

General Physics I
PHY-120 & PHY-122
Gustavus Adolphus College, Fall 2019

Instructor: Dr. Darsa Donelan (They/Them)

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Textbook: *Principles of Physics (a calculus-based text)*, Serway & Jewett, Fifth Edition

Course Policy and Evaluation

1. **Objectives:** It is hoped that when students have completed this course they will have learned some problem solving skills, some computer and calculation skills, some quantitative and empirical reasoning skills, and, of course, some physics.
2. **Expectations:** Students in this class are expected to have a solid background in algebra and trigonometry (or pre-calculus equivalent), and for those in the PHY-122 section, at least one semester of calculus. I will discuss the calculus involved in this course as necessary, but it is important that students also see it in another course setting. Additionally, all students are required to be concurrently enrolled in **PHY-121: General Physics I Laboratory**.
3. **Attendance:** While you are technically not required to attend lecture and I will not ask you to sign-in, regular attendance at all lectures is expected and excessive absenteeism will result in reduction of your final grade.
4. **Learning Styles:** Recognizing that students learn science in a variety of ways, I will take advantage of many different techniques, including collaborative learning, to maximize the overall effectiveness of this course. Although collaborative efforts will be encouraged for solving in-class problems, you are expected to work primarily on your own for assigned homework. No collaboration is allowed exams, but will be allowed for test wrappers (see below).

Please realize as well that this is a challenging course to teach as it targets both calculus and non-calculus students. I will strive to keep my lectures relevant for both sections but there will be a number of instances where I will have to show calculus proofs and provide calculus problems in-class as examples. During these, I will make every attempt to show the non-calculus students what they can get out of the proof or example.

5. **E-mail:** You may contact me via e-mail to discuss anything on your mind regarding the course: **ddonelan@gustavus.edu**. As I am a fairly new instructor, you are welcome to provide feedback regarding the structure of the course as I will be trying some new things this year. I would prefer that you not ask me homework questions over e-mail as it is difficult to respond when I cannot directly perceive your thought processes; show up to my office instead so we can talk in person. If you send me an e-mail I will respond rapidly (usually within a few hours) but expect that if you send me an e-mail at midnight, I probably will not attend to it until the morning.
6. **Free Help Sessions:** My scheduled office hours are TBD and will be held at the Center for Inclusive Excellence (Campus Center). I will make every effort to be available during these times for individual assistance and advising. In general, if my office door is open and you want to stop in and request an audience with me, feel free to ask for help. If I am in the middle of something, I will suggest some later time. You can also email me to schedule an appointment.

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- Physics Tutors:** Tutoring for this course is run by undergraduate physics majors and occurs Sunday through Thursday from 7-10 pm in Olin Hall 216. They are willing to help with confusion regarding the conceptualization of material and homework problems. If you attend tutoring and have a tutor sign the top of your homework, you may receive some missing points back on that assignments.
- Moodle:** Everything that we do in this class I will post on Moodle. This includes: lecture notes, reading notes, homework assignments and solutions, group work assignments and solutions, exams and solutions, and your grades (usually on a 1-2 week delay). It is your responsibility to periodically check your grades on Moodle and inform me of any discrepancies.
- Class Meetings and Reading Assignments:** The class will meet five days a week (M-F) from 8:00-8:50 in Olin Hall 103 for lecture, discussion, group work, and exams. Exam dates are indicated on the *approximate* schedule on the last page. You will be responsible for reading the text (or notes on Moodle) prior to the class in which relevant instruction will take place. Typically, I like to take one day per week and do a group work assignment at the conclusion of each chapter, this will usually happen on Fridays and will be announced the day prior in class.
- Homework:** Problems will be assigned on an approximately weekly basis and will be promptly graded and returned to the student. Late homework will be accepted only at the discretion of the instructor with loss of points. An example of the format in which you are to turn in your homework is on Moodle. Follow it very closely with regard to showing your steps and clearly indicating your solution in order to receive full credit; the harder it is for the graders to follow your reasoning and find your answer, the more points will be taken away.

Homework problems will come out of the back of relevant chapters in the course textbook and will range from trivial plug-and-chug questions (“black” problems) to those that will require more thought and likely some new derivation (“red” problems). **I am very well aware that it is not that difficult to find solutions online for the textbook that we are using and will point you to the Academic Honesty section below.** While I do not mind if you work together with other students, your written solutions must be your own. It is easy to recognize when problems have been copied or solutions have been used (as many online solutions contain errors which are copied and not recognized) and I will not hesitate to give zeros on assignments and related exams if necessary.

