc. You will gain physical intuition and problem solving ability which will allow you to explain and predict what goes on in the world. Physics I is the foundation which underlies disciplines as diverse as astronomy, biology, chemistry, engineering, geology, medicine, and meteorology.

Class Meetings

Since ideas and definitions from the text will be used freely in class, it is necessary for you to read and study the assigned chapters before class. I will avoid presenting the exact examples in your text. Instead, class meetings are for addressing the difficult points in the text as well as for helping to place the readings in a larger context. The more actively engaged you are in class, the better you will learn and perform.

Grading

The average final grade in this course has historically been a B-. Your grade in this course reflects only on your performance over a short period on limited subject matter. Your grade does not reflect on you as a person, nor on your full range of abilities in communication, writing, enthusiasm, logic, creativity, perserverance, entrepreneurial spririt, and a host of other talents which are crucial for achieving your career and life goals. In short, do not cause yourself (or your instructors) anxiety by making more of your grade than it really is.

Weighting: (*subject to revision*)

Exams (3 @ 20% each)	60%
Online Homework	10%
Written Homework	5%
Labs	20%
polleverywhere responses	5%
Total	100%

Scale: (*subject to revision*)

A:	>90%
B:	80-90%
C:	70-80%
D:	60-70%
F:	<60%

Exams

Homeworks will contain mostly quantitative problems, whereas lectures will provide you with largely conceptual, multiple-choice questions to tackle in class. Hence, the exams will contain both quantitative and conceptual problems, and have both multiple-choice and written formats. The exams will be closed book and closed notes. You may use a calculator. **No make-up exams will be given without prior arangement.** If you have a conflict with an exam time, inform the instructor well in advance.

Partial credit: One negative aspect of the multiple-choice format is its "all-or-nothing" nature. For this course's exams, you may alternatively earn partial credit on a multiple-choice problem by opting to select two of the possible answers. For example, if you answer both A and C on a 4 point question that has the possible choices of A,B,C,D, you will earn 2 points if either answer A or C is the correct solution.

All examinations are required and none of the scores will be dropped or replaced. The exams will be held at the following times, and will tentatively cover the following chapters in Young & Freedman:

Exam 1	Thursday, March 3, 5-7pm	Ch 1-5
Exam 2	Thursday, **April 7**, 5-7pm	Ch 6-10
Exam 3	(Finals Week) Friday, May 13, 10:15am-12:15pm	Ch 12-16

Homework

The assignments will be posted on-line via the MasteringPhysics website below. Students are encouraged to work together, but each student must submit their own work. Homeworks will consist of approximately 10 problems each week. About eight will be answered and graded online, and two will be turned in on paper to be graded. The deadline for each homework will usually be Fridays: the on-line questions would need to answered by 10:00 pm and written problems are due at the start of lecture.

For the written exercises: As in "real life," you should give credit to any sources or people you find helpful. For example, if you work on a problem in a group, the names of all the other members in that group should be given. To receive full credit, your homework must be legible and the logic must be easy to follow. No credit will be given for incomplete work or incorrect units and late homework will not be accepted. Neither faxed nor e-mailed homework will be accepted. Please staple loose sheets together.

Homeworks #0 and #13 will not count toward your final grade. Of the remaining 12, the lowest two scores will be dropped, so that your homework grade will be based on the best 10 scores.

The best way to learn physics is practice, practice, practice. Completing the homework problems is the best way to get this practice. Solutions to assignments may be available online or from your friends, but if you do not do the work yourself, you are only cheating yourself.

MasteringPhysics.com advice and information:

- If you buy a new book, a MasteringPhysics access code kit will come bundled with your book. If you buy a used book, you'll have to purchase MasteringPhysics access seperately, either online at MasteringPhysics.com or at the bookstore desk.

- The procedures for self-registration are explained at www.masteringphysics.com (this is also the login site). Your access code is inside the student access kit that comes with the text (please see me if you do not have the kit). The course ID is **"JANGCONDELL2016"**. You may choose your login and password. Be sure to

select the option for MP which accompanies the Young & Freedman 13th Edition textbook.

- Never use the browser's "back" button. Use the links provided.
- You will be able to submit answers as many times as you wish. Incorrect answers will be given partial credit as follows: for multiple choice answers, you will lose 100%/(number of options-1) per incorrect answer. This means that no credit will be award for an incorrect true/false response. For all other questions, 3% will be deducted per incorrect response. Please hit "submit" after answering each question. Selecting "submit problem" will result in the problem being graded.
- Some problems have multiple components, so be sure to answer each portion.
- Many problems have hints to help you along the way. You will not be penalized for looking at the hints, and sometimes bonus credit will be awarded if you answer correctly without peeking at the hints. Either way, you win. Note that this possible bonus credit will be an extremely tiny fraction of your overall course grade, so please don't agonize over the choice.
- Parameters may be randomized! Your friend's question may have different numbers.
- There is a 2% tolerance for answers; e.g. you can be off by, say, 1.8% and receive full credit.
- Solutions to the homeworks will be posted at the course website.

