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Spring 2-1-2022

PHSX 207N.01: College Physics II

Andrew S. Ware

University of Montana - Missoula, andrew.ware@umontana.edu

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Course Information

- Instructor Name: Andrew Ware
- Office: CHCB 130
- Email: andrew.ware@umontana.edu
- Lectures: MTWR 9:00 – 9:50 am in CHCB 131
- Text: *Physics: Principles with Applications*, Giancoli (access on the Moodle page)
Access to Mastering Physics, the online homework system, is also required
- Office Hours: M 1 – 2 PM, W 1 – 2 PM, R 8 – 9 AM, F 2 – 3 PM & by appointment
- Website: umonline.umn.edu

Overview

The goal of this class is to give you a sound introduction to classical physics. This class is a continuation of Physics 205N and a good understanding of the material from the first semester will be very helpful for this semester. It is essential that you keep up from the start as the concepts in this course build on each other. We will cover electricity and magnetism, light, optics, special relativity, and an introduction to quantum physics.

Homework

I'll assign reading, which is **strongly** recommended to be read **before** you come to class. I'll assign problem sets about once a week on our Moodle page. Feel free to ask questions about the homework. You are welcome to work together on the homework but make sure you understand the process of solving each one. The goal is to help develop your problem solving skills.

Exams

Three in-class exams around Tuesday 2/15, Tuesday 3/15, and Tuesday 4/19. One comprehensive final, Wednesday 5/11, 10:10 AM – 12:10 PM. Exams will be closed book and closed notes, but you are allowed one 3x5 index card with equations.

Grading

Your grade for the course will be based on weekly homework assignments, three midterm exams, and a final exam. Midterm exams will be held in the evenings from 5-7 pm. Late homework will not be accepted and make up exams will only be given in extreme circumstances. The grading for the course will be broken down as follows:

Homework:	30 %
In-class exams:	45 % (15 % each)
Final exam:	35 %

This course can only be taken with the traditional grading option. The letter grades in this course will be based on a curve, giving you the grade that you earn. The curve will be determined by the performance of the class as a whole, but I do not have a set number of A's, B's, etc., predetermined.

Learning Objectives

After completing this course, you should have:

- Improved your critical thinking and problem solving skills.
- Gained both a quantitative and qualitative understanding of physics.
- Gained the ability to use previously learned concepts in new contexts.
- Gained an appreciation of physics.

Expectations

This is a university science course and it will be taught at that level. The use of mathematics will be necessary for understanding the topics that we will cover, like it is in any science course. The mathematics we will use in this course are algebra, geometry, and trigonometry and it is imperative that you are comfortable with these to be successful in this course. Attendance, while not mandatory, is highly recommended. Homework assignments and exams will be based on material that is presented in lecture. To be successful in this class, time will need to be spent outside of lecture reviewing information from the course. It is recommended that you keep up with the reading assignments that are posted on the schedule to gain a better understanding of the concepts being presented in lecture. Weekly homework assignments also make up a large portion of your overall grade. These assignments will usually take 3-5 hours to complete so don't wait until the last minute to start your homework. Remember that at the UM, one "unit" represents 3 hours of work by the student including class time. You can expect to put around 12 hours per week into the course to be successful.

Course Guidelines and Policies

Student Conduct Code

The Student Conduct Code at the University of Montana embodies and promotes honesty, integrity, accountability, rights, and responsibilities associated with constructive citizenship in our academic community. This Code describes expected standards of behavior for all students, including academic conduct and general conduct, and it outlines students' rights, responsibilities, and the campus processes for adjudicating alleged violations. [Full student conduct code: http://www.umt.edu/vpsa/policies/student_conduct.php](http://www.umt.edu/vpsa/policies/student_conduct.php)

Course Withdrawal

Students may use Cyberbear to drop courses through the first 15 instructional days of the semester. Beginning the 16th instructional day of the semester through the 45th instructional day, students use paper forms to drop, add and make changes of section, grading option or credit. PHSX 446 can only be taken for a traditional letter grade.

Disability Modifications

The University of Montana assures equal access to instruction through collaboration between students with disabilities, instructors, and [Disability Services for Students](#). If you think you may have a disability adversely affecting your academic performance, and you have not already registered with Disability Services, please contact Disability Services in Lommasson Center 154 or call 406.243.2243. I will work with you and Disability Services to provide an appropriate modification.

[This course can be taken for a traditional letter-grade only]

Class Topics (Tentative Schedule)

Week	Dates	Topic	Reading
1	1/18 – 1/20	Electric Charge and Force	Chapter 16
2	1/24 – 1/27	Electric Field and Gauss' Law	Chapter 16
3	1/31 – 2/3	Electric Potential and Capacitors	Chapter 17
4	2/7 – 2/10	Electric Current	Chapter 18
5	2/14 – 2/17	DC Circuits	Chapter 19
		Midterm Exam #1, Tuesday, 2/15	
6	2/21 – 2/24	Magnetic Fields and Forces	Chapter 20
7	2/28 – 3/3	Electromagnetic Induction	Chapter 21
8	3/7 – 3/10	AC Circuits	Chapter 21
9	3/14 – 3/17	Electromagnetic Waves	Chapter 22
		Midterm Exam #2, Tuesday, 3/15	
10	3/21 – 3/24	Geometric Optics	Chapter 23
11	3/28 – 3/31	Spring Break	Relax and recharge
12	4/4 – 4/7	Optical Instruments	Chapter 25
13	4/11 – 4/14	Wave Optics	Chapter 24
14	4/18 – 4/21	Special Relativity	Chapter 26
		Midterm Exam #3, Tuesday, 4/19	
15	4/25 – 4/28	Modern Physics	Chapter 27
16	5/2 – 5/5	Modern Physics	Chapter 28
17	5/11	Final Exam, Wednesday, 10:10 AM to 12:10 PM	