

Syllabus

PHY 2053 – Physics 1

Natural Sciences – Fall 2023

This syllabus contains the basic outline of the course organization. For complete details on the course policies, please visit the course Canvas page.

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Office Hours

Office hours for the instructors and discussion section leaders are detailed on the course Canvas page.

Category

Natural sciences (see [General Education State Core](#)).

General education areas satisfied by the course: Physical Sciences (see [General Education Subject Area Objectives](#)).

Course Objectives and Goals

PHY2053 is the first semester of algebra-based introductory physics (“Physics 1”). The purpose of this course is to provide you with a foundation in the concepts, fundamental principles, and analytic techniques needed to solve problems arising in the context of Newtonian mechanics. Examples include knowing how to calculate the maximum height of a projectile, the tension in a support beam, the velocity of an object after a collision, the pressure at a given depth in a fluid, and the resonant sound frequencies in an open pipe.

By the end of this course, you will have a solid foundation in the concepts, principles, terminology, and methodologies used to describe motion (translational, rotational and combined) of simple objects, the basic properties of matter, harmonic oscillations, and wave motion. At the end of the semester students will be able to:

- **Analyze** particular physical situations, and thus identify the fundamental principles pertinent to those situations,
- **Apply** fundamental principles to formulate mathematical equations describing the relation between physical quantities in these particular situations,
- **Solve** mathematical equations to find the values of physical quantities,
- **Communicate** unambiguously both the principles that apply to a situation and the results of specific calculations resulting from the steps above.

Prerequisites

- **Algebra, Trigonometry**

The course will rely heavily on trigonometry, solving systems of equations, and using variables. If you are not competent at this level you should take the appropriate refresher course(s) before taking this class; otherwise, you will struggle to succeed.

Diversity and Inclusion

Physics is practiced and advanced by a scientific community of individuals with diverse backgrounds and identities and is open and welcoming to everyone. The instructional team 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. All students meeting the course prerequisites belong here and are well positioned for success.

Students will have opportunities to work together in this course. We expect respectful student collaborations such as attentive listening and responding to the contributions of all teammates.

Course Schedule

The complete course schedule is available on the Canvas page. Note that Exams 1 and 2 are evening assembly exams, whereas the Final Exam is at the time set by the registrar during Finals Week. **Exams 1 and 2 have not yet been scheduled by the Registrar.**

Week 1

- **Discussions sections do not meet this week**
- Wed. 8/23 – Classes Begin
- Thurs. 8/24 – Intro to Course
- No HW due this week

Week 2

- **No Quiz this week**
- Tues. 8/29 – Representing Motion (1.1-1.7)
 - Drop/Add ends at 11:59 pm
- Thurs. 8/31 – 1D Motion (2.1-2.7)
- Sat. 9/2 – HW1 due 10pm
 - What are your values? Reflection due 10 pm
 - Math Review due 10 pm

Week 3

- **Quiz 1 in discussion section on HW1**
- Mon. 9/4 – Labor Day Holiday (no discussion section)
- Tues. 9/5 – Vectors, 2D Motion (3.1-3.4)
- Thurs. 9/7 – Projectile Motion & Relative Velocity (3.5-3.6, 3.8)
- Sat. 9/9 – HW2 due 10 pm

Week 4

- **Quiz 2 in discussion section on HW2**
- Tues. 9/12 – Forces, FBDs, & Newton's Laws (4.1-4.7, 5.2)
- Thurs. 9/14 – Newton's Laws Problem-Solving (4.1-4.7, 5.2)
- Sat. 9/16 – HW3 due 10 pm
 - Reflection on Preparing for Exam 1 due 10 pm

Week 5

- **Quiz 3 in discussion section on HW3**
- Tues. 9/19 – Friction & Tension (5.4-5.5, 5.7-5.8)
- Thurs. 9/21 – Apparent Weight, Springs (5.3, 8.3) (END Exam 1 Material)
- Sat. 9/23 – HW4 due 10 pm

Week 6

- **Quiz 4 in discussion section on HW4**
- Tues. 9/26 – Uniform Circular Motion (3.7, 6.1-6.4)
- **Wed. 9/27 – Exam 1 (HW1-4) periods E2 and E3**
- Thurs. 9/28 – Gravity & Orbits (6.5-6.6)
- Sat. 9/30 – HW5 due 10 pm

Week 7

- **Quiz 5 in discussion section on HW5**
- Tues. 10/3 – Rotational Motion, Torque (7.1-7.4)
- Thurs. 10/5 – Moment of Inertia, Newton's 2nd Law in Rotational Form, Rolling (7.5-7.7)
- Fri. 10/6 – Homecoming Holiday (no discussion section)
- Sat. 10/7 – HW6 due 10 pm

Week 8

- **Quiz 6 in discussion section on HW6**
- Tues. 10/10 – Equilibrium (5.5, 8.1-8.2, 8.5)
- Thurs. 10/12 – Elasticity (8.4)
- Sat. 10/14 – HW7 due 10 pm
 - Reflection on Exam 1 and Preparing for Exam 2 due 10 pm

Week 9

- **Quiz 7 in discussion section on HW7**
- Tues. 10/17 – Work & Energy (10.1-10.4)
- Thurs. 10/19 – Energy Conservation & Power (10.6, 10.0, 11.1)
- Sat. 10/21 – HW8 due 10 pm

Week 10

- **Quiz 8 in discussion section on HW8**
- Tues. 10/24 – Momentum & Impulse, Conservation of Momentum (9.1-9.4)

