Physics 141: Introductory Mechanics

Spring 2024

Information contained in the course syllabus, other than the grade and absence policy, may be subject to change with advance notice, as deemed appropriate by the instructor.

1 Super Important Things

Online resources: Accessing or posting material from this course on a site other than D2L or Piazza (e.g. Chegg, Course Hero, etc.) is a violation of the code of academic integrity. Getting help from watching youtube videos or the like is absolutely okay!

Students who are found to have uploaded or accessed material in an unauthorized manner will automatically fail the class.

2 Basic Info

Instructor: Eduardo Rozo
Office: PAS 420G.
email: *Do not contact me via email for anything having to do with class.* Use the Piazza website instead (see below). If you need my email for other reasons, it is erozo@arizona.edu
Office hours: Tu 3pm, Th 9am

Daily Schedule: Linked from 2dl page and Piazza. Schedule may evolve as class progresses.

Course objectives: Students will be able to to quantitatively describe and proficiently use:

1. Newton's laws of motion.
2. The principle of conservation of energy.
3. The principle of conservation of momentum.
4. The rotational equivalent of the above laws.

Expected Learning Outcomes: By the end of the class, students will be expected to

1. Write qualitatively correct sentences that indicate an understanding of kinematics, forces, energies, momenta, torque, simple harmonic motion, buoyancy, etc.
2. Draw qualitatively correct free body diagrams and then correctly apply Newton's Laws for translation and rotation in various physical situations.
3. Determine which conservation principle(s) apply in a particular problem and then correctly apply them.
4. Calculate the time evolution of systems undergoing simple harmonic motion.
5. Determine the orbital periods, energies and angular momenta for orbiting objects.
6. Write lab reports which document the goals, procedures, and outcomes of the experiment in sufficient detail for the reader to understand and reproduce their results.

Course Prerequisites: MATH 125 (pre-req) and MATH 129 (concurrent)

Lectures: MWF 10 a.m. – 10:50 a.m.

Webpage: Piazza page linked from d2l.

Piazza will ask you for a small contribution ($4). I encourage you to support them *if you can.* It is a wonderful tool, and it is the only "extra" cost associated for this class.

Textbook: All homework assignments are based on my book, which is still being written. Once we reach the end of what I have written, we will switch to prerecorded videos.

You are welcome to use any book you want for learning the material, but obviously you still need to do the homework I assign on my book. You can find a different free textbook to have as a reference by googling "Openstax University Physics Volume 1." Older copies of the traditional textbook for this class (Young & Freedman University Physics) can be found online for very cheap, and all the material is the same as the newer editions. Between the two, I like the Young & Freedman book better.

Laptop/Phone policy: No open laptops/phones allowed in class. iPads/others ok, *provided they are used exclusively for note-taking.*

3 Grading and Exam Policy

Grading scale: A=[87,100], B=[75,87), C=[65,75), D=[55,65), E=[0,55).

The open parenthesis means "up to but not including". E.g. If your grade is 86.99, you will receive a B. If your grade is 87.00, you will receive an A.

Curving: Grading is on an absolute scale. Do not expect exams or grades to be curved. Under no circumstance will I raise anyone's grade to the next level at the end of the semester, no matter how close they got to the next level.

Grade Assignment: Final course grades will be a weighted average of your work throughout the semester.

- Lab: 25%
- Daily Quiz: 10%
- 2 Midterms: 17% each
- Final: 25%
- Homework: 6% (also, up to +10 bonus on final exam)

Important: All quizzes and exams are cumulative.

Administrative drop: Students can dropped be dropped by the instructor up to the fourth week of the semester due to absence of work up that point. If by the end of the four week you have failed to turn in either: i) two or more homework assignments; *or* ii) two or more quizzes, then you will be dropped from class.

Final Exam Date and Time: Wednesday 5/8, 6pm. Location TBA.

You can see the UA schedule here:

https://registrar.arizona.edu/faculty-staff-resources/room-class-scheduling/schedule-classes/final-exams

Midterms: Midterms are *tentatively* scheduled for 2/12 and 4/8.

Quizzes: There will be daily take-home quizzes. You should try to complete the quiz without your notes. If you get stuck, you can use your notes and/or other resources available to you.

Homework: Homework is to be graded on effort only. If you turn it in, and it's clear you tried, you will get 100. Late homework will not be accepted. If there is a valid reason for why you can't turn in a particular homework, you will be excused from turning that homework in.

Homework must be uploaded as a single pdf file into d2l. Other file types don't place nice with d2l. If you have multiple PDF files from scanning your work, you can merge them into a single file online. Just google "merge pdf."

