

PHY 4222 - Fall 2023

MECHANICS II

Instructor: Pierre Sikivie

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Class times: MWF, 1:55pm - 2:45pm, in NPB 1101

Office hours: MWF, 3:00pm - 3:50pm, in NPB 2063

Grader: TBA

office: TBA
email: TBA
office hours: TBA

Course description: Second part of the sequence in classical mechanics studying rigid body mechanics; motion in a noninertial frame, Lagrangian and Hamiltonian dynamics; elements of fluid mechanics; and relativity theory.

Prerequisite: PHY 3221 and differential equations

Required Textbook: "Classical Mechanics" by John R. Taylor, University Science books, 2005. We will cover chapters 7 - 16.

There are many other useful textbooks on classical mechanics. You are encouraged to explore alternatives, e.g.:

- "The Feynman Lectures on Physics" by R.P. Feynman, R.B. Leighton and M. Sands, Vol 1, Chapters 1-26. Available online at <http://www.feynmanlectures.caltech.edu/> .
- "Classical Dynamics of Particles and Systems" by J.B. Marion and S.T. Thornton, Harcourt, Brace and Company, 1995.
- "Classical Mechanics: a Modern Perspective" by V. Barger and M. Olsson, 2nd edition, McGraw-Hill, Inc., 1995.
- "An Introduction to Mechanics", by D. Kleppner and R.J. Kolenkow, McGraw-Hill, Inc. 1973.

Homework: there will be one homework set per week, due on Wednesdays. The homework is your best opportunity to learn the material in depth. If at all possible, do the homework entirely on your own. Only when you are hopelessly stuck is it good to seek help from the instructor or other students.

The problem sets will be posted on the course Canvas site.
Your homework should be uploaded there.

Grading: your final grade will be based on

the homework	20%
first mid-term exam (September 18)	20%
second mid-term exam (October 16)	20%
the final exam (December 14)	40% .

Your letter grade will be determined from the following scale

80 < A < 100
75 < A- < 80
70 < B+ < 75
65 < B < 70
60 < B- < 65
55 < C+ < 60
50 < C < 55
45 < C- < 50
40 < D+ < 45
35 < D < 40
30 < D- < 35 .

The current UF policies for assigning grade points may be found at
<https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx> .

Tips for doing well in PHY 4222:

- set aside approximately eight hours per week to study the material and do the homework
- attend all the classes and read the material to be covered in each class beforehand
- do the homework on your own as much as possible. Do seek help only after you have given each problem your best and most patient attempt at solving it.
- find fellow students with whom you can discuss the material and the homework problems on a regular basis.

Class attendance: requirements for class attendance, make-up exams, and other work in this course are consistent with university policies that can be found at
<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx> .

Statement on inclusion and diversity:

Physics is practiced and advanced by a scientific community of individuals with diverse backgrounds and identities and is open and welcoming to everyone. The instructor recognizes the value in diversity, equity and inclusion in all aspects of this course. This includes, but is not limited to differences in race, ethnicity, gender identity, gender expression, sexual orientation, age, socioeconomic status, religion and disability. Students may have opportunities to work together in this course. I expect respectful student collaborations such as attentive listening and responding to the contributions of all teammates.

Physics, like all human endeavors, is something that is learned. My aim is to foster an atmosphere of learning that is based on inclusion, transparency and respect for all participants. I acknowledge the different needs and perspectives we bring to our common learning space and strive to provide everyone with equal access. All students meeting the course prerequisites belong here and are well positioned for success.

Accommodations for students with disabilities: students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, <https://www.dso.ufl.edu/drc/>) by providing appropriate documentation. Once registered, students will receive an accommodations letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

Course evaluations: students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at <https://evaluations.ufl.edu> . Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results> .