

PHY 3221 SYLLABUS

Mechanics 1, Fall Term 2023

Instructor:

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Class Time and Location:

MWF 12:50pm-1:40pm in NPB 1002

Office Hours:

W 9:00am-11:00am in NPB 2043

Synopsis:

This course is the first part of PHY 3221/4222 sequence in classical mechanics. We will cover Chapters 1-7 of the textbook *Classical Mechanics* by **John R. Taylor**. Topics include: matrices, vector calculus, Newtonian mechanics, frames of reference, conservation laws and harmonic oscillation.

Prerequisites (to be taken before this class):

PHY 2049 or the equivalent

Co-requisites (to be taken before or concurrently with this class):

MAP 2302 or the equivalent.

Textbook:

The main text is *Classical Mechanics* by **John R. Taylor**. The textbook is necessary, and the homework will be drawn from the problems at the end of each chapter.

Course Learning Goals:

To obtain an understanding of mechanics with detailed mathematical treatment. The mathematical methods used in this course will also be useful in courses on electromagnetism and quantum mechanics.

Grading Policy:

Letter grades will be assigned according to the following rubric:

Grade	Percent Score Threshold
A	93%
A-	90%
B+	87%
B	83%
B-	80%
C+	77%
C	73%
C-	70%
D+	67%
D	63%
D-	60%
E	<60%

These percentages may be lowered, depending on numerous factors, but will not be raised. If everyone learns the material well and achieves high scores on the homework, quizzes, and exams, it is possible for everyone to get high grades. The percentage score determined by your scores on the homework, quizzes, midterms, and final exam are weighted as follows:

Homework	30%
Quizzes	10%
Midterm I	17.5%
Midterm II	17.5%
Final Exam	25%

For more details on each of the above categories, see descriptions below.

Homework:

There will be weekly homework assignments. I expect that the homework in this class will be more time consuming than what you're used to from the introductory physics course (PHY2048). Putting serious time and effort into the HW assignments is important to succeed in this course. This practical work will help you to understand the concepts and logical reasoning that lead to a solution.

If you rely too heavily on solutions obtained either from classmates or the internet, you will likely struggle to learn the material well, which will be reflected in your test scores. That being said, I do encourage you to work together to help each other learn the material and complete the assignments efficiently. The best way to make sure you understand a problem is to explain your solution to someone else. Balancing how much you work independently vs. collaboratively is a skill you will build over time. A good technique to get started is to try all the problems individually, then get together in a group to work out the tough ones. I also recommend that you work on simple problems/parts first. Demonstrating you understand a problem even if you can't solve all its parts will result in partial credit.

Overdue HWs will not be graded, and will receive 0 points. Make your solutions neat, concise, and

intelligible. It is not sufficient just to state the answer, and points may be deducted if it is difficult to find and/or understand the solutions. The lowest homework score will be dropped at the end of the semester. The HW assignments will be worth 30% of the total grade.

Quizzes:

There will be weekly closed-book quizzes worth 10% of your grade. The quizzes will be on Wednesdays starting the second week of classes (August 30). You should be keeping up with the reading in the course to ensure you are prepared to fully engage in lecture. The problems will be short and simple, with an aim to test that you have prepared for class by being on top of the reading.

If a quiz is missed, there will be no make-up quizzes unless the absence is excused. See the [Attendance and Make-up Policy](#) below.

Midterm Exams:

There will be two midterm exams in class on **Monday, Sep. 25** and **Wednesday, Nov. 1**. Each midterm is worth 17.5% of your grade, such that both midterms together will constitute 35% of your grade. The midterm examples will be based on material covered in lecture, in the textbook reading, and in the homework. Some relevant equations will be provided on the exam.

Final Exam:

The final exam is on **December 14** from **7:30am-9:30am** and is worth 25% of your grade. The final exam will be cumulative, sampling from all material in the course. More details about the exam will be made available on the course Canvas page.

