

Syllabus PHYS 114 General Physics 2 Fall 2020
--

You must be registered for a lecture, a recitation, a lab, and the quiz section.

Course instructors:

Lecturer: Jeremy Schmit

Office: CW 330; Email: schmit@ksu.edu

Office Hours: Mon. 3:15-4:15, Thurs. 2:30-4:00, and by appointment.

Lab instructor: B. Lohman

Office: CW 401; Phone: 785-532-1605; Email: bcl6677@phys.ksu.edu

Required textbook and materials:

Textbook: OpenStax College Physics. This is available in many formats, including as a free download. Any version is acceptable.

Sapling Learning: This is a web-based tutoring and homework assignment system. It can be purchased through the bookstore or directly from the Sapling website. Directions for logging into Sapling for the first time can be found on the course website on Canvas. Note that the initial sign in must be done through Canvas.

Lab Manual: The lab manual will be in electronic form accessible on Canvas.

REEF Polling subscription: REEF Polling is the smartphone-based version of i>Clicker. Since lectures will be conducted in a remote format, the “remote control” style i>Clicker devices will not work.

Course Web Site:

Important course resources such as exam grades, announcements, practice exams, lecture notes, etc. will be posted on the course web site on Canvas. You can also find information and links to help for physics courses at <http://www.phys.ksu.edu/teaching.html>.

Individual Help:

The Physics Department has a Help Room in Cardwell 41 where students can seek help from staff TAs. It remains to be determined if the Help Room will physically open this semester. Plans are in development for a virtual Help Room and details will be posted to Canvas when these plans are finalized. Feel free to utilize the virtual Help Room any time that it is open, not just when your TA is online. Help can also be obtained in the virtual office hours of your recitation or lecture instructor. In addition, some physics graduate students work as paid tutors. A list of contacts will be posted when available.

Authorized versus Unauthorized Aid in Academic Work for this class:

In this course, you are permitted (even encouraged) to work with other students on homework problems, but you may not directly copy answers from any source. You must work the problems yourself and the presentation of the submitted solution must be your own. Exams must be completed individually using only the materials allowed by the exam instructions. Policies for laboratory work and write-ups are given in the lab manual. If you have any questions about what constitutes authorized and unauthorized aid, contact the instructor immediately. Note that *any access* of a website that publishes worked-out solutions to problems is considered unauthorized aid and is strictly forbidden.

Grading:

Grades are determined on a 1000 point scale as shown below. You cannot get a good grade in the course unless you do all the homework, take all the exams, and do well in the laboratory. Distribution of points:

Homework	100 points (recitation)
	100 points (Sapling)
Best 4 of 5 exams	400 points
Final exam	150 points
iClicker	25 points
Reading quizzes	25 points
Laboratory	200 points
<hr/>	
Total	1000 points

Determination of final grade:

900 points or above	A
800-899 points	B
700-799 points	C
600-699 points	D
Under 600 points	F*

* A passing grade in laboratory is required to pass the course.

Any disputes in the grading of homework or exams must be made within two weeks of when the exam or homework is returned to the class. After two weeks all grades are final.

Recitations and Homework:

Solving problems systematically on a regular basis is an important part of success in physics. Qualitative understanding of concepts is also important. Homework counts as 20% of your final grade. There will be two assignments per week; one written assignment and one electronic assignment in the Sapling web-based instruction system. The recitations on Wednesday are your opportunity to get help on the concepts and solutions of the homework problems. Your solution to the written homework must be turned in at the end of the recitation period (with a small allowance for scanning and uploading your file). Final on-line homework answers must be submitted in Sapling by the due date (usually Monday evening). The lowest score will be dropped from your written and electronic assignments (1 each).

Written homework solutions must include the following steps:

1) *Define the physics:* Identify the known and unknown quantities in the problem. Define variables representing these quantities. In most cases this will require a figure and/or free body diagram. Select the equation(s) that you will use to solve the problem. Identify the equations and/or state why you selected them (“We need the equation for the force on a charge in an electric field: $\mathbf{F} = q\mathbf{E}$ ”).

