

Physics 161 – General Physics I: Mechanics & Particle Dynamics

Fall 2024



Sections	Lecture Hours
FC 01	TuTh 6:00pm - 7:15pm PHY 1204

Lecturer: **Dr. Heidarian**

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PLEASE READ CAREFULLY!

- I kindly request that each of you read all the announcements I post on CANVAS carefully until the end of the semester. Should you not be receiving notifications for my announcements, I urge you to regularly check the announcement section of your Canvas account at a minimum of two times per week. Crucial instructions, changes, and class plans will solely be conveyed through announcements accessible on your ELMS account. You can find the tentative plan for the chapters covered in this course on the last page of this syllabus.
- Please read my make-up policies for quizzes, homework, and exams carefully.
- If you test positive for COVID, contact the HEAL line immediately and email me your test results and schedule your makeups (quizzes/ exams) as quickly as possible.
- Recommended Textbook: **Textbook: University Physics Volume 1 from OpenStax, Print ISBN 1938168275, Digital ISBN 1947172204, www.openstax.org/details/university-physics-volume-1**
- Your textbook is available **for free online**, in web view and PDF format! You can also purchase a print version, if you prefer, via the campus bookstore or from OpenStax on Amazon.com.

You can use whichever formats you prefer. Web view is recommended -- the responsive design works seamlessly on any device. If you buy on Amazon, make sure you use the link on your book page on openstax.org so you get the official OpenStax print version. (Simple printouts sold by third parties on Amazon are not verifiable and not as high-quality.)

- **Website:** The class schedule and any class related activity (grades, assignments etc.) will be posted on ELMS. <http://elms.umd.edu>
- **It is your responsibility to login to your elms account and read all announcements, assignment due dates, exam dates carefully.**
- **Office Hours:** Will be announced on the syllabus page on Canvas soon.

Homework: You will need to buy an expert TA account to access and complete the required Homework assignment. See the HW section in this syllabus for more info on how to sign up.

- Please read the syllabus carefully and if you have any questions regarding the course, send me an email and **make sure you include your course number and section number in all your emails.**

TA information:

Contact information:

, **Sanzhar Beisembayev**, Contact information: sbeisemb@terpmail.umd.edu

Course Description:

- The 161-260-270 course sequence gives an introduction to the concepts of classical and modern physics intended for students studying engineering or other similarly mathematical sciences. This first course in the sequence will begin with a brief introduction to measurement, units, and the scientific process before covering Newtonian mechanics, conservation laws, solids, and fluids.

ESSENTIAL INFORMATION ABOUT THE COURSE

PLEASE READ CAREFULLY!

Lectures And Lecture Quiz

- We will try to go over one chapter per week. **At the end of each week, expect a new Homework assignment.**
- Please note that we cover many topics during the semester, and there is not enough time to work on many example problems in class. Make sure you solve as many problems as possible and ask your TAs for help. Problem solving is the only way you can learn these concepts. Always show up in your discussion classes with your questions!
- **There will be in-lecture pop quizzes each week.** The dates of the lecture quizzes will not be announced. You need to attend all lectures to make sure you don't miss these quizzes. **The lowest in-lecture quiz grade will be dropped** which counts toward an unexcused absence for which you don't need to provide documents.
- You need to have access to your ELMS account during the lecture which means you need to have your laptop/tablet/phone with you to login when the quiz is announced during the lecture.
- Please bear in mind that grasping physics extends beyond the textbook reading alone. Physics is a discipline rooted in problem-solving. It's through problem solving that you can internalize the subject matter. I will upload practice problems on ELMS before each exam, accompanied by answer keys. To foster collaborative learning and address your questions, we've made a Piazza page for this course. My Teaching Assistant and I will be there to assist you.
- If you miss a lecture, I cannot provide any videos, or material in addition to the PowerPoint slides provided each week on the ELMS page of the course. You need to catch up with the rest of the class asap and provide note/documents for your excused absence.

