



Introductory Physics II

PHYS 1112 – Spring 2022

Instructor Info —



Dr. Andreas Papaefstathiou



Office Hrs: By appointment



SC 533 (5th Floor Science Building, Kennesaw Campus)



470-578-2702



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Course Info —



Prereq: Grade C or better in PHYS 1111



Mon & Wed & Fri



12:20-1:10 p.m.



Burruss Building 293

Recitations —



Mon or Wed or Fri



1:25-2:15 p.m.



Kennesaw Hall 1301

Course Overview

What causes the natural phenomenon of lightning? What is the nature of light and how does it travel through space? How does current flow through circuits to power up our devices? How do rainbows form? What causes the sparkle of diamonds? How does the human eye work to form images? These are some of the questions that this algebra-based course will touch upon.

Learning Objectives

At the completion of this course, students will be able to

- solve problems in introductory-level electromagnetic fields accurately,
- accurately compare and contrast simple dc and ac circuits,
- discuss the characteristics of electromagnetic waves at the elementary level,
- solve problems in geometric optics,
- solve problems in physical optics at the elementary level.

Required Text and Material

P.P. Urone and R. Hinrichs, OpenStax, *College Physics*, available from OpenStax at <https://openstax.org/details/books/college-physics>.

Note: The book is free to download and is available in WebAssign. You can purchase a print copy from the KSU bookstore or amazon.com for \$38.80 (paperback) or \$48.40 (hardcover).

Other Required Material:

- Internet access and a webcam (in the event of change of course modality).
- WebAssign Access (\$37.95).
- Calculator with trig functions, exponentials and logarithms.
- *Note:* A cell phone *cannot* be used as a calculator.

D2L

Course information, homework solutions and announcements will be available on “D2L.” This on-line course information system is accessible from <https://d2l.kennesaw.edu>. To sign on, use your KSU username and password.

Homework Assignments

Homework assignments and homework grading will be done through the WebAssign on-line homework tool. Due dates are listed on WebAssign.

When you sign up, use your official KSU e-mail address. Also use your KSU ID number for the WebAssign ID number.

The class keys for this class are:

- [kennesaw 2874 2597](#) (Section 01)
- [kennesaw 3302 9404](#) (Section 02).
- [kennesaw 4130 0117](#) (Section 03).

Please ensure you enroll to the correct section!

Please only ask for extensions if you have a valid emergency reason. Make an attempt to look at the problems sufficiently in advance and if you have any questions or technical issues contact me well in advance so they can be resolved. If you believe you do have a valid reason, **contact me via e-mail before asking for an extension through the WebAssign platform.**

Reading Assignments

You are expected to read the textbook before the lecture. Class time will be used for discussion and problem solving. The sections of the text we will be covering are on the syllabus.

Important: Communication

Only use e-mail to contact me (i.e. not D2L or WebAssign) at apapaefs@kennesaw.edu.

Make sure that the subject line starts with "PHYS1112".

You must use your KSU e-mail address.

I will return all emails in 36-hours during the week and within 48 hours over the weekends.

Grading Scheme

15% Homework

20% each (best 3) Tests 1–4

25% Final Exam

Grades will follow the scale: A = 89.5-100; B = 79.5-89.4; C = 69.5-79.4; D = 60-69.4; F <60. Curving is at the discretion of the instructor. The best three tests will be used for the final grade. Therefore, each test will contribute 20%. In addition, the lowest assignment will be dropped.

Exams and Make-up Policy

Five tests will be given this semester, four tests and a final exam. The test dates are on the attached course schedule. The final exam will be comprehensive. Each test will be a combination of multiple-choice questions, conceptual questions and problem-solving, free response questions.

Make-up exams or tests will not be given. If you know ahead of time you have a conflict, let me know. If you miss an exam because of an illness (yours or a family member's) or some other unforeseeable event, contact me as soon as you can. You can e-mail me, leave a message on my answering machine or call the Physics Department office at 470-578-4205. You must provide documentation showing the reason for missing the exam, if asked.

Dos and Don'ts

Please review these important points that will help you throughout the rest of your college career, and in your future careers.

