

Physics 2130 section 002

Physics 1 for Scientists & Engineers

Spring 2026 Syllabus

MW 4–6:20pm in Snyder 2110

Calculus based general physics. Mechanics of motion and energy, rotation, gravitation, harmonic motion, waves, fluids and the laws of thermodynamics. Four hours of lecture. (Catalog)

Credit Hours: 4

Prerequisite: C in MATH 1830, **1850**, or 1920 (*or concurrent enrollment*)

Corequisite: PHYS 2135 (Note: I am not involved in labs).

This is the first half of the standard, calculus based introductory physics course, covering topics in mechanics. Students will be responsible for understanding the material in the recommended textbook, recorded lectures, and class discussion. You will be tested on your conceptual understanding of the scientific principles presented and your ability to apply these concepts to solve specific problems.

The Instructor

Dr. Sam A. Hill (*she/her*)

Adjunct Professor of Physics
(*Please call me Professor Hill*)

Email: class@sahill.us

I do have a UToledo address but it does not work well for me, hence this alternative.

Office: MH5004

Mailbox: MH2027

As an adjunct I am normally only on campus for class. I will be available for questions immediately after class, or you can email me to set up a meeting in person or online. I have a mailbox in the physics office if you have things to leave for me.



Course Websites

- McGraw-Hill:** McGraw-Hill Connect for homework (required)
Blackboard: for announcements, quizzes, homework access, and grades
Website: physics.nfshost.com/ut2130 for exam review materials, class notes, and other links

Materials

Textbook (optional): *University Physics with Modern Physics* by Bauer and Westfall, available through McGraw-Hill Connect **or** *University Physics*, Volume 1, by Moebis, Ling, Sanny, et al, at OpenStax.

Scientific Calculator (required): Must have the trigonometric functions and scientific notation, but it does not need to be a graphing calculator (though it can be). Bring your calculator to all classes and exams. Needless to say, you may not share calculators during exams, or use a cell phone, laptop, or similar device during exams.

We will be doing online polls during class, so you will need access to a **computer, tablet, or phone** during class.

Course Learning Outcomes

All sections of Physics 2130 will be assessed with the same instruments, including homework and similar exams.

The overarching objectives of this course are to enable the student to

- Understand basic facts, principles, theories, and methods of physics and explain how knowledge in physics is discovered.
- Demonstrate an ability to think critically and to use appropriate concepts to analyze, qualitatively and quantitatively, a problem or situation involving physics
- Demonstrate the ability to use appropriate mathematical techniques and concepts to obtain a quantitative solution to a problem in physics
- Apply the principles and theories of physics to solve problems and explain concepts involving various applications of physics.

Grading Breakdown

Quizzes (10% total): Each Monday there will be a multiple-choice quiz posted on Blackboard, covering material from the previous work. Quizzes are time-limited and can only be attempted once before the deadline on **Sunday night**. Class notes may be used. Quizzes will be scored out of 10 points, with 4 points for free and 1 point for each correct answer; there is no partial credit. The lowest quiz grade will be dropped. If you forget to take a quiz you may email me and I will give you the 4 free points.

Homework (20%): Homework problems will be assigned using the online McGraw Hill Connect system. Homework will usually be due by **11:59pm on Tuesday** of each week, though this is subject to change depending on circumstances. Homework may be completed late with a penalty for each day late.

4 Midterms (70% total): There will be an in-class exam every month or so, covering the material since the last exam. You may use one sheet of notes (front and back) with whatever you want to write on it. Details about the exam format will follow. If you know you cannot take an exam on the given day, or if an emergency prevents you from coming, email me as soon as possible so that other arrangements can be made. It is my preference that everyone take the exam.

Final Exam (*): An optional cumulative in-class exam, scheduled during the second hour of the final exam period as scheduled by the University. You may use four sheets of notes. The final exam's grade, if better than that of one of the first three midterms, will replace that midterm's grade.

The table lists the minimum percentage required for each letter grade. To avoid arguments, do not assume that I will round up grades.

A	92%	B	82%	C	72%	D	62%
A-	90%	B-	80%	C-	70%	D-	60%
B+	87%	C+	77%	D+	67%		

Last day to **drop** the course: **January 26th**.

Last day to **withdraw** from the course: **April 3rd**.

Last day to declare **pass/no credit**: **April 3rd**

Academic Honesty

Academic dishonesty, including cheating, plagiarism, and fabrication, as defined in the University of Toledo's policy statement on Academic Dishonesty, is considered to be a serious offense and the maximum punishments allowed will be pursued in all scenarios. Please read the University's policy statement on academic dishonesty, available at <http://www.utoledo.edu/dl/students/dishonesty.html>. Other relevant policies can be found at the University of Toledo Undergraduate Policies webpage: <http://www.utoledo.edu/policies/academic/undergraduate/>

Quizzes should be completed on your own. All exams are in-class and to be taken without electronic assistance. You may not refer to anyone else's work during these. You may collaborate on your homework with other students, but not with online sources such as Chegg or so-called "**artificial intelligence**" sites. Homework is an essential part of the learning experience, and it would be foolish to throw it away.

