

Instructor:Dr. Colbert**Email:** tcolbert@augusta.edu**Web:** : <https://spots.augusta.edu/tcolbert>**Office Hours:** Microsoft Teams OR Office:GE Bldg, Office 1031–(first floor admin suite, 2nd door on the right and....)

Office hours:Monday 3-4PM, Tues 9-11AM, Wed 2-3PM. THESE ARE TIMES I TRY TO BE THERE.

PHYSICS-1112:Fall 2023 Class Schedule:**Class instruction/lecture:M,W,F 12:00 -12:50; Bldg EC, Room 1218****Labs and Lab schedule—separate document/separate course/separate instructor****Course topical/Modular outline**

weeks	Module	Exams	Chapter
Week 1 Jan. 8	A-get started 1-Charge and Coulombs law		Chapter 18
Week 2 Jan. 15 (No class Monday MLK)	2 E-Fields		Chapter 18
Week 3 Jan. 22	E Fields and 3-Electric Potential		Chapter 19
Week 4 Jan. 29	3 Electric Potential		Ch. 20
Week 5 Feb. 5	Electric Potential and 4-Simple Circuits	EXAM1 (Friday Feb. 9th Modules 1,2,3)	Ch. 20/Ch 21
Week 6 Feb. 12	5-Series Parallel		Ch. 21
Week 7 Feb. 19	6-RC		Ch. 22
Week 8 Feb. 26	6 RC and start 7 Mag Field		Ch. 22/Ch. 23
Week 9 Mar. 4 (Spring Pause 7,8)	7-Mag Field-Start $-qvB$	Spring Pause	
Week 10 Mar.11	8-Mag Field-sources/motor	EXAM 2 Friday March 15 th Modules 4,5,6)	Ch. 22/Ch. 23
Week 11 Mar. 18	9 Mag Fields Faraday		Ch. 23
Week 12 Mar. 25	10 Mag Fields Generator		..Ch. 23
Week 13 April 1	11 Optics Overview		Ch. 25
Spring Break April 8-12			
Week 14 April 15	12 Optics Image	EXAM3 Friday April 19th (Modules 7, 8,9,10)	Ch. 25
Week 15 April 22	12 Optics Image 1,23		Ch. 27
Week 16 April 28 Last Day May 1	13 Optics Wave	Last Day Wed. May 1	Ch. 27

Last Day for W-March 5thFinal Exam Monday May 6th 2-4 PM

STUDY TIPS AND RESOURCES: I have abundant resources for you to examine (videos, notes, problems, etc), assignments in Teams. You will be working daily on course activities.

The course layout will consist of topical modules-- on my course website (spots.augusta.edu/tcolbert). These align roughly with textbook chapters. It is up to you to read/study/and be aware of our current position in the course. Videos are a walkthrough of my notes developed during covid---which are now useful for continued use. You will find these on my spots website.

Examples of course materials on https://spots.augusta.edu/tcolbert :

- Updates posted by day or week on course activities (first column)
- Comments on content for “daily” quizzes and tests (first column)
- Copies of instructor notes—and video walkthrough of notes (next column)
- Warmup problems ---
- Sample problems—various ---I’ll keep posting problems with and also without solutions.

The course grade consists of in class exams, final exam, quizzes, and there are some additional online assignments or other written work. All materials will be included in one of the graded categories.

Course Links:

- Colbert website: <https://spots.augusta.edu/tcolbert/> (Most course learning materials under weekly assignments)
- D2L/Brightspace: I will only use D2L to send a few occasional messages
- The book: <https://openstax.org/details/books/college-physics>. (it’s free)
 - **The newest is the 2nd edition---that is what I will be looking at.**
- Microsoft Teams: <https://teams.microsoft.com/> (teams is useful for online discussions, and also I’ll push some assignments to look at in Teams---also for virtual office meetings with me).

It is your responsibility not only to complete assignments and studying, but also to achieve a high degree of understanding to support your quiz and exam scores. You must read the assigned material **before class** lectures on each topic. I will post assignment comments on my web page listing reading and announce any homework assignments or quizzes, and other relevant course material. I have provided an online copy of my notes, and a video walkthrough of my notes. My notes are not intended to replace the need to read the text. I recommend working with other students on many problems throughout the week. You should be able to complete several physics problems each day as you study. You should examine many end of chapter problems/ and or "Colbert Sample problems" and make sure you feel comfortable with all of the concept questions at the end of each chapter. Be able to do and understand problems. My website is <https://spots.augusta.edu/tcolbert/> **My website is where you will obtain critical daily/weekly information updates.** It is your responsibility to ensure that you have appropriate understanding of all assigned or suggested materials. Working together for purposes of discussion is expected for course studies. For course assessments discussion is not permitted, and for any "pen and paper hand ins" exact duplication or copying of graded work is never permissible.

