EAST TENNESSEE STATE UNIVERSITY

PHYS-2020-002 – General Physics II Noncalculus – CRN: 11697

Credits: **3** | Term: **Spring 2026**

Welcome to this class!

Welcome to the wonderful world of Physics! I am looking forward to discussing Physics with all of you! It is a beautiful subject and I hope you will appreciate it as much as I do. Through Physics, a student studies the composition and behavior of matter and energy, and their interactions. Physics is written in the **language of mathematics** and is based upon **logical thought processes**. Physics represents the foundation of all of the physical sciences, which includes astronomy, geology, chemistry, and their various subfields. Students will learn critical thinking skills as they study Physics.

This course, **General Physics II** is the second semester of a one-year sequence of courses in physics. It is continuation of **General Physics I** (PHYS 2010). Topics will include electricity, magnetism, wave motion, optics, atomic, and particle physics. The main goal of this course is to demonstrate to you how the nature operates. **General Physics II** is a problem-solving course, that is, the measure of a student progress is demonstrated by the ability to solve algebraic and trigonometric problems, and not just to quote facts, laws and formulas.} The assigned homework is designed to help you develop these skills, and the exams will test you on these skills.

You are expected to have (*and know how to use*) a good *scientific* calculator --- especially for the exams. The Department does not have calculators to loan, and the *sharing* of a calculator with your classmates **on exams is NOT permitted**! The book store sells such calculators.

Where and when does our class meet?

Location & Meeting Time

Classroom Location: 370 Brown Hall

Class Meeting Schedule: M W F 11:40 a.m. -- 12:35 p.m.

Accessibility Notes: Posted material for this course should be accessible for all students. If any of you are unable to access any of the material, please let me know via email (lutter@etsu.edu).

Room 370 on the 3rd floor in the south side of Brown Hall and is accessible by elevator as well as stairs. There are handicap accessible restrooms located on this floor.

Who is my instructor and how can I reach them?
Contact Information


[Photo of Dr. Luttermoser]

Instructor: **Dr. Donald G. Luttermoser**

Email: lutter@etsu.edu

Phone: (423) 439-7064

Office: 280 Brown Hall

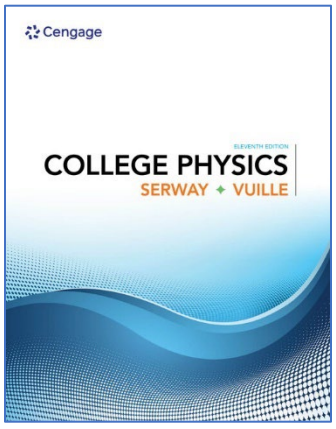
When can I talk to my instructor about my class progress or any questions I have?

I welcome out-of-class discussions with my students! You an schedule an appointment to meet with me via email.

What will I need to be successful in this class?
Course Description & Materials

Prerequisites: PHYS-2010

Required Materials



Textbook: College Physics, Serway & Vuille, 11th Edition

Helpful, Materials

Course Notes, accessible on Course Web Page: **https://faculty.etsu.edu/lutter/courses/phys2020/**

What will I learn in this class?
Course Overview

Course Purpose and Objectives

General Physics II (PHYS 2020) is designed to be taken in tandem with General Physics II Laboratory (PHYS 2021), although students receive a separate grade for each. As with all of our department's Physics and Astronomy courses, we expect that students completing these courses will be able to:

- Appreciate that physics is relevant to the real world and a useful tool for solving problems.
- Develop the inclination and ability to apply problem solving techniques to simplify "real world" problems in terms of simple physics concepts, and to compute or estimate solutions.
- Appreciate that any model or theory of a physical process stands or falls on the basis of experiment.
- Recognize that scientific conclusions, whether yours or those from an outside source, may be incorrect, and develop the ability to check these conclusions with simple calculations, independent external references, and/or common sense.
- Use mathematics to solve equations, and appreciate the dependencies of physical properties on each other.