Attendance Policy

This course assumes that you are adults and are able to choose your own priorities in life, including whether you need to come to class. You are *encouraged* to come to every class, but I will not be taking attendance. If you are unable to come to a quiz or exam, or if you will be away for a week or more and unable to complete homework during that time, please contact me before the relevant due dates so we can make other arrangements. Even if you don't think your reason for absence is "reasonable", tell me anyway. I prefer to err on the side of accommodation within the limits of fairness to the other students.

In-Class Behavior

I ask that you treat your fellow students and myself with respect and courtesy. You may use any electronic device you please so long as it is muted and does not distract the people around you. Keep side conversations to a minimum when someone is addressing the class. Do participate in class polling and problem-solving sessions for your own benefit. If someone is being rude and you want me to say something to them, please let me know.

University Policies

Policy Statement on Non-Discrimination on the Basis of Disability (ADA):

The University of Toledo is an equal opportunity education institution. Please read the university's policy statement on Nondiscrimination on the Basis of Disability Americans with Disability Act Compliance at https://www.utoledo.edu/policies/administration/diversity/pdfs/3364_50_03_Nondiscrimination_o.pdf.

Academic Accommodations:

The University of Toledo is committed to providing equal opportunity and access to the educational experience through the provision of reasonable accommodations. For students not registered with the Office of Accessibility and Disability Resources who would like information regarding eligibility for academic accommodations due to barriers associated with a potential disability, please contact the Office of Accessibility and Disability Resources by calling 419-530-4981 or sending an email to StudentDisability@utoledo.edu as soon as possible for more information and/or to initiate the process for receiving academic accommodations.

Any student receiving academic accommodations through the Office of Accessibility is requested to speak with the instructor as soon as possible to discuss the specific accommodations required and how I can best provide them. All discussions will remain confidential and are intended to assist me with ensuring your accommodations are appropriately implemented throughout the course.

Academic and Support Services:

Please visit www.utoledo.edu/success/ to view a comprehensive list of the student academic and support services available to you as a student.

Student Food Pantry:

At the University of Toledo, we have students who find themselves in the difficult situation of struggling with food insecurity at various times during the academic year. The Student Food Pantry at the University of Toledo is located in SU 2514 and offers students access to donated meals and snacks. The food pantry is open weekdays 9:30 am to 4 pm. Additional information is available in the Office of Student Advocacy and Support (419-530-2471).

Support

Physics Student Help Desk

The physics department maintains a help desk, staffed by graduate students, outside the main office (MH2017). The schedule will be posted in the physics building and at www.utoledo.edu/nsm/physast/coursesites.html.

Mental Health

If you want to come to class but you can't make yourself come to class, that's not laziness, but it may be anxiety, depression, ADHD, or another condition. If you need help along those lines, please feel free to contact me (or ask a friend to), and to make an appointment with the University Counseling Center (www.utoledo.edu/studentaffairs/counseling/).

It's not your fault, and you deserve help.

Talk to Me!

If you run into difficulty with the material, if an unexpected emergency comes up which makes it hard to come to class or complete assignments, if you don't like the way I'm teaching: please tell me. I will do all that I can to help, within the framework of fairness to your fellow students. You pay me a lot of money; get the most of it. And remember,

The earlier I know about a problem, the more I can do to help.

If you feel you cannot talk to me about the class, know that you may contact the Office of Student Advocacy (<https://www.utoledo.edu/studentaffairs/student-advocacy/>) if circumstances or events in your life inside or outside of class are interfering with your academic performance.

Why We're Here

It is assumed that you are taking this class because you need or want to learn physics, perhaps because it will be useful to you in your future classes and career. While I am sadly required by the college to judge and grade you, my primary role is to provide you with the opportunity to learn what you need to know, and to help you evaluate your own learning.

Tentative Calendar

Week	Date	Topic	
1	Jan 12	1D and 2D Motion	Exam 1
2	Jan 19	Relative and Projectile Motion	
3	Jan 26	Forces	
4	Feb 2	Circular Motion, Elasticity, Center of Mass	Exam 2
5*	Feb 9	Work and Energy	
6	Feb 16	Momentum	
7	Feb 23	<i>Catchup week</i>	
8	Mar 1	<i>Spring Break</i>	
9*	Mar 9	Fluids	Exam 3
10	Mar 16	Rotational Dynamics	
11	Mar 23	Rotational Energy & Torque	
12	Mar 30	Statics, Angular Momentum	
13*	Apr 6	Simple Harmonic Motion	Exam 4
14	Apr 13	Waves	
15	Apr 20	Thermodynamics	
16*	Apr 26	<i>Finals Week</i>	

*Exam probably scheduled for this week