- Group Activities:** A number of group activities will be done throughout the semester, usually occurring during Friday lectures, where students will work together in groups of 2-3 members to cooperatively solve problems. A group solution will be submitted with all group members receiving the same grade. Make-ups for group problems missed due to absence will be handled individually at the discretion of the instructor.
- Exams:** There will be four one-hour exams and a two-hour final exam as scheduled below. For the one-hour exams you will be allowed a calculator, a pencil, and a 3’’x5’’ piece index card with whatever notes you would like to write. For the final exam you will be allowed to use your previous note cards, or you can make a new one on a 8.5’’x11’’ piece of paper; I will also provide you with an equation sheet for each exam. **Please note that the exam dates are approximate and may need to be adjusted (plus or minus two days at most) based on the pace of lecture.**

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You may listen to music during the exams if you like but once the exam has started you are not allowed to access your phone/iPod/etc. to make any changes. This is a one-strike policy, the first instance I notice of someone using this to gain an unfair advantage will lose the privilege for the entire class.

13. **Test Wrappers:** Students can work in assigned groups to correct their midterm for up to 30% of the points that they missed back. In their assigned group *only*, students must get together and come up with a consensus solution to EVERY problem on the midterm. These solutions should be well-organized and articulated so that their reasoning for each answer is clear. Relevant equations must be written down and calculations carried out symbolically with numbers only plugged in at the very end. Once a group has completed their group solutions, they should schedule an appointment to come talk to me about the midterm and explain your solutions as a group sometime before a schedule deadline TBD for each midterm. Test wrappers will only be available for the first three one-hour exams as there will not be time allotted for the fourth.

14. **Missed Exams:** Students are expected to arrange in advance to take an exam other than during the announced time. These requests will be considered on an individual basis (a valid medical or athletic reason is usually necessary) and students should not expect that such permission will automatically be granted. Permission to make up a missed exam after the fact will be at the discretion of the instructor.

15. **Evaluation:**

Hour Exams	50%	A	94 - 100	C+	74 - 78
Final Exam	25%	A-	90 - 94	C	70 - 74
Homework	15%	B+	86 - 90	C-	66 - 70
Group Work	10%	B	82 - 86	D+	62 - 66
		B-	78 - 82	D	58 - 62
				F	< 58

Assignment of final letter grades will also take into account the instructor's subjective evaluation of the student's attendance, initiative, class participation, preparation (particularly the quality of homework), and evidence of improvement. Final grades will be rounded to the nearest percentage point.

16. **Incomplete:** A grade of incomplete will be given only for work not completed due to circumstances beyond the control of the student.

17. **Teaching Licensure:** This course fulfills some of the standards required for Minnesota teaching licensure. For details, see, http://physics.gac.edu/Education/phy120_standards.htm and http://physics.gac.edu/Education/phy122_standards.htm.

18. **Change of Registration:** The College's deadline for late registration is Monday, September 16th (the tenth class day). The last day for changing registration between PHY120 and PHY122 is Monday, September 23rd (the fifteenth class day.) No petitions for later change of registration will be endorsed. The last day to withdraw from the course with a "W" is November 8th (the end of the tenth week of the semester).

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19. **Academic Honesty:** You are expected to live up to the high expectations that the college sets regarding academic honesty (see the college's honor code below). By writing your name on any graded assignment for this class, you are attesting to the fact that it has been completed in accord with the highest standards of academic honesty. I take this responsibility seriously and I expect that you will also. If you have any doubt about what constitutes appropriate use of someone else's work, please ask. Any student found in violation of these policies will be dealt with appropriately.

Honor Code: As a community of scholars, the faculty and students of Gustavus Adolphus College have formulated an academic honesty policy and honor code system, which is printed in the Academic Bulletin and the Gustavus Guide. As a student at Gustavus Adolphus College I agree to uphold the honor code. This means that I will abide by the academic honesty policy, and abide by decisions of the joint student/faculty Honor Board.

Honor Pledge: On my honor, I pledge that I have not given, received, or tolerated others' use of unauthorized aid in completing this work.

Campus Resources

Accessibility Resources: Gustavus Adolphus College is committed to ensuring equitable and inclusive learning environments for all students. If you have a disability and anticipate or experience barriers to equal access, please speak with the accessibility resources staff about your needs. A disability may include mental health, attentional, learning, chronic health, sensory, physical, and/or short-term conditions. When appropriate, staff will guide students and professors in making accommodations to ensure equal access. Accommodations cannot be made retroactively; therefore, to maximize your academic success at Gustavus, please contact them as *early* as possible. Accessibility resources staff are located in the Academic Support Center (<https://gustavus.edu/care/accessibility/>) (x7227). Accessibility Resources Coordinator, Katy Clay, (clayk@gustavus.edu), can provide further information.