2) *Work the problem:* Do not plug in numbers yet! Manipulate the equations algebraically to find an answer in terms of the variables defined above. Now plug in numbers *and units* for the known quantities in your solution. Determine a numerical answer *and units*. There will be an automatic deduction for assignments that do not show that the starting units are equal to the final units. Present answers with the correct number of significant figures and all vectors must have a direction and magnitude.

3) *Analyze your solution:* Is your answer reasonable? What is it telling you? If your answer seems suspicious, explain why.

Exams:

There are five exams during the semester. Only the best four of your five scores will count. Makeup exams will be given only in the case of conflicts with authorized university events. In this case it is your responsibility to make arrangements with the lecturer at least 1 week in advance of the conflict. Exams are given at 5:30 pm on the Thursdays shown in the schedule. The final exam is comprehensive, mandatory, and has weight of one and a half mid-semester exams. There will be no substitutions for the final exam. Exams contain problems that are similar (but not identical) to homework problems, and also conceptual questions in multiple-choice format. The exams must

be worked individually. A sheet of useful constants and equations will be provided with your exam as a memory aid. But please note that past student experience has shown that having equations available does not guarantee success – understanding the physics is the key.

Exam 1	9/3	5:30-6:45 pm
Exam 2	9/24	5:30-6:45 pm
Exam 3	10/8	5:30-6:45 pm
Exam 4	10/29	5:30-6:45 pm
Exam 5	11/12	5:30-6:45 pm
Final	12/8	6:20-8:10 pm

Laboratory:

The laboratory is a required and integrated part of the course, and counts 20% of your final grade. A passing grade in laboratory is required to pass the course. See the lab manual for rules and grading procedures. Credit for Previous Lab Work: Students retaking the course who have successfully completed the lab must contact B. Lohman in CW401 (532-1605) prior to the first week of lab in order to get credit for previous lab work.

Statement Regarding Academic Honesty

Kansas State University has an Honor and Integrity System based on personal integrity, which is presumed to be sufficient assurance that, in academic matters, one's work is performed honestly and without unauthorized assistance. Undergraduate and graduate students, by registration, acknowledge the jurisdiction of the Honor and Integrity System. The policies and procedures of the Honor and Integrity System apply to all full and part-time students enrolled in undergraduate and graduate courses on-campus, off-campus, and via distance learning. A component vital to the Honor and Integrity System is the inclusion of the Honor Pledge which applies to all assignments, examinations, or other course work undertaken by students. The Honor Pledge is implied, whether or not it is stated: "On my honor, as a student, I have neither given nor received unauthorized aid on this academic work." A grade of XF can result from a breach of academic honesty. The F indicates failure in the course; the X indicates the reason is an Honor Pledge violation.

Statement Regarding Students with Disabilities

Students with disabilities who need classroom accommodations, access to technology, or information about emergency building/campus evacuation processes should contact the Student Access Center and/or their instructor. Services are available to students with a wide range of disabilities including, but not limited to, physical disabilities, medical conditions, learning disabilities, attention deficit disorder, depression, and anxiety. If you are a student enrolled in campus/online courses through the Manhattan or Olathe campuses, contact the Student Access Center at accesscenter@k-state.edu, 785-532-6441; for K-State Polytechnic campus, contact Julie Rowe, Diversity, Inclusion and Access Coordinator, at jarowe@ksu.edu or call 785-826-2971.

Statement Defining Expectations for Classroom Conduct

All student activities in the University, including this course, are governed by the Student Judicial Conduct Code as outlined in the Student Governing Association By Laws, Article V, Section 3, number 2. Students who engage in behavior that disrupts the learning environment may be asked to leave the class.

Statement Regarding Wearing of Face Coverings

To protect the health and safety of the K-State community, students, faculty, staff and visitors must wear face coverings over their mouths and noses while on K-State campuses in all hallways, public spaces, classrooms and other common areas of campus buildings, and when in offices or other work spaces or outdoor settings when 6-foot social distancing cannot be maintained. In addition, all students, faculty, and staff are required to take the COVID-19 and Face Mask Safety training. Employees who need reasonable accommodations and assistance related to required face coverings may contact the ADA coordinator at charlott@k-state.edu, and students needing accommodations may contact the Student Access Center at accesscenter@k-state.edu.

