

Syllabus

PHY 2053 – Physics 1

Natural Sciences – Spring 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 are bound to fail.

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 in final's week as is the makeup Final Exam. **Exams 1 and 2 have not yet been scheduled by the Registrar.**

Week	Date	Book Sections Covered	Topic	Homework	Quizzes
	1/9/23		CLASSES START	HW1 opens	
	1/10/23	Intro to Course	Intro to Course		
1	1/11/23				
	1/12/23	1.1-1.7	Representing Motion		
	1/13/23		DROP/ADD ENDS		
	1/14/23				
	1/15/23				
2	1/16/23		NO CLASSES		
	1/17/23	2.1-2.4	Velocity, Acceleration (1D Motion)		
	1/18/23				
	1/19/23	2.5-2.7	Constant Acceleration & 1D Motion Problem-Solving		
	1/20/23				
	1/21/23			HW2 opens	
	1/22/23				
3	1/23/23				
	1/24/23	3.1-3.4	Vectors, 2D Motion		
	1/25/23				
	1/26/23	3.5-3.6, 3.8	Projectile Motion, Relative Velocity		
	1/27/23			HW1 (Ch 1 & 2)	
	1/28/23			HW3 open	
	1/29/23				
4	1/30/23				Quiz 1: HW 1
	1/31/23	4.1-4.7, 5.2	Forces, FBDs, N's 1st & 2nd		Quiz 1: HW 1
	2/1/23				
	2/2/23				
	2/3/23	4.1-4.7, 5.2	N's 3rd, including contact forces	HW2 due (Ch 3)	
	2/4/23			HW4 open	
	2/5/23				
5	2/6/23				Quiz 2: HW 2
	2/7/23	5.4-5.5, 5.7-5.8	Contact Forces, Friction, Tension		Quiz 2: HW 2
	2/8/23				
	2/9/23	5.3, 8.3 (END E1 MATERIAL)	Apparent Weight, Springs		

	2/10/23			HW3 due (Ch 4 & 5)	
	2/11/23			HW5 open	
	2/12/23				
6	2/13/23				Quiz 3: HW 3
	2/14/23	3.7, 6.1-6.4	Uniform Circular Motion		Quiz 3: HW 3
	2/15/23				
	2/16/23	6.5-6.6	Gravity & Orbits		
	2/17/23			HW4 due (Ch 4 & 5 & 8.3)	
	2/18/23			HW6 open	
	2/19/23				
7	2/20/23				Quiz 4: HW 4
	2/21/23	7.1-7.4	Rotational Motion, Torque		Quiz 4: HW 4
	2/22/23				
	2/23/23	7.5-7.7	Moment of Inertia, N's 2nd in Rotational Form, Rolling		
	2/24/23			HW5 due (Ch 6 & 7)	
	2/25/23			HW7 open	
	2/26/23				
8	2/27/23				Quiz 5: HW 5
	2/28/23	5.1, 8.1-8.2, 8.5	Equilibrium		Quiz 5: HW 5
	3/1/23				
	3/2/23	8.4	Elasticity		
	3/3/23			HW6 due (Ch 5.1 & 8)	
	3/4/23				
	3/5/23				
9	3/6/23				Quiz 6: HW 6
	3/7/23	10.1-10.4	Work & Energy		Quiz 6: HW 6
	3/8/23				
	3/9/23	10.6, 10.10, 11.1	Energy Conservation & Power		
	3/10/23			HW7 due (Ch 10)	
	3/11/23			HW8 open	
	3/12/23				
10	3/13/23				
	3/14/23				
	3/15/23		SPRING BREAK		
	3/16/23				
	3/17/23				
	3/18/23				
	3/19/23				

11	3/20/23				Quiz 7: HW 7
	3/21/23	9.1-9.4	Momentum & Impulse, Conservation of Momentum		Quiz 7: HW 7
	3/22/23				
	3/23/23	9.5-9.6, 10.9	Collisions		
	3/24/23				
	3/25/23			HW9 opens	
	3/26/23				
12	3/27/23				
	3/28/23	9.7 (END E2 MATERIAL)	Angular Momentum		
	3/29/23				
	3/30/23	13.1-13.3	Fluids: Density, Pressure, Buoyancy		
	3/31/23			HW8 due (Ch 9)	
	4/1/23			HW10 opens	
	4/2/23				
13	4/3/23				Quiz 8: HW 8
	4/4/23	13.4-13.7	Fluid Dynamics, Fluids Problem-Solving		Quiz 8: HW 8
	4/5/23				
	4/6/23	14.1-14.6	Oscillations, SHM, Pendulum Motion		
	4/7/23			HW9 due (Ch 13)	
	4/8/23			HW11 opens	
	4/9/23				
14	4/10/23				Quiz 9: HW 9
	4/11/23	15.1-15.4	Traveling Waves		Quiz 9: HW 9
	4/12/23				
	4/13/23	15.5-15.7	Loudness, Doppler Effect		
	4/14/23		LAST DAY TO ADD/DROP/WD	HW10 due (Ch 14)	
	4/15/23			HW12 opens	
	4/16/23				
15	4/17/23				Quiz 10: HW 10
	4/18/23	16.1-16.4	Standing Waves		Quiz 10: HW 10
	4/19/23				
	4/20/23	16.5-16.7	Hearing, Interference, Beats		
	4/21/23			HW 11 due (Ch 15)	
	4/22/23				
	4/23/23				
16	4/24/23		5 pm: Quiz 1-10 makeups / regrade requests due		Quiz 11: HW 11
	4/25/23		Final Exam Review		Quiz 11: HW 11

	4/26/23		CLASSES END	HW 12 due (Ch 16)	
	4/27/23				
	4/28/23				
	4/29/23				
	4/30/23				
	5/1/23				
17	5/2/23		FINAL EXAM: TUES 2nd, 5:30-7:30 pm		
	5/3/23				
	5/4/23				
	5/5/23		MAKEUP FINAL EXAM: FRI 5th, 3 pm - 5 pm		
	5/6/23				

Grading

Please visit the course Canvas page for a complete description of the grading policy for exams, homework, quizzes, and iClicker questions. Homework and iClicker questions will not have makeups – a forgiveness factor will be supplied instead.

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

- **3 exams:** up to 25 points each, 75 points total
- **12 approx. weekly HW assignments:** 5 points combined
- **12 approx. weekly discussion session quizzes:** 20 points combined
- **iClicker/Participation points during lectures:** 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.*

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, make-up exams, etc...

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.”

Counseling and Wellness Center

Counseling and Wellness Center: <https://counseling.ufl.edu>, 352-392-1575
For emergencies, University Police Department (352-392-1111) or 911.

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. Students may 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.

Physics, like all human endeavors, is something that is learned. Our aim is to foster an atmosphere of learning that is based on inclusion, transparency and respect for all participants. We 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.

Covid-19

In response to COVID-19, the following recommendations are in place to maintain your learning environment, to enhance the safety of our in-classroom interactions, and to further the health and safety of ourselves, our neighbors, and our loved ones.

- If you are not vaccinated, get vaccinated. Vaccines are readily available and have been demonstrated to be safe and effective against the COVID-19 virus. Visit one.ufl.edu for screening / testing and vaccination opportunities.
- If you are sick, stay home. Please call your primary care provider if you are ill and need immediate care or the UF Student Health Care Center at 352-392-1161 to be evaluated.
- All exams and discussion session quizzes will be conducted in the in-person modality.