Multilingual Student Support: Some Gusties may have grown up speaking a language (or languages) other than English at home. If so, we refer to you as “multilingual.” Your multilingual background is an incredible resource for you, and for our campus, but it can come with some challenges. You can find support through the Center for International and Cultural Education’s (<https://gustavus.edu/cice/>) Multilingual and Intercultural Program Coordinator (MIPC), Carly Overfelt (overfelt@gustavus.edu). Carly can meet individually for tutoring in writing, consulting about specific assignments, and helping students connect with the College’s support systems. If you want help with a specific task (for example, reading word problems on an exam quickly enough or revising grammar in essays), let your professor and Carly know as soon as possible. In addition, the Writing Center (<https://gustavus.edu/writingcenter/>) offers tutoring from peers (some of whom are themselves multilingual) who can help you do your best writing.

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Mental Wellbeing: The Gustavus community is committed to and cares about all students. Strained relationships, increased anxiety, alcohol or drug problems, feeling down, difficulty concentrating, and/or lack of motivation may affect a student's academic performance or reduce a student's ability to participate in daily activities. If you or someone you know expresses such mental health concerns or experiences a stressful event that can create barriers to learning, Gustavus services are available to assist you. You can learn more about the broad range of confidential health services available on campus at <https://gustavus.edu/counseling/> and <https://gustavus.edu/deanofstudents/services/>.

Title IX: Sexual Misconduct Prevention and Resources: Gustavus Adolphus College recognizes the dignity of all individuals and promotes respect for all people. As such, we are committed to providing an environment free of all forms of discrimination including sexual and gender-based discrimination, harassment, and violence like sexual assault, intimate partner violence, and stalking. If you (or someone you know) has experienced or is experiencing these types of behaviors, know that you are not alone. Resources and support are available; you can learn more online at <https://gustavus.edu/titleix/>.

Please know that if you choose to confide in the lab instructors, they are mandated by the College to report to the Title IX Coordinator, because Gustavus and they want to be sure you are connected with all the support the College can offer. Although it is encouraged, you are not required to respond to outreach from the College if you do not want to. You may speak to someone confidentially by contacting the Sexual Assault Response Team (SART/CADA), Chaplains, Counseling Center, or Health Service staff; conversations with these individuals can be kept strictly confidential. SART/CADA can be reached 24 hours a day at 507-933-6868. You can also make a report yourself, including an anonymous report, through the form at <https://gustavus.edu/titleix/>.

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Course Schedule (Approximate)

<u>Week Beginning</u>	<u>Chapter(s)</u>	<u>Title</u>
September 3	Chapter 1	Ch 1: Introduction and Vectors
September 9	Chapters 2 & 3	Ch 2: Motion in 1D; Ch 3: Motion in 2D
September 16	Chapters 3 & 4	Ch 3: Motion in 2D; Ch 4: Laws of Motion
September 23	Chapters 4 & 5	Ch. 4: Laws of Motion; Ch 5: Applications
October 24 & 25	*** Nobel Conference - No Class ***	
	*** Exam 1 on September 30th (Chapters 1-5) ***	
September 30	Chapters 6 & 7	Ch 6: Work and Energy; Ch 7: Potential Energy
October 7	Chapter 8	Ch 8: Momentum and Collisions
October 14	Chapter 10	Ch 10: Rotations
October 21 & 22	*** Fall Break – No Class ***	
October 23	Chapter 6-10	Exam 2 review
	*** Exam 2 on October 25th (Chapters 6-10) ***	
October 28	Chapter 11	Ch 11: Gravitation; Ch 12: Oscillatory Motion
November 4	Chapters 13 & 14	Ch 13: Mechanical Waves; Ch 14: Superposition
November 11	Chapter 15	Ch 15: Fluid Mechanics
November 18	Chapters 11-15	Exam 3 Review
	*** Exam 3 on November 22nd (Chapters 11-15) ***	
November 25	Chapters 16 & 17	Ch 16: Kinetics; Ch 17: First law of Thermodynamics
November 27 - 29	*** Thanksgiving Recess – No Class ***	
December 2	Chapters 17 & 18	Ch 18: Entropy and the Second Law of Thermodynamics
December 9	Chapters 1-18	Exam 4 and Final Exam Review
	*** Exam 4 on December 10th (Chapters 16-18) ***	

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December 13

LAST DAY OF CLASS

***** Final Exam (Comprehensive) on December 16th (Tuesday) from 10:30am-12:30pm *****