- Regular lecture and breakout sessions attendance is essential for success in this class. If students miss a class, it is their responsibility to get the notes for missed lectures from another student. And please be on time!
- Occasionally, it may be necessary for the instructor to make corrections, updates or changes to this syllabus. Corrections or changes to the syllabus will be announced on D2L and in class: students are expected to check D2L for announcements regularly (i.e. at least once or twice a day.)
- Cellular telephones, pagers, and similar devices must be turned off or placed in silent mode during lectures. Use of cell phones should be restricted to emergencies.
- In class, avoid conversations and other disruptions that may distract other students during the lecture. If you have questions or comments, direct it to the instructor.
- Rude and disrespectful student behavior will not be tolerated (administrative actions will be taken).
- Deadlines are deadlines for a reason. As a college student, you must plan accordingly and use your time wisely. In the "real world" you are expected to submit work on time to your boss so that you keep your job. I expect the same.
- If you have asked your professor to grant you an extension on your work, you do not meet the guidelines for getting an extension, and are told "no," do not continue to email the professor. No means no, and this is grounds for a referral to student conduct.
- Do not tell your professors or employers how to do their jobs. While you may not like your professor or employer, remember that they have more experience in and knowledge about the field than you. They are also your means for networking and finding gainful employment.

- Remember that your professional aptitude not only reflects on you as a student and employee, but as a person in general. Please be sure you understand these guidelines, and if you have any questions about appropriate communication or college-level problem-solving skills, let me know.

Accommodations for Students with Disabilities

Any student with a documented disability or medical condition needing academic accommodations of class-related activities or schedules must contact the instructor as early in the semester as possible. This applies to accommodations for medical conditions related to COVID-19. Written verification from the KSU Student Disability Services (<https://sds.kennesaw.edu/>) is required. No requirements exist that accommodations be made prior to completion of this approved University documentation. All discussions will remain confidential.

Academic Integrity

Every KSU student is responsible for upholding the provisions of the Student Code of Conduct, as published in the Undergraduate and Graduate catalogs. The Student Code of Conduct addresses the University's policy on academic honesty, including provisions regarding plagiarism and cheating, unauthorized access to University materials, misrepresentation/falsification of University records or academic malicious/intentional misuses of computer facilities and/or services, and misuse of student identification cards. Incidents of alleged academic misconduct will be handled through the established procedures of the Student Conduct and Academic Integrity department, which includes either an "Informal" resolution by a faculty member, resulting in a grade adjustment, or a formal hearing procedure, which may subject a student to the Code of Conduct's minimum one semester suspension requirement. The Code is available online at <http://scai.kennesaw.edu/>.

Withdrawal Policy

Students are solely responsible for managing their enrollment status in a class.

Non-attendance does not constitute a withdrawal.

The last day to withdraw without academic penalty is Tuesday, March 15th 2022, 11:45 p.m.

Additional information on the withdrawal policy can be found at: <http://catalog.kennesaw.edu/content.php?catoid=51&navoid=3701#withdrawalfromclasses>.

The Academic Standing Appeal policy is explained at: https://appeals.kennesaw.edu/withdrawal_appeal.php.

Campus Sexual Misconduct Policy

For information about how to report sexual misconduct or how to obtain assistance, please go the following page: <https://scai.kennesaw.edu/procedures/sexual-misconduct.php>.

Other Policies

See the Student Handbook (<http://catalog.kennesaw.edu/>) for other policies and information.

KSU SMART Center

If you require tutoring assistance, the Science and Math Academic Resource and Tutoring (SMART) Center at KSU provides tutoring for all current KSU students in Math, Science, Engineering, Humanities, and Social Science courses. See <https://academicaffairs.kennesaw.edu/smart/index.php> for further details.

COVID-19 illness

If you are feeling ill, please stay home and contact your health professional. In addition, please email your instructor to say you are missing class due to illness. Signs of COVID-19 illness include, but are not limited to, the following:

- Cough
- Fever of 100.4 F or higher
- Runny nose or new sinus congestion
- Shortness of breath or difficulty breathing
- Chills
- Sore Throat
- New loss of taste and/or smell

COVID-19 vaccines are a critical tool in “Protecting the Nest.” If you have not already, you are strongly encouraged to get vaccinated immediately to advance the health and safety of our campus community. As an enrolled KSU student, you are eligible to receive the vaccine on campus. Please call (470) 578-6644 to schedule your vaccination appointment or you may walk into one of our student health clinics.

For more information regarding COVID-19 (including testing, vaccines, extended illness procedures and accommodations), see KSU’s official Covid-19 website, <https://www.kennesaw.edu/coronavirus/>.

Face Coverings

Based on guidance from the University System of Georgia (USG), all vaccinated and unvaccinated individuals are encouraged to wear a face covering while inside campus facilities. Unvaccinated individuals are also strongly encouraged to continue to socially distance while inside campus facilities, when possible.

Course Delivery

KSU may shift the method of course delivery at any time during the semester in compliance with University System of Georgia health and safety guidelines. In this case, alternate teaching modalities that may be adopted include hyflex, hybrid, synchronous online, or asynchronous online instruction.

