Physics 203 – College Physics I – Fall 2021

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Office Hours: B207 SCI
Monday 3:00 **to** 4:50 p.m.
Tuesday 4:00 **to** 4:50 pm,
Thursday 2:00 **to** 2:50 pm
(or by appointment)
These are for your benefit. Use them!!

Course Overview: Physics 203 is an introduction to physics aimed at a variety of majors, including biochemistry, pre-medicine, health science, and secondary education. To varying degrees, we will study *motion, Newton's laws, energy, momentum, oscillations, waves, and fluids.* The topics will not significantly vary from those included in a typical high-school physics class, **BUT** the intensity will be greater. Physics is a way of thinking as much as it is a body of knowledge. We won't simply strive to memorize the "facts." We will also strive to become proficient at thinking like a physicist. Rather than just regurgitating information, you will continually apply your knowledge to new situations in order to solve unique problems.

One of the challenges of studying physics is to understand the language. Many of the terms and phrases, such as force and power, are used in everyday conversation, often interchangeably and incompatibly with the strict physics usage. In physics, such words have specific and unambiguous meanings, and it is a task in and of itself to learn to use the words correctly. We will strive to become proficient in the use of physics vocabulary. In addition, it is often said that mathematics is the language of physics. We will continually use mathematics as a tool for describing physical situations. Therefore, in order to succeed in this class, it will be necessary to become skilled in communicating physical ideas through both prose and mathematical expressions.

This course satisfies the learning outcomes for the Natural Science component of the General Education Program. Upon completing this course students should be able to:

- Explain major concepts, methods, or theories in the natural sciences to investigate the physical world.
- Interpret information, solve problems, and make decisions by applying natural science concepts, methods, and quantitative techniques.
- Describe the relevance of aspects of the natural sciences to their lives and society.

Tentative Course Outline (subject to change): The material of this course will mostly follow that of the text, covering a little more than one chapter per week. We will do some jumping between chapters as shown below. *Labor Day and Thanksgiving present some challenges for scheduling with lab and discussion. And so, Tuesday through Monday will be considered a one-week "cycle" in the table below.* Therefore, "Week 15" has 4 business since the last day of classes is on a Friday. Don't hesitate to ask questions about the schedule. Also notice that midterm exams are on Fridays. Once we get into a routine, things will fall into place pretty well.

Week	Tues Date	Lecture Subjects	Chapters	Lab Number
1	8/31/18	Syllabus, motion in 1-D	2	No Lab
2	9/7/18	Motion in 2-D, Vectors	3, 4	1
3	9/14/18	Forces	5	No Lab (Exam on 9/17)
4	9/21/18	Newton's Laws, Circular motion	5, 6	2
5	9/28/18	Newton's Laws, Vectors	6, 3	3
6	10/5/18	Work and kinetic energy	7	No Lab (Exam on 10/8)
7	10/12/18	Potential energy, power	8	4
8	10/19/18	Momentum	9	5
9	10/26/18	Torque and equilibrium	8, 9	No Lab (Exam on 10/29)
10	11/2/18	Buoyancy	15	6
11	11/9/18	Fluid motion	15	7
12	11/16/18	Oscillations	13	No Lab (Exam on 11/19)
13	11/23/18	Oscillations, waves	13, 14	No Lab (Thanksgiving)
14	11/30/18	Waves	14	8
15	12/7/18	Sound	14	No Lab (Last week of classes)

Text: Physics, 5th Edition by James S. Walker.

Canvas: Course materials and activities will be organized and posted on Canvas. I will be breaking things up into weekly "modules." I will provide details as we go. Once we establish a routine, things will go smoothly. Never hesitate to ask for clarification with any part of the course. You will need to get in the habit of checking Canvas regularly (at least daily is recommended).

Lab Manual: There is nothing to buy at the bookstore. I will provide materials on-line and in class.

Calculator: You will need a basic scientific calculator that is portable for use both in and out of class sessions. The calculator need not be a fancy graphing calculator, but it must be capable of calculating basic trig, exponential, and logarithmic functions. Since cell phone use is not allowed during class (see below), and a cell phone cannot serve as your in-class calculator.

