Physics 2140 section 001

Physics 2 for Scientists & Engineers

Fall 2025 Syllabus

MWRF 10–11:10am in MH1005

Calculus based general physics. Electricity and magnetism, capacitors and inductors, electromagnetic oscillations, Maxwell's equations and electromagnetic radiation, optics, images, interference, and diffraction. Five hours of lecture and discussion per week. (Catalog)

Credit Hours: 4 **Prerequisite:** passing grade in Physics 2130

Course Website

physics.nfshost.com/ut2140

The Instructor

Sam A. Hill *(she/her)*

Adjunct Professor of Physics

(Please call me Professor Hill)

Email: ut2140@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.

Required Materials

Homework Platform: McGraw-Hill Connect Access (required)

Textbook: *University Physics with Modern Physics* by Bauer and Westfall, available through McGraw-Hill Connect **or** *University Physics*, Volumes 2 & 3, by Moebs, Ling, Sanny, et al, at OpenStax.

Scientific Calculator: 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.

Blackboard will only be used for posting grades every few weeks.

Course Overview

This is the second half of the standard, calculus based introductory physics course, covering topics in electricity, magnetism, and optics. 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.

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.

Grading Breakdown

Quizzes (10% total): On the **first class day of each week** (normally Monday), we will begin class with a six-question multiple choice quiz covering material from the previous week. No notes or calculator will be permitted. Quizzes will be scored out of 10 points, with 4 points for writing your name and 1 point for each correct answer; there is no partial credit.

4 Exams (10% each): There will be an in-class exam every 3 weeks 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 (30%): A cumulative in-class exam roughly twice as long as the midterms, but of a similar format. You may use four sheets of notes. The date of the final exam will be scheduled by the University.

Homework (20%): Homework problems will be assigned using the online McGraw Hill Connect system. Homework will be due by midnight on Sunday of each week, although this is subject to change depending on circumstances. Homework may be completed late, with a 2% penalty for each day late.

The table lists the minimum percentage required for each letter grade. To avoid arguments, I do *not* round grades up as a rule.

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: **September 8th.**

Last day to **withdraw** from the course: **October 31st.**

Last day to declare **pass/no credit**: **November 14th.**

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/

All quizzes and 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 except indirectly on days when we have a quiz (typically Monday or the first class day of each week).

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).

Course Learning Outcomes

All sections of Physics 2140 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.

Support

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.

Tentative Calendar

Week	Date	Topic
1	Aug 25	Electric Charge
2	Sep 1	Electric Field
3	Sep 8	Electric Potential
4	Sep 15*	Capacitance
5	Sep 22	Electric Current
6	Sep 29*	Magnetic Fields
7	Oct 6	Magnetism
8	Oct 13*	*Catchup*
9	Oct 20	Induction
10	Oct 27	RLC circuits
11	Nov 3	AC circuits
12	Nov 10*	Electromagnetic waves
13	Nov 17	Wave Optics
14	Nov 24	Ray Optics
15	Dec 1	*Catchup*
16	Dec 5*	FINAL

**Exam scheduled for this week*

Revised Sunday, August 24, 2025