Major Course Topics: The Course Outline – Spring 2026

Days	Topics	Textbook Readings
January 19	**MLK Day – No Class**	
January 21, 23	I. Electric Forces & Electric Fields	Chapter 15
January 26, 28, 30	II. Electric Energy & Capacitance	Chapter 16
February 2, 4, 6	III. Current & Resistance	Chapter 17
February 9	**Exam 1** (Sections I-III)	Chapters 15-17
February 11, 13	IV. Direct Current Circuits	Chapter 18
February 16, 18, 20	V. Magnetism	Chapter 19
February 23, 25, 27	VI. Induced Voltage and Inductance	Chapter 20
March 2	**Exam 2** (Sections IV-VI)	Chapters 17-19
March 4, 6	VII. Vibrations & Waves	Chapter 13
March 9, 11, 13	VIII. Sound	Chapter 14
March 16, 18, 20	**Spring Break – No Classes**	
March 23, 25, 27	IX. Electromagnetic Radiation	Chapter 21 (partial)
March 30, April 1	X. Interaction of Photons with Matter	Chapter 28 (partial)
April 3	**Good Friday – No Class**	
April 6	**Exam 3** (Sections VII-X)	Chapters 21, 28, 22
April 8, 10	XI. Reflection & Refraction of Light	Chapter 22
April 13, 15, 17	Refraction; XII. Mirrors & Lenses	Chapters 22, 23
April 20, 22, 24	XIII. Wave Optics	Chapter 24
April 27, 29	XIV. Optical Instruments	Chapter 25
May 4*	**Final Exam (3:50 p.m. -- 5:50 p.m.)**	Chapters 13-25, 28

*Note that the Final Exam falls on Monday, May 4th at the time listed above. The Final Exam covers the entire course.

Expected Learning Outcomes

By the end of this course, you should be able to:

1. Understand how electric and magnetic fields are created, and their relation to corresponding electric and magnetic forces.
2. Understand the relation of electric potential to electric potential energy.
3. Use Ohm's Law and Kirchoff's Rules (and the physical intuition associated with fields and potential) to analyze basic circuits.
4. Understand the "right-hand rule" for magnetic fields and forces.
5. Know how to use Hooke's Law to model oscillating systems.
6. Understand pendulum motion and how it can be used to measure time.
7. Know the difference between traveling and standing waves.
8. Know the difference between transverse and longitudinal waves.
9. Learn how to calculate intensity levels for sound.
10. Understand how a spectrum is formed and the various types of spectra.
11. Understand all aspects of blackbody radiation.
12. Understand the various ways light can interact with matter.
13. Analyze basic optical systems consisting of lenses and mirrors using geometric optics.
14. Analyze thin slit and thin film interference, and diffraction patterns using wave optics.

What am I expected to do in this class?
Course Policies

What is the attendance policy for this class?

On Campus Attendance is Required for this Course

Roll will be taken occasionally during class. Regular attendance will be useful in obtaining a good grade in this class. Your presence is essential in this class for your best learning! As such, you are required to attend class on campus in Brown Hall 370 this semester. **The exception to this is if you have been tested positive with COVID-19, or you are sick from some other infection.** In that case, then you can watch the lecture via Zoom. However, **YOU MUST COME TO CLASS IF YOU ARE NOT SICK!!!** You are to let me know ahead of time via email (lutter@etsu.edu) if you need to miss class due to illness.

Please note your professor is *immune-compromised* due to the medications he is taking. As such, keep your distance from me if you are sick. (Again, **do not come to class if you are sick!**

For providing information to keep the ETSU community safe and communicating updates regarding policy changes, please visit the following web site:

https://www.etsu.edu/coronavirus/

D2L Course Website

For the past few years, I have been streaming the lectures in "real-time" so that **students who are ill** can attend lecture in a *remote* (*i.e.*, online) format and I will be recording these lectures. However, as mentioned above, **I expect all students to attend class on campus in Brown Hall 370 unless you are sick.** Prior to each scheduled lecture, I will be posting a Zoom link on the course D2L course web page that you are to use to access the synchronous lecture**. You are expected to attend each lecture, whether in person or synchronously via Zoom!** However, if you are forced to miss a lecture due to illness, each lecture will be recorded and the link for that recording will be pasted on the D2L course web page. A link to the ETSU D2L Login web page is included on the course web page at:

https://faculty.etsu.edu/lutter/courses/phys2020/index.htm

What are the expectations for my behavior in class?

In order for everyone to have a positive learning experience, it's important that we work together to have a safe, non-distracting, and engaged learning environment. Here are expectations to help us meet this goal:

- Do not talk to your classmates during class. If you have a question for the professor, raise your hand.
- **Please turn your cell/smart phones off before coming into class!** The ringing of cell phones often disrupts the class.
- **Cell Phones, Smart Phones, and iPads cannot be used as calculators on the exams in this course!**

Will this syllabus change?