Attendance and Make-up Policy:

Students are expected to attend lectures but attendance will not be taken, nor is there any penalty for absence from lecture alone. Missing tests and quizzes due to unexcused absences, however, will result in a score of 0. Homework assignments and their deadlines will be posted on the Canvas page.

Homework will not be accepted past the deadline unless individually excused. Excusing missed assignments must be consistent with [university policies](#) and will require appropriate documentation.

Course evaluations:

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at <https://gatorevals.aa.ufl.edu/students/>. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via <https://ufl.bluera.com/ufl/>. Summaries of course evaluation results are available to students at <https://gatorevals.aa.ufl.edu/public-results/>.

Accommodations:

Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the [Disability Research Center](#). It is important for students

to share their accommodation letter with their instructor and discuss their access needs as early as possible in the semester.

Academic Honesty:

UF students are bound by The Honor Pledge which states, “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code.” On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: “On my honor, I have neither given nor received unauthorized aid in doing this assignment.” The [Honor Code](#) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor.

Student Privacy:

There are federal laws protecting your privacy with regards to grades earned in courses and on individual assignments. More information is available [here](#).

In-Class Recording:

Unauthorized recording and unauthorized sharing of recorded materials is prohibited. Students are allowed to record video or audio of class lectures. However, the purposes for which these recordings may be used are strictly controlled. The only allowable purposes are (1) for personal educational use, (2) in connection with a complaint to the university, or (3) as evidence in, or in preparation for, a criminal or civil proceeding. All other purposes are prohibited. Specifically, students may not publish recorded lectures without the written consent of the instructor. For more information, see UF Regulation 4.040 Student Honor Code and Student Conduct Code.

Expectations for Professionalism:

I aim to foster an environment where everyone can participate regardless of race, ethnicity, gender identity, gender expression, sexual orientation, age, socioeconomic status, religion and disability. All students meeting the course prerequisites belong here and are well positioned for success.

A crucial skill needed in scientific work is the ability to collaborate effectively with colleagues from many different backgrounds. In order for you all to advance this skill, a necessary baseline is to treat your fellow classmates with respect, listen attentively to their ideas, and respond to their contributions. Whenever you have opportunities to collaborate with other classmates in this course, I expect you to be collegial, respectful, and professional. I will hold everyone in this course to this standard and intervene when it is not met.

This in turn means you can expect to be treated with respect both by me and by your peers. If your experience in this class ever falls short of that expectation, please do not hesitate to reach out to me so that I can reestablish a productive learning environment.

Campus resources:Health and Wellness

- U Matter, We Care: If you or someone you know is in distress, please contact umatter@ufl.edu, 352-392-1575, or visit [U Matter, We Care](#) to refer or report a concern and a team member will reach out to the student in distress.
- Counseling and Wellness Center: [Visit the Counseling and Wellness Center website](#) or call 352-392-1575 for information on crisis services as well as non-crisis services.
- Student Health Care Center: Call 352-392-1161 for 24/7 information to help you find the care you need, or [visit the Student Health Care Center website](#).
- UF Health Shands Emergency Room / Trauma Center: For immediate medical care call 352-733-0111 or go to the emergency room at 1515 SW Archer Road, Gainesville, FL 32608; [Visit the UF Health Emergency Room and Trauma Center](#).

Academic Resources

- E-learning technical support: [Contact the UF Computing Help Desk](#) at 352-392-4357 or via e-mail at helpdesk@ufl.edu.
- [Career Connections Center](#): Reitz Union Suite 1300, 352-392-1601. Career assistance and counseling services.
- [Library Support](#): Various ways to receive assistance with respect to using the libraries or finding resources.
- [Teaching Center](#): Broward Hall, 352-392-2010 or to make an appointment 352- 392-6420. General study skills and tutoring.
- [Writing Studio](#): 2215 Turlington Hall, 352-846-1138. Help brainstorming, formatting, and writing papers.
- Student Complaints On-Campus: Visit the Student Honor Code and Student Conduct Code [webpage](#) for more information.