- Thurs. 10/26 – Collisions (9.5-9.6, 10.9)
- Sat. 10/28 – HW9 due 10pm

Week 11

- **Quiz 9 in discussion section on HW9**
- Tues. 10/31 – Angular Momentum (9.7) (END Exam 2 Material)
- Thurs. 11/2 – Fluid Statics (13.1-13.3)
- Sat. 11/5 – HW10 due 10 pm

Week 12

- **Quiz 10 in discussion section on HW10**
- Tues. 11/7 – Fluid Dynamics (13.4-13.7)
- Thurs. 11/9 – Oscillations, SHM, Pendulums (14.1-14.6)
- **Thurs. 11/9 – Exam 2 (HW5-10) periods E2 and E3**
- Fri. 11/10 - Veterans Day Holiday (no discussion section)
- Sat. 11/11 - HW11 due 10 pm

Week 13

- **Quiz 11 in discussion section on HW11**
- Tues. 11/14 – Traveling Waves (15.1-15.4)
- Thurs. 11/16 – Loudness & The Doppler Effect (15.5-15.7)
- Sat. 11/18 – HW12 due 10 pm

Week 14

- **No Quiz this week**
- Tues. 11/21 – Standing Waves (16.1-16.4)
- Wed. 11/22 – Fri. 11/24 – Thanksgiving Break (no class; no discussion section)
- Sat. 11/25 – No HW due

Week 15

- **Quiz 12 in discussion section on HW12**
- Tues. 11/28 – Hearing, Interference, Beats (16.5-16.7)
- Thurs. 11/20 – Final Exam Review I (Exam 1 + Exam 2 Material)
- Sat. 12/2 – HW13 due 10 pm
 - Reflection on Exam 2 and Preparing for Final Exam due 10 pm

Week 16

- **No Quiz this week**
- Tues. 12/5 – Final Exam Review II (new material since Exam 2)
- Wed. 12/6 – last day of classes

Final Exam Week

- **Tues. 12/12 - Final Exam (cumulative) 12:30 – 2:30 pm**

Grading

Please visit the course Canvas page for a complete description of the grading policy for exams, homework, quizzes, and iClicker questions.

Your final score (100 points max) is the sum of the following:

- **3 exams:** up to 25 points each, 75 points total
- **13 approx. weekly HW assignments (drop 2 lowest scores):** 5 points combined
- **12 approx. weekly discussion session quizzes (drop 1 lowest score):** 20 points combined
- **iClicker points during lectures (20% forgiveness) + Reflection/Review assignments:** 2.5 *bonus* points
- **Group Work Participation points during discussion section (drop 2 lowest scores):** 2.5 *bonus* points

Note: In case of cancellation of classes due to unforeseen circumstances, the number of HW and quiz assignments might be adjusted, while the maximum number of points earned in each category stays the same.

Total minimal scores ensuring a particular letter-grade are shown below. In other words, if everyone gets 85 or more, everyone gets an "A". *Do not expect scores to be curved.*

Letter Grade	Points Earned
A	≥85
A-	≥80
B+	≥75
B	≥70
B-	≥65
C+	≥60
C	≥55
C-	≥50
D+	≥45
D	≥40
D-	≥35
E	<35

Required material

The following material should be acquired as soon as possible

- **UF All-Access which includes the e-Text and homework system**

The textbook for the course is *College Physics: A Strategic Approach* by Knight, Jones, and Field (4e Edition). *The electronic version is hosted on RedShelf; an access code is included in the UF All-Access purchase.* The homework in this course is done online using the ExpertTA system. An access code is included in the UF All-Access purchase.

- **iClicker software installed**

You must be registered using your ufl.edu gatorlink ID. If you use an external email address iClicker will be unable to match you in the gradebook.

Class Attendance & Makeups

Requirements for class attendance and make-up exams, assignments, 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>

Further details of the conditions for make-ups are described on the course Canvas page.

Accommodations for Students with Disabilities

Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, <https://disability.ufl.edu/>) by providing appropriate documentation. Once registered, students will receive an accommodation document that must be sent to phy2053@phys.ufl.edu when requesting accommodation. Students should follow this procedure as early as possible in the semester.

UF Grading Policies

Information on current UF grading policies for assigning grade points can be found here:

<https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>.

Online Course Evaluation

Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at: <https://ufl.bluera.com/ufl/>. 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://gatorevals.aa.ufl.edu/public-results/>.

The Honor Pledge

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 (<http://www.dso.ufl.edu/sccr/process/student-conduct-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 or TAs in this class.”

Campus Resources and Student Success

Health and Wellness

- *U Matter, We Care:*
 - If you or a friend is in distress, please contact umatter@ufl.edu or (352) 392- 1575 so that a team member can reach out to the student.
- ***Counseling and Wellness Center:*** 392-1575; and the University Police Department: (352) 392-1111 (or 9-1-1 for emergencies).
- *Sexual Assault Recovery Services (SARS) Student Health Care Center,* (352) 392-1161.
- ***University Police Department,*** (352) 392-1111 (or 9-1-1 for emergencies).

- **[UF Student Success:](#)**
 - For improving study skills to connecting with a peer tutor, peer mentor, success coach, academic advisor, and wellness resources.

Academic Resources

- **[E-learning technical support](#)**, (352)-392-4357 (select option 2) or e-mail to Learning-support@ufl.edu.
- **[Career Resource Center](#)**, Reitz Union, (352) 392-1601. Career assistance and counseling.
- **[Library Support](#)**, various ways to receive assistance with respect to using the libraries or finding resources.
- **[Teaching Center](#)**, Broward Hall, (352) 392-2010 or (352) 392-6420. General study skills and tutoring.
- **[Writing Studio](#)**, 302 Tigert Hall, (392) 846-1138. Help brainstorming, formatting, and writing papers.
- **[Student Complaints](#)**