Cell Phone Use: The use of cell phones is not allowed during class sessions. Cell phones must be turned off and put away during all class sessions.

Homework: At each lecture, I will assign roughly three practice problems and three conceptual questions. These will not be collected, but they will be chosen to prepare you for the exams. Solutions will be provided.

Laboratory: There will be nine graded laboratory sessions during the semester. Each session will be of equal weight, and labs will contribute to 22% of your semester grade. **Be warned:** Since this course satisfies a lab requirement, it is necessary to pass the lab portion alone in order to pass the course. In other words, if your lab average is below 60% you fail the course regardless of your exam averages. Lab will not meet during the weeks of exams nor during the week of Thanksgiving.

Examinations: There will be five examinations. Four of them will be 50-minute exams given during the scheduled lecture time. The fifth exam will be administered during the scheduled final examination period. The final will have two parts. One part will be similar in format to the previous four exams, testing you on material since Exam 4. There will also be a second part that is cumulative for the semester. It too will be in the same format as previous exams.

Exam Schedule:

Exam 1 …… Fri. Sep 17, during lecture
Exam 2 …… Fri. Oct 8, during lecture
Exam 3 …… Fri. Oct 29, during lecture
Exam 4 ……..……. Fri. Nov 19, during lecture
Exam 5 (final) …… Thurs. Dec 16, 2:45 am – 4:45 pm

Semester Grade Calculation:

Labs	22 %
Midterm Exams (4 @ 13% each)	52 %
Final Exam (13% for each part)	26%
Total	100 % (Crazy how that works)

Your grades on labs and exams will be posted periodically on Canvas (updated every 2-3 weeks). If you have any questions on the grades posted, please contact me immediately so any errors can be corrected. The scale for the final semester grade is shown to the right.

A	93-101%
A-	90-92.99%
B+	87-89.99%
B	83-86.99%
B-	80-82.99%
C+	77-79.99%
C	73-76.99%
C-	70-72.99%
D+	67-69.99%
D	60-66.99%
F	<60%

Attendance: Attendance will not be kept for discussion sessions or lectures. *Attendance to labs and exams is mandatory and students are responsible for all material discussed and announcements made during any scheduled class meeting*. Make-up work will only be accepted in the case of excused absences. Excused absences include death in the immediate family, illness with a note from the appropriate health care professional, religious observance, an event in which you officially represent the University of Wisconsin – Stevens Point and the event directly conflicts with an exam or lab. **Excused absences must be approved with documenting materials prior to the date of absence**. Unexcused absences from a lab or exam will result in a grade of zero.

In the case of a potential conflict between class and religious observances, University of Wisconsin policy requires the student to notify the instructor within the first two weeks of class in order to expect that accommodations be made. If there is any possibility that you will miss a lab or exam due to religious observances, please notify me of the specific dates that will be missed within the first two weeks of class.

E-mail: I will use email to send out all sorts of important class-related information. Occasionally it will be necessary to make class-related announcements outside of class. This will be done primarily through e-mail. If you're not already in the habit of frequently checking your e-mail, it will be useful to develop that habit.

Extra Credit: It is possible for you to earn up to 1% of extra credit applied toward your semester grade. To do so, find an article in the news that is related to the material in class. Write a one-page summary of the article and turn it in to me with a link to the article. Each article will be worth a total of 10 points. If for some reason you don't receive full credit for your summary, you can keep submitting new articles until you have a total of 10 points of extra credit. I will be rigidly adhering to the grading scale shown above, so I strongly encourage you to take advantage of this opportunity. 1% is enough to raise your semester grade if you are at the border between two grades. All extra credit assignments must be received no later than the last day of classes.

MCAT Preparation: Because a significant number of students take this course to prepare for the MCAT, the topics covered will be geared towards those that appear on the MCAT. Although I will strive to keep the MCAT in mind as I tailor this course (after all, I like to brag about my students who go on to professional school), bear in mind that I will not do so at the expense of UWSP's mission.