While I have tried to make this syllabus as accurate and complete as possible, I reserve the right to make changes within it at any time. I'll make every effort to notify you of such changes, and information about any changes will be posted from me on D2L.

How will my grade be determined in this class?
Course Grade

How Assignments Contribute to the Final Grade

The final course grade is calculated as:

- Exam 1 = 20%
- Exam 2 = 20%
- Exam 3 = 20%
- Final Exam = 30%
- WebAssign Homework = 10%

Grading Scale: Final Grade

Final grades will be given according to the following scale:

- A = 90% or better
- A- = 88% – 89.9%
- B+ = 86% -- 87.9%
- B = 76% – 85.9%
- B- = 73% – 75.9%
- C+ = 70% – 72.9%
- C = 62% – 69.9%
- C- = 59% – 61.9%
- D+ = 56% -- 58.9%
- D = 50% – 55.9%
- F = Less than 50%

How will I show what I'm learning in this class?
Assignment & Assessment Overview

In-Class and Final Exams

There will be 3 "in-class" exams throughout the semester, plus a comprehensive final exam on the dates listed on the "Course Outline" of this syllabus. **All exams must be taken on campus – there will be no remote exams.** Each will cover material prior to the test and be taken during class time as shown in the table below. Each exam will be worth 20% and the final worth 30% of your course grade. The course grade will be based on your total homework score (10%), your total "in-class" exam scores (60%), and the comprehensive final exam (30%). Note that all physical constants and formulae that you may require will be supplied on the exams. Otherwise, the exams are closed book and notes -- you will not be allowed to consult any external written materials. An exception to this rule concerns the final. You will be allowed to bring one 8.5x11'' sheet of paper to the final exam with anything you wish to write on it ("examples" might be a better idea than a grocery list) – you are allowed to write on both sides of the paper.

Exam	Class Notes Sections	Textbook Chapters	Date Given
1	I, II, III	15, 16, 17	Monday, Feb 9, 2026
2	IV, V, Vi	18, 19, 20	Monday, Mar 2, 2026
3	VII, VIII, IX, X	13, 14, 21, 28	Monday, Apr 6, 2026
Final	½ (XII-XIV) + ½ (I-XI)	½ (23-25) + ½ (13-22, 28)	Monday, May 4, 2026

Sickness and Make-Up Exams:

If you are sick, do not come to school! If this occurs on exam day, you will be allowed to take a *make-up exam*. **However, contact me by email (preferably) or phone *prior* to a scheduled exam to let me know that you are sick.** The make-up exams are similar in structure to the in-class exams, though the questions will be different.

Homework: WebAssign Problem Sets

There will be 4 homework sets assigned throughout the semester composed of two sections of questions. The first section will be questions generated by the ***WebAssign*** software package supplied by the textbook publisher (*Cengage Publishing*). The total score you received on the ***WebAssign*** problems will be used in calculating your course score which your course grade will be based upon.

The second section of problems will not be graded and will have solutions posted on the course web page. Try to do these problems by yourself before retrieving the solutions from the web page. Doing both sections of questions will be a big help in studying for the in-class exams and final exam.

Registering and Accessing WebAssign

To use ***WebAssign***, you first need to register yourself into ***WebAssign***.

How to Register for Your PHYS-2020-002 SPRING 2026 Course:

1) Go to the ***GetEnrolled.com*** website at **https://www.getenrolled.com/**
2) Enter the Course Key: etsu34267832
3) Follow the on-screen instructions to complete your ***WebAssign*** registration.
4) Visit the Cengage Student Registration Page at **https://startstrong.cengage.com/** for a step-by-step guide and short video on how to register for your course.

Once you are registered, to access the textbook publisher's ***WebAssign*** web site click the following link:

https://webassign.com

then click on the "**Enter Class Key**" button on the upper right of this web page. The Class Key for this course is:

etsu 3426 7832

Should you need additional assistance with ***WebAssign***, you can contact **Technical Support** information at:

https://webassign.com/support/student-support/

via the web or **1-800-354-9706** by telephone.