Our textbook is College Physics 2nd edition, OpenStax ---do not confuse this with other editions (calculus based or AP versions). The text is free for viewing online, a pdf may be downloaded. The text is viewable on mobile devices. Augusta University has adopted OpenStax for this course, which has been done to offer students a FREE TEXTBOOK. **HERE IS THE FREE BOOK** . A link to get you started is <https://openstax.org/details/books/college-physics-2e>
You may either download the pdf, or view the text online or on your mobile device.

TESTS AND FINAL: Three tests will be given which will focus mainly on problem solving. The tests are pen and paper exams with mostly free response problem solving and during scheduled class times. The tests will be planned to fit into the 50 minute time periods we have. We will discuss exam format prior to taking exams.

The tests will be graded out of 100 points. The final exam will count as 2 tests and will cover material from the entire course. Of the five scores (exam 1,2,3, FE%, FE%,)--I will drop a low score prior to calculating your exam average. **If you must miss an exam for any excused reason it will be your dropped score.**

HW: There are many problems that you should be looking at daily. We go over some problems, and others are posted. As HW assignments I have used Microsoft Teams –assignments---to get students looking at sample problems and attempting responses. You will be graded on participation in these assignments (**meaning you must submit answers into Teams—on time**). We'll go over some of these in class, meaning you must come in with questions.

Instead of pen and paper assignments, I have prepared a set of problem assignments within Microsoft Teams. You'll receive prompting for these. They are graded as “attempted” or “not attempted”—I do not score your feedback from these individually. They are intended to prompt for you to ask questions in class and to have practice problems---do so. Questions on these assignments is from class interactions. I strongly encourage you to write out your work and take screenshots or copy problems from these teams assignments (they are not available after you submit them). While you get full credit as long as you submit on time, there is no going back to the questions. These problems may help you study for exams.

Quizzes: There will be numerous short in class timed quizzes on materials. Depending on where we are in the material these may guide us into a topic at an introductory level (expected that you have read material prior to lectures), or material may be post lecture and ask short detailed quantitative problems. Quizzes should indicate that you have kept up with lecture material, text reading, examples and suggested problems. Quizzes may be at or near the level of problems you might see on an exam. However, the time will be limited! I have typically given quizzes in approximately 5 minutes at the start of classes, be on time—I won't generally allow for late starts.

The quizzes make up 20% of the course grade. I typically have a posted “heads up” discussion on my daily/weekly assignments posting ---regarding what is on quizzes! **DO NOT MISS QUIZZES---THIS CAN IMPACT YOUR COURSE GRADE!** I'll generally drop a single low quiz score for excused absences. There are no late quizzes administered for any reason. If you know of an upcoming event—you may seek permission to take a quiz early (if scheduling allows).

Sidenote: Labs. You are most likely taking our PHYS1112 Lab course along with this lecture course. Physics is an applied topic and you see many examples of physics in action all around you all the time. Labs in physics both demonstrate the connection of topics to real world events (in a simplified manner), but also open up their own unique set of experimentation and measurement skills. Topics covered such as E fields, potential, circuits, magnetism, etc--may either precede or follow lecture material. . Either lab/lecture can be introduced in a manner to support the other (either may come first). Your instructors are aware of the connection between labs and lectures and make every effort to ensure that you have prerequisite knowledge of either, and that you gain the benefits of experiences based upon coupling the two courses. Some of the exam and or quiz questions may be based significantly on some portions of lab activities that have also been covered in classes. Labs of course also have many concepts that are separate from the lecture portion of the course.

Course Contacts/Support: I hope to have both course lab assistants and physics tutors to assist you (no guarantee on availability). I'll get you a schedule of their availability on and how to contact tutors. If you have questions regarding course content--your first place to ask questions should be— 1) looking in your

text, 2) notes, or **3) classmates/study groups**, 4) tutors if available, 5) online resources, 6) YOUR INSTRUCTOR. Another place is to post questions within the designated Teams discussion area. Next you can always ask questions during our class times. Next should be to meet with tutors or with me (Teams or office may work). I love answering physics questions and having such discussions with students---but I ask/insist---you must attempt to use class hours, tutors, and have group meetings with other classmates.

I have made office hours available listed at the top of this syllabus---however, I am often found available in my office outside those hours. I encourage you to seek me out and ask questions!

If you have course logistics questions such as illness, car accidents, other life emergencies---or individual questions having only to do with your exam or quiz---then please use email or office hours rather than class time.

Course Grades:

70% of the total grade will come from your test/final/ scores.