Class Schedule

MODULE 1: Electric Potential and Electric Field

RECITATION

Week 1	Jan 10	Chapter 18: Electric Charge and Electric Field	Math Review
	Jan 12	Chapter 18: Electric Charge and Electric Field	Math Review
	Jan 14	Chapter 18: Electric Charge and Electric Field	Math Review
Week 2	Jan 17	BREAK	
	Jan 19	Chapter 18: Electric Charge and Electric Field	Electric Field Calculations
	Jan 21	Chapter 18: Electric Charge and Electric Field	Electric Field Calculations
Week 3	Jan 24	Chapter 19: Electric Potential and Electric Field	Electric Field Calculations
	Jan 26	Chapter 19: Electric Potential and Electric Field	Electric Potential Calculations
	Jan 28	Chapter 19: Electric Potential and Electric Field	Electric Potential Calculations
Week 4	Jan 31	Chapter 19: Electric Potential and Electric Field	Electric Potential Calculations
	Feb 2	TEST 1	NO RECITATION

MODULE 2: Resistance, Ohm's Law and DC Circuits

	Feb 4	Chapter 20: Electric Current Resistance, Ohm's Law	Resistance and Resistivity Calculations
Week 5	Feb 7	Chapter 20: Electric Current Resistance, Ohm's Law	Resistance and Resistivity Calculations
	Feb 9	Chapter 20: Electric Current Resistance, Ohm's Law	Resistance and Resistivity Calculations
	Feb 11	Chapter 21: Circuits and DC Instruments	Analysis of DC Circuits
Week 6	Feb 14	Chapter 21: Circuits and DC Instruments	Analysis of DC Circuits
	Feb 16	Chapter 21: Circuits and DC Instruments	Analysis of DC Circuits
	Feb 18	TEST 2	NO RECITATION

MODULE 3: Magnetism, Electromagnetic Induction and Electromagnetic Waves

Week 7	Feb 21	Chapter 22: Magnetism	Magnetic Force on a Moving Particle
	Feb 23	Chapter 22: Magnetism	Magnetic Force on a Moving Particle
	Feb 25	Chapter 22: Magnetism	Magnetic Force on a Moving Particle
Week 8	Feb 28	Chapter 22: Magnetism	Magnetic Fields Produced by Currents
	Mar 2	Chapter 22: Magnetism	Magnetic Fields Produced by Currents
	Mar 4	Chapter 22: Magnetism	Magnetic Fields Produced by Currents
Week 9	Mar 7	BREAK	BREAK
	Mar 9	BREAK	BREAK

	Mar 11	BREAK	BREAK
Week 10	Mar 14	Chapter 23: Electromagnetic Induction	Current, back EMF, and Coil Resistance in an Electric Generator
	Mar 16	Chapter 23: Electromagnetic Induction	Current, back EMF, and Coil Resistance in an Electric Generator
	Mar 18	Chapter 23: Electromagnetic Induction	Current, back EMF, and Coil Resistance in an Electric Generator
Week 11	Mar 21	Chapter 24: Electromagnetic Waves	Frequency, Wavelength and Energy of an EM wave
	Mar 23	Chapter 24: Electromagnetic Waves	Frequency, Wavelength and Energy of an EM wave
	Mar 25	Chapter 24: Electromagnetic Waves	Frequency, Wavelength and Energy of an EM wave
Week 12	Mar 28	TEST 3	NO RECITATION
MODULE 4: Optics			
	Mar 30	Chapter 25: Geometric Optics	Ray Tracing with Lenses; Locating and Characterizing an Image
	Apr 1	Chapter 25: Geometric Optics	Ray Tracing with Lenses; Locating and Characterizing an Image
Week 13	Apr 4	Chapter 25: Geometric Optics	Ray Tracing with Lenses; Locating and Characterizing an Image
	Apr 6	Chapter 26: Vision and Optical Instruments	Magnification in microscopes and telescopes
	Apr 8	Chapter 26: Vision and Optical Instruments	Magnification in microscopes and telescopes
Week 14	Apr 11	Chapter 26: Vision and Optical Instruments	Magnification in microscopes and telescopes
	Apr 13	Chapter 27: Wave Optics	Interference and Diffraction
	Apr 15	Chapter 27: Wave Optics	Interference and Diffraction
Week 15	Apr 18	Chapter 27: Wave Optics	Interference and Diffraction
	Apr 20	TEST 4	NO RECITATION
	Apr 22	Chapter 29: Quantum Physics [TBD]	Photon Energy and Momentum
Week 16	Apr 25	Chapter 29: Quantum Physics [TBD]	Photon Energy and Momentum
	Apr 27	Chapter 29: Quantum Physics [TBD]	Photon Energy and Momentum
	Apr 29	REVISION	NO RECITATION
Week 17	May 2	REVISION	NO RECITATION
	May 6	1:00pm–3:00pm	FINAL EXAM