Homework

- Homework will be carried out with via **Expert TA** website.
- **Your homework assignments are accessible through Canvas. To access them, go to the Assignments tab on your Canvas course page and click on the homework assignment labeled "HW1." This will direct you to the Expert TA registration process, where you'll need to complete the required payment. Always sign in through Canvas when accessing homework assignments.**

- It is your responsibility to check the due dates regularly and make sure you do not miss any assignments. **Late work is NOT accepted** and no partial credit for late work is provided unless there is document provided and discussed with me **BEFORE THE DUE DATE!!** I do NOT accept requests for extensions **AFTER** the due date!!!

Homework Extension Policy

- I assign one homework per week and the due date will be either on **the 15th** or the **end of each month, which means you will have more than one assignment due on the same day!** You need to start working on your assignment as soon as possible and over time!
- **Don't wait until the night before the due date to start your work!** Unexpected things can happen, and you don't want to miss out on earning your homework points.
- In case of an emergency, contact me with your documents and I can extend the HW for you by only a few days. **Extensions will only be granted if you have previously attempted the assignments and need additional time to complete the work missed due to an excused absence.**
- **I will not accept requests to re-do or extend HW at the end of the semester. If your grade is important to you, start working on it as soon as it is published.**

Exams

- **There will be three mid-term exams and one final exam.**
- You will need a regular calculator with standard trigonometry functions.
- It is your responsibility to bring your own calculator and check the batteries before each exam. Extra calculators will NOT be provided, and points will be taken off if the final answers are not calculated properly.
- **You can bring a one-sided formula sheet with you. No solutions or example problems are allowed on the formula sheet! Only formulas from the textbook are allowed. Any examples or explanations will be considered as cheating. You can label the parameters (names) and organize your formula sheet based on chapter.**
- Exams must be taken on the scheduled dates. Unless it is discussed and rescheduled.
- There will be NO make-up for Midterms without provided documents.
- **The lowest of three scores in the midterm exams will be dropped** so if you miss a midterm, that will automatically be your lowest midterm unless you make it up.
- **This means midterm 3 is optional**, and if you are happy with your midterms 1 and 2 grades, you don't need to take midterm 3.
- There will be an extra credit question on each exam.
- **The final exam is mandatory and cumulative without an extra credit problem.**
- For the final exam, make-up exams will be given only under extraordinary circumstances if arrangements are made with the instructor ahead of time.
- Exams will cover the material discussed in the class, lecture notes, problems solved in class, HW problems, and problem set questions.

Course Grade break-down

- A problem set will be uploaded before each exam for you to practice. I will upload some of the problem solutions with the problems but not full solution. You can always post your questions on Piazza and ask me and my TAs for guidance on specific practice problem questions. The earlier you start working on them, the better!

- The final grade will be based on the components below.

Homework	% 25
Lecture Quiz	% 10
Mid-term Exams	% 40 (%20 each)
Final Exam	% 25

- **Best two out of three midterms will be considered as the midterm grade.**
- Each midterm will have multiple choice and comprehensive questions.
- The final exams will be 2 hours and cumulative.
- The final grade will be set at the end of the semester after all work is completed.
- The final grade will be determined by the University of Maryland grading policy, quoted below:
 - A excellent mastery of the subject and outstanding scholarship.
 - B good mastery of the subject and good scholarship.
 - C acceptable mastery of the subject and the usual achievement expected.
 - D borderline understanding of the subject. It denotes marginal performance, and it does not represent satisfactory progress toward a degree.

• **General Grading Scheme**

A-, A, A+ $\leq 90 - 100$, B-, B, B+ $\leq 80 - <90$

C-, C, C+ $\leq 70 - <80$, D-, D, D+ $\leq 60 - <70$

Please note, there will be NO extra points/activities available at the end of the semester. If you are struggling with the material, reach out before it is too late. The last day of classes is NOT a good time to reach out and ask for help!