20% of the total grade will come from your average quiz---

10% of the total grade will come from completion of Microsoft Teams assignments

Grades will be no less than:

A if 90 % or better

B if 80 %

C if 70 %

D if 60%

F if less than 60%

I receive many requests to review student grades in each course I teach. To help with that review you should note that all graded material has been passed back in classes (and usually quickly). It is your responsibility to collect such work (remember you are absent if you do not collect your work). Prior to going over grades with a student, please come in prepared with the following information sheet completed: [YOUR GRADE SHEET](#)

If you are unable to attend classes you should get notes from classmates. You also have posted materials available on my website, and your text. You are responsible for all material, assignments, tests, etc. The current campus policy requires that faculty keep a record of activity in the course. For this I count assignments handed in as attendance, also returned. If these are missed (if you are not there--even to collect your work) it counts as an absence. I place a limit of five absences on the course. Excessive absence or tardiness or academic dishonesty may result in your being withdrawn or receiving a failing grade in the course. Ultimately it is the students' responsibility to make sure that the proper paper work has been handed in by the course withdrawal date in order to ensure withdrawal. Withdrawals after that date will generally not be considered unless you are passing the course at the time of withdrawal. Failure to handle paperwork properly may result in receiving a failing grade in the course. Make ups for work missed will be scheduled individually, but only for acceptable reasons. YOU MUST notify me beforehand if possible.

Academic honesty is expected from all students. While collaboration (discussions together on methods) is expected, copying answers and copying work is not permissible. I reserve the right to re-assess any assignment to determine if work you have submitted derives from your own individual efforts. In particular, copied work during exams or quizzes may result in receiving F or WF in the course and submission of the event to the appropriate administrative office. If you receive comments regarding copying of your work (any work handed in for grading) you should take serious note. In general, when a slew of students (two or more) hand in the exact same written errors, or a numerical error, or handwritten typo, or other such copying offense, this is an indicator that work was copied directly without appropriate thinking. That is a violation of academic honesty. If you discuss a problem with a class mate, and then

write it up on your own, you will find the written work is distinctly different, unique, and your own (such discussions are permissible and desired). If you think you may have violated academic honesty, you probably have.

If changes in the above policies or schedule become necessary you will be notified in class. It is your responsibility to make sure that you take note of any such changes.

General Learning Outcomes

- Learn to employ high scientific standards in written work (homework, quizzes, and exams).
- Demonstrate appropriate academic engagement (preparation for class, attendance, timelines, etc.)
- Learn to demonstrate the ability to work affectively as part of a team in study groups and independently.
- Practice clearly and concisely articulate scientific ideas and arguments through written works.
- Construct logical arguments based on the interpretation of scientific data.
- Demonstrate knowledge of physics related to all course topics listed in the syllabus.

Specific Course Objectives

Objectives for Exam 1

- E field and Potential for point charges
- Electric field map
- Electric Dipole interaction with E field –torque and force
- Equipotential pictures, high, low, relation to E field
- Equipotential for point charges and parallel plates
- Energy and electric potential
- Fundamental charges
- Vectors and relation to E field—adding
- Superposition—multiple point charges, E and V

Objectives for Exam 2

- Relate V, I, R for simple circuits
- Power in a simple circuit
- Parallel plate capacitor both design and measurement of C
- Combinations of capacitors (series and parallel)
- Energy stored
- Power dissipated by circuit elements
- Series parallel configurations
- Electric potential difference in circuit
- Potential at locations relative to ground
- Kirchhoff loop and junction rules
- RC time constant, charging and discharging circuits –quantities as function of time
- Solving for time in RC circuit

Objectives for Exam 3

- Forces on charges moving in magnetic fields
- Radius of charge motion uniform field
- Magnetic field due to current carrying wire
- Right hand rules 1 and 2.
- Force on current carrying wire
- Torque on a current loop
- Field direction and strength for long wire
- Force between parallel wires
- Solenoid field
- Induced EMF, Induced field, Induced current—Faraday law

- Magnitude EMF-Faraday law
- Motional EMF
- Generator

Additional Materials between Exam 3 and Final

- Refraction and Snell's law
- Lenses and image formation –thin lens and pictures
- Double slit fringe positions
- Refraction qualitative properties
- Image formation qualitative properties
- Double slit pattern qualitative properties

This is a Core IMPACTS course that is part of the STEM area.

Core IMPACTS refers to the core curriculum, which provides students with essential knowledge in foundational academic areas. This course will help master course content, and support students' broad academic and career goals.

This course should direct students toward a broad Orienting Question:

- How do I ask scientific questions or use data, mathematics, or technology to understand the universe?

Completion of this course should enable students to meet the following Learning Outcome:

- Students will use the scientific method and laboratory procedures or mathematical and computational methods to analyze data, solve problems, and explain natural phenomena.

Course content, activities and exercises in this course should help students develop the following Career-Ready Competencies:

- Inquiry and Analysis
- Problem-Solving
- Teamwork