Entering Formulae in Mastering Physics:

Sometimes Mastering Physics will ask you to enter algebraic formulae as your answers. Here is a chart on how to convert common formula into Mastering Physics symbolic language. Also, be sure to do homework #0 where you also get to practice this.

Formula	Mastering Physics Coding
$\frac{1}{2}a_x t^2$	`1/2 a_x t^2` -or- `1/2 * a_x * t^2`
$\mu_s/(F_1+F_2)^2$	`mu_s/(F_1+F_2)^2`
$\sqrt{a^2+b^2}$	`sqrt(a^2 + b^2)`
$v_0^2 + a\Delta t$	`v_0^2 + a Delta t`
3×10^8	`3 * 10^8`

Labs

Labs will consist of 3 parts: a **pre-lab assignment**, **lab activities**, and a **post-lab assignment.** The **pre-lab assignment** is to be *completed before you come to lab* and must be turned

in at the beginning of the lab period. The **post-lab assignment** must be turned in by the next lab meeting. Points will automatically be deducted from late work. Thus, it is better to do work late rather than not at all, but it will be difficult to do well in this course if you are consistently late.

If you must miss a lab, you may attend another lab the same week to make it up. Makeup labs outside of the regularly scheduled times will not be done. Your lowest lab grade will be dropped in calculating the lab component of your final grade.

Polleverywhere

In each lecture, at least one question will be posed to the class using polleverywhere. You will earn 1 point for each question you respond to, and a 1 point bonus for each question answered correctly. Your polleverywhere grade will be out of 100 points. After 100 points, additional responses will be treated as extra credit, counting for half points. These points will be graded beginning the second week of class.

Register your phone or laptop at polleverywhere.com. Each day in class you'll be able to vote on questions or give feedback using your phone or laptop. To register:

1. Go to polleverywhere.com and create an account; click on "Signup"
2. De-select "I am an educator"
3. Select "United States" (not "United States – Education")
4. Once your account has been created, register your cell phone number (ignore this if you use a laptop)
5. Go under "settings" to add the number (with your area code).
6. Follow instructions to certify your mobile phone number, by clicking the "certify" link under your phone number.
7. Please allow me to see your name: Under "Settings" choose "Voter Registration". Select "Register as a voter". On the next page you should enter my email: `hjangcon@uwyo.edu`
8. Bring your phone or laptop to each class meeting. Standard Text messaging rates may apply.
9. During class, "join" our class session by texting "PHYS1JC" to 22333. If you are using a web browser, go to `http://PollEv.com/PHYS1210JC`.

If you cannot send text messages to 5-digit numbers (if you are using Google Voice, Skype, or Pinger/TextFree, for example) you may send your texts to (747) 444-3548 instead.

Policies

Academic Honesty

Academic honesty develops respect between faculty and students, ensures fair and effective grading, and creates an environment that fosters learning. Although I encourage you to study with other students, any assignments, exams, and lab submissions must represent your OWN work. Academic dishonesty is defined in University Regulation 802, Revision 2 as "an act attempted or performed which misrepresents one's involvement in an academic task in any way, or permits another student to misrepresent the latter's involvement in an academic task by assisting the misrepresentation." There is a well-defined procedure to judge such cases, and serious penalties may be assessed. Do not risk your career by engaging in unethical conduct!

Accommodations for Disabilities

If you have any kind of disability, whether apparent or non-apparent, learning, emotional, physical, or cognitive, and you need accommodations or alternatives to lectures, assignments, or exams, please feel free to contact me to discuss reasonable accommodations for your accesss needs. Please also work with University Disability Support Services (UDSS) in SEO, room 330 Knight Hall, 766-6189, TTY: 766-3073.

Civil Rights Discrimination

Civil rights discrimination is defined in University Regulation 1-5 as "Adverse treatment and harassment on the basis or race, sex, gender, color, religion, national origin, disability, age, veteran status, sexual orientation, genetic information, political belief, or other status protected by state and federal statues or University Regulations." Title IX makes it clear that violence and harassment based on sex and gender are civil rights offenses subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, etc. If you or someone you know has been harassed or assaulted, you can find the appropriate resources at the Office of Equal Opportunity Report and Response (EORR), or at this link:
http://www.uwyo.edu/diversity/eorr/complaints/index.html

Additional help

If you need help with this class, you should contact the professor or TAs by visiting office hours or making an appointment. On-campus tutoring services can be found at http://www.uwyo.edu/studentaff/step/tutoring/. Resources include

- the STEP Tutoring Center http://www.uwyo.edu/studentaff/step/tutoring/step.pdf
- Tau Beta Pi http://www.uwyo.edu/ceas/current-students/tutoring.pdf.