Contesting a grade: Grades can only be contested within *one week* of the graded item being returned to the class.

Incompletes and Withdrawals: Requests for incomplete (I) or withdrawal (W) must be made in accordance with University policies, which are available at:
http://catalog.arizona.edu/policy/grades-and-grading-system#incomplete
http://catalog.arizona.edu/policy/grades-and-grading-system#Withdrawal

Bonus Points: You can earn bonus point in this class in a variety of ways.

- **ABCD Cards:** You are expected to bring your ABCD cards to every class. If you do so consistently, I will award the entire class 5 bonus points to everyone's final exam. If a large portion of the class fails to bring them, I will call a strike. If you reach 3 strikes, you will loose bonus points.
- **Completing your homework:** You will receive bonus points on your final exam based on how many homework assignments you complete: the more homework assignments you turn in, the more bonus points you get, up to a maximum of +10, as detailed in our first day of class.
- **Getting extra help:** You will receive bonus points based on how often you attend office hours (either mine, or any of the TA's), and/or SI sessions, as detailed in the first day of class.

I reserve the right to create additional opportunities for bonus points throughout the semester.

Cheating: Cheating will not be tolerated. The *minimum* consequence if you are caught cheating is that you will fail the class. I am required to report any cheaters to the Dean of Students. All students are expected to abide by the policies at:
http://deanofstudents.arizona.edu/policiesandcodes

Plagiarism: If you copy and paste text from *any source* without properly attributing the source, you are committing plagiarism. The *minimum* penalty for plagiarism is a zero in the relevant work. I am also required to report you to the Dean of Students.

4 Standard Info You Will Find in Every Syllabus

Absence and Class Participation Policy: The UA's policy concerning Class Attendance and Participation is available at:

https://catalog.arizona.edu/policy/class-attendance-and-participation

The UA policy regarding absences for any sincerely held religious belief, observance or practice will be accommodated where reasonable,

http://policy.arizona.edu/human-resources/religious-accommodation-policy.

Absences pre-approved by the UA Dean of Students (or Dean Designee) will be honored. See:

https://deanofstudents.arizona.edu/absences

Code of Academic Integrity: Students are encouraged to share intellectual views and discuss freely the principles and applications of course materials. However, graded work/exercises must be the product of independent effort unless otherwise instructed. Students are expected to adhere to the UA Code of Academic Integrity as described in the UA General Catalog. See: http://deanofstudents.arizona.edu/academic-integrity/students/academic-integrity.

- Working together on homework is encouraged and recommended. However, the work you turn in must be your own. You may not copy work from other students. Additionally, it is unacceptable to copy solutions from online resources.
- Cheating in this course will not be tolerated. Any incident of cheating will be reported to the Dean of Students and will become part of your official student record. This means that it could be seen by medical or graduate schools that you may apply to in the future.
- If you are caught cheating on an exam, the **minimum** penalty you can expect (on top of the incident being reported) is a failing grade in the course.
- The university mandates that all students caught cheating must pay for and attend a workshop on academic integrity.

Classroom Behavior Policy: The use of personal electronics such as laptops and other such mobile devices is distracting to the other students and the instructor. Their use can degrade the learning environment. Therefore, students are not permitted to use these devices during the class period.

Threatening Behavior Policy The UA Threatening Behavior by Students Policy prohibits threats of physical harm to any member of the University community, including to oneself.
http://policy.arizona.edu/education-and-student-affairs/threatening-behavior-students.

UA Nondiscrimination and Anti-harassment Policy: The University of Arizona is committed to creating and maintaining an environment free of discrimination. In support of this commitment, the University prohibits discrimination, including harassment and retaliation, based on a protected classification, including race, color, religion, sex, national origin, age, disability, veteran status, sexual orientation, gender identity, or genetic information. For more information, including how to report a concern, please see http://policy.arizona.edu/human-resources/nondiscrimination-and-anti-harassment-policy

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Accessibility and Accommodations: Our goal in the classroom is that learning experiences be as accessible as possible. If you anticipate or experience physical or academic barriers based on disability, please let me know immediately so that we can discuss options. You are also welcome to contact the Disability Resource Center (520/621-3268) to establish reasonable accommodations. For additional information on the Disability Resource Center and reasonable accommodations, please visit http://drc.arizona.edu

Safety on Campus and in the Classroom: For a list of emergency procedures for all types of incidents, please visit the website of the Critical Incident Response Team (CIRT): https://cirt.arizona.edu/case-emergency/overview

Also watch the video available at

https://arizona.sabacloud.com/Saba/Web_spf/NA7P1PRD161/common/learningeventdetail/crtfy000000000003560