Note that each ***WebAssign*** **Problem Set** is due by 6 p.m. on the Due Dtae listed below:

WebAssign **Problem Set**	**Due Date (by 6 p.m.)**
1	Friday, February 6, 2026
2	Friday, February 27, 2026
3	Friday, April 3, 2026
4	Wednesday, April 29, 2026

Extra Credit

Each exam will have a 5 point extra credit question on it (the final will have two 5 point questions). **Other than the extra credit problems on the exams, no extra credit projects will be allowed, so don't even ask.**

What might impede my learning in this class?
ETSU Code of Ethics and Course Gen AI Policies

ETSU Code of Ethics

Learning is effortful and sometimes uncomfortable; however, your learning happens best when you use your own brain instead of relying on others (or technology) to do the thinking for you.

Therefore, please avoid plagiarizing or other forms of cheating, as outlined in our University's Academic Integrity policy. And, if you know someone else is engaging in these behaviors, be sure to report this because it is part of our ETSU Honor Code.

Generative AI Use in This Class

NO ONLINE HELP WEB PAGES (Generative AI) are to be used for the homework, in-class exams, or final exam! Over the past few years, many students have been making use of various online companies to `**cheat**'. Please note that I am familiar with these web sites and will be checking each of these sites to make sure none of the students in this class are making use of these sites to answer the questions/ problems on the homework, exams, and final. Note that it is easy to verify this, even if a phony email address is used on these sites. Should a student be caught using such a site, your instructor will follow the steps laid out in the **Academic Integrity and Misconduct Policy** laid out below.

In addition, my expectation is that everyone, including me, follows ETSU's policy and guidelines for Gen AI use.

Academic Integrity and Misconduct Policy

Students are expected to abide by the **ETSU Honor Code** and to act with honor, integrity, and civility in all matters. The course instructor has the primary responsibility for maintenance of academic integrity. Students guilty of academic misconduct, either directly or indirectly, through participation or assistance, are immediately responsible to the course instructor. Any form of academic misconduct (plagiarism, cheating, etc.) is subject to disciplinary action. Sanctions for a violation may vary with the severity of the offense. The instructor may reduce a grade up to and including assignment of an "F" or a zero ("0") for the exercise/examination or an "F" in the course. If a sanction is imposed then the instructor must begin the academic misconduct procedures and notify both the student and the Dean/Designee. Students may appeal a grade assignment associated with a finding of academic misconduct, as distinct from a student disciplinary or grade appeals process, through **the University's Academic Misconduct**

Procedures. The student will not be subjected to any form of pressure to coerce admission of guilt or information about his/her conduct or that of others.

What else is important for me to know for my success?
Additional Information

Syllabus Attachment Information

Syllabus Attachment Information: The University's approved Syllabus Attachment Information page provides information about relevant University and Academic Policies that important for you to know. https://www.etsu.edu/curriculum-innovation/syllabusattachment.php

Students with Learning Disabilities

Over the years, I have had students in my courses who suffered with learning disabilities. I always offer additional support for such students, such as one-on-one tutoring and allowing additional time on the exams. However, in order to receive such additional support, a student needs to officially register with the **Office of Disability Services** (see **https://www.etsu.edu/students/ds/**). Once registered, this Office will provide paperwork to the affected student to give to the instructor of the course.

What are other resources I can access to further my learning?
Resources & References

Resources

Many students find **General Physics I & II** very challenging and have a difficult time understanding the principles of physics and solving physics problems. Mainly, this is due to a lack of training of logical thought skills during secondary school. Due to this, there are a variety of ways to get additional help with this course.

- **The Center for Academic Achievement** offered by ETSU (see **https://www.etsu.edu/students/learning/** on the web.
- **Assistance from the Professor** via email or "by-appointment" office hours.
- **Tutorials on *WebAssign***. Besides the assigned homework, this web site will be available as additional help for students to provide experience solving word problems in physics.
- **Review sessions** prior to each exam (either in-class reviews or at a supplemental day and time).

With these supplemental instruction options, students can gain valuable help with this difficult course.

Mental Health: Students often have questions about mental health resources, whether for themselves or a friend or family member. There are many resources available on the ETSU Campus, including: ETSU Counseling Center (423) 439-4841; ETSU Behavioral Health & Wellness Clinic (423) 439-7777; ETSU Community Counseling Clinic: (423) 439-4187.

- If you or a friend are in immediate crisis, call 911.
- Available 24 hours per day is the National Suicide Prevention Lifeline: 1-800-273-TALK (8255).