Expectations

What you should expect from me:

- To teach fundamental physics concepts in a clear, organized manner to help you become competent and confident problem solvers. At the expense of skipping some of the later topics, I will reserve the option of slowing down the pace of the course according to the students' needs.
- To administer at least two feedback questionnaires, to better gauge your perceptions of the course.
- To encourage group learning in lecture with frequent conceptual questions to be discussed in groups. Research on how people learn physics STRONGLY indicates that lecture alone is NOT an effective way to learn. Effective learning requires interaction with the instructor and classmates.
- To incorporate demonstrations into lectures, given that students learn in a variety of ways.
- To expeditiously grade and return the exams to you. I plan to return exams by Monday after the exam.

What I expect from you:

- To attend and participate in each lecture, laboratory, and discussion session. It is your responsibility to obtain and understand the material presented, even if you are not in attendance due to illness or a University-sponsored activity.
- To work both independently and in groups of your peers who can help you understand the course material. If you need help finding a study group of classmates, I will help connect you.
- To take each exam at the scheduled time. If you have a scheduling conflict due to a University-sponsored activity, it is your responsibility to inform the instructor well before the date of the exam.
- To make a good effort and to be prompt in completing assignments and labs.
- To typically spend 12-15 hours per week, including in-class time, to learn the material. If you are spending more time than this, please see the instructor so that I can ensure that you spend your time efficiently.
- To work as many problems as you can beyond the assigned homework. As with everything in life, practice, practice, practice…
- Check your UW email

Example of a conversation that happens every semester:
Student: "I'm feeling like lectures don't help much and that I'm needing to teach myself out of the book all the time."

Instructor: "That's exactly what I would expect. The purpose of lecture is to amplify material from the text, not the other way around."

Student: "But I feel like I spend an hour every night reading the book and trying to follow examples from the book."

Instructor: "Every major university expects that students spend 2-3 hours out of class working problems and reading for each hour spent in class. This means that for the 5 hours we spend in class each week, there should be 10-15 hours spent out of class. If you feel like you are working this much and still having trouble, please come see me and we'll work together to help physics go better."

Schedule

Note: Schedule is subject to change. Check website for updates.

Week of	M	W	F	Lab	Notes
Jan. 25	Intro	2:1-2	2:3-4	FCME	HW #0 (for practice) due Fri 1/29 at 10pm. Read Chapter 1.
Feb. 1	2:5-6	3:1-2	3:3-4	0	HW #1 due Fri 2/5 at 10pm
Feb. 8	3:5-6	4:1-2	4:3-4	1	HW #2 due Fri 2/12 at 10pm
Feb. 15	4:5-6	5:1-2	5:3-4	2	HW #3 due Fri 2/19 at 10pm
Feb. 22	5:5	6:1	6:2-3	3	HW #4 due Fri 2/26 at 10pm
Feb. 29	6:4	7:1	7:2-3	FCME	HW #5 due Fri 3/4 at 10pm **EXAM 1: Thu March 3, 5-7pm, Ch 1-5**
Mar. 7	7:4-5	8:1-2	8:3-4	4	HW #6 due Fri 3/11 at 10pm
Mar. 14	SPRING BREAK				
Mar. 21	8:5-6	9:1-2	9:3-4	5	HW #7 due Fri 3/25 at 10pm
Mar. 28	9:5	10:1-3	10:4-6	6	HW #8 due Fri 4/1 at 10pm
Apr. 4	12:1-2	12:3-4	12:5-6	7	HW #9 due Fri 4/8 at 10pm **EXAM 2: Thu April 7, 5-7pm, Ch 6-10**
Apr. 11	13:1-2	13:3-4	13:5	8	HW #10 due Fri 4/15 at 10pm
Apr. 18	14:1-3	14:4-5	14:6	Fluids	HW #11 due Fri 4/22 at 10pm
Apr. 25	15:1-3	15:4-5	15:6-8	9	HW #12 due Fri 4/29 at 10pm
May. 2	16:1-2	16:3-5	16:6-9	Waves	Bonus HW #13 due Fri 5/6 at 10pm
May. 9	FINALS WEEK				**EXAM 3: Friday, May 13, 10:15am-12:15pm, Ch 12-16**

The instructor may make changes to the syllabus as the course proceeds. If necessary, these changes will be announced in class and on the course website.