Remember! Grades are not given but earned. Your grade is determined by your performance on the learning assessments in the course. I will not add any points to anyone's grade on an individual basis regardless of how close you are to the next cut-off, or how

	<p>important your grade is for your scholarship or the program you are applying for as it would be unethical to make exceptions for some and not others.</p> <p>I will let you know if there will be a curve on each exam, but it is extremely unlikely that I end up curving an exam.</p>
<h2 style="text-align: center;">Tutoring and Help</h2>	<ul style="list-style-type: none"> • The first place to go for help is the Course Center, room PHY 1214, on the first floor of the Toll Physics Building. The schedule for 161 courses will be announced and added to the Syllabus page on Canvas soon. • You have access to various resources including my office hours, your TAs for the course, and the Piazza platform. I will add your TAs office hours on the syllabus page on Canvas soon. • Feel free to assist one another on the Piazza discussion board whenever you come across a problem for which you know the solution! Your valuable comments will be beneficial to everyone involved. • We are here to help you learn, so please do not hesitate to reach out and make sure you understand the course material before it's too late.
<h2 style="text-align: center;">Course Evaluation</h2>	<ul style="list-style-type: none"> • Your participation in the evaluation of courses through CourseEvalUM is a responsibility you hold as a student member of our academic community. • Your feedback is confidential and important to the improvement of teaching and learning at the University. • You can go to the CourseEvalUM website (https://courseevalum.umd.edu/) to evaluate the course.
<h2 style="text-align: center;">Students with disabilities</h2>	<ul style="list-style-type: none"> • Students with disabilities should contact the instructor at the beginning of the semester so that appropriate arrangements can be made to accommodate the student's needs. Accommodations will be provided to enable students with documented disabilities to participate fully in the course. • Please schedule your test with the ADS center at least one week prior to each exam! There is no guarantee that the required steps will be taken on my side if you schedule your exam last minute!
<h2 style="text-align: center;">Academic Integrity</h2>	<ul style="list-style-type: none"> • You must work by yourself on exams. • You must work on the homework by yourself.

	<ul style="list-style-type: none"> • Discussions with other students are strongly encouraged. But you should not just directly copy from anyone. Doing so is not only dishonest but will hurt your ability to do the problems on the exams. • You must sign the honor pledge in the beginning of each exam.
<p>Course Related Policies</p>	<p style="text-align: center;">Know Your Rights! Know the University of Maryland Policies for Undergraduate Students</p> <p style="text-align: center;">For more information, please visit this webpage: http://www.ugst.umd.edu/courserelatedpolicies.html</p>

Lecture/Exam Schedule

The content of the mid-term exams may change depending on how the course develops and based on the need of the students

Week Beginning	Chapters covered during the week
Week of Aug 26	Chapter 1 Units and Measurements, Chapter 2
Sept 2 - Labor Day No Class on Monday	Chapters 2 Vectors, Chapter 3 Motion
Sept 9	Chapters 3 Motion Along a Straight Line
Sept 16	Chapter 4 Motion in Two and Three Dimensions
Sept 23	Chapter 5 Newton's Laws of Motion
Midterm 1- Thursday Sept 26	Chapters 1-2-3-4-5 (see announcement for any changes)
Sept 30	Chapter 5, Chapter 6 Applications of Laws
Oct 7	Chapter 6, Ch 7 Work and Kinetic Energy
Oct 14	Chapter 8 Potential Energy and Conservation of Energy
Oct 21	Chapter 8, Ch 9
Midterm 2 - Thursday Oct 24	Chapters 6-7-8
Oct 28	Chapter 9 Linear Momentum and Collisions

Nov 4	Chapter 10 Fixed Axis Rotation
Nov 11	Chapter 11 Angular Momentum
Nov 18	Chapter 12 Static Equilibrium and Elasticity
Midterm 3 – Thursday Nov 21	Ch 9-10-11-possibly 12 (see announcement for changes)
Nov 25 (Monday class not canceled)	Chapter 12
November 27-Decemebr 1 (Wednesday-Sunday)	Thanksgiving Recess
Dec 2	Ch13 Gravitation
Dec 9 – Last Day of Class	Ch13 Gravitation
Final Exam	Please check Testudo, TBA