In classrooms, faculty have the right to deny a student entry into the room if the student is not wearing a face covering. Students not wearing a face covering will be reminded to do so and offered a clean face covering, if one is available. If the student does not comply, the faculty member will

ask the student to leave the space, and if available, join the class remotely. As a last resort, campus police will be called. The faculty members will complete the Code of Conduct form and the Office of Student Life will look further into the issue and take the non-compliance with the request to leave into consideration of further accountability measures.

At no point should the professor or other students put themselves into an unsafe situation while attempting to enforce the face-covering policy. Manhattan campus police: 785-532-6412

Statement for Copyright Notification

This syllabus, lectures, and other course materials copyright 2019 by Jeremy Schmit. During this course students are prohibited from selling notes to or being paid for taking notes by any person or commercial firm without the express written permission of the professor teaching this course.

Tentative Schedule			
Week	Day	Subject	Reading
1	Tues 8/18 Thurs 8/20 Lab	Electric Charge Polarization, Coulomb's Law none	18.1 to 18.2 18.3 to 18.4
2	Tues 8/25 Thurs 8/27 Lab	Electric field Electric potential, dielectrics Intro to Electrostatics	18.5-6, 19.1 19.2 to 19.5
3	Tues 9/1 Thurs 9/3 Lab	Catch up and review Capacitors, Current Equipotentials & the Electric Field	19.7, 20.1
			Exam 1: Thurs 9/3 at 5:30
4	Tues 9/8 Thurs 9/10 Lab	Circuits and power Parallel/Series circuits, AC Capacitors and Electrical Potential Energy	20.2 to 20.4 20.5, 21.1
5	Tues 9/15 Thurs 9/17 Lab	Effective resistors, RC circuits Magnetic fields Ohm's Law and Simple Circuits	21.2-3, 21.6 22.1 to 22.3
6	Tues 9/22 Thurs 9/24 Lab	Magnetic force Electromagnetic induction Currents and Magnetic Fields	22.4 to 22.10 23.1 to 23.3
			Exam 2: Thurs 9/24 at 5:30
7	Tues 9/29 Thurs 10/1 Lab	Light rays and mirrors Refraction and lenses Electromagnetic Induction	25.1-2, 25.7 (mirrors) 25.3 to 25.6 (lenses)
8	Tues 10/6 Thurs 10/8 Lab	catch up and review Camera and Eye Ray Tracing	26.1 to 26.4
			Exam 3: Thurs 10/8 at 5:30
9	Tues 10/13 Thurs 10/15 Lab	Light waves and diffraction Resolution, Blackbody radiation The Eye and Box Camera	27.1 to 27.5 27.6, 29.1, 29.3-4
10	Tues 10/20 Thurs 10/22 Lab	Photoelectric effect, Spectra Atomic models Diffraction	29.2, 29.5-7 to 30.5 30.1-4, 30.6-8
11	Tues 10/27 Thurs 10/29 Lab	catch up and review Radioactivity Photoelectric Effect	31.1 to 31.7
			Exam 4: Thurs 10/29 at 5:30
12	Tues 11/3 Thurs 11/5 Lab	Biological effects of radiation Fission and fusion Atomic Emission Spectra	32.1 to 32.4 32.5 to 32.7
13	Tues 11/10 Thurs 11/12 Lab	catch up and review Statistics, Ensembles, and Entropy Simulated Nuclear Decay	15.7, Handout sections 1, 2
			Exam 5: Thurs 11/12 at 5:30
14	Tues 11/17 Thurs 11/19 Lab	Boltzmann Distribution Molecular probabilities Radiation	Handout sections 3 to 5 Handout sections 6, 7
Thanksgiving Break			
15	Tues 12/1 Thurs 12/3 Lab	Entropic forces, temperature catch up and review none	
			Final: Tues 12/8 at 6:20pm