

Syllabus for PHYS 112 – Fall 2022

General Physics 2: Electricity, Magnetism & Optics

Section 1:	MWF 11:00 AM–11:50 AM	Instructor:	Dr. Nate Crossette
Section 2:	MWF 1:10 PM–2:00 PM	Office:	Hugel 015
Room:	Hugel 100	E-mail:	crossetn@lafayette.edu

Office Hours: Thurs. 11am–12pm, Fri. 2–4pm, and by appointment.

Supplemental Instruction (SI's): Catarina Kruman is our SI for this semester and will hold the following drop-in office hours and review sessions.

- Catarina Kruman (room RISC 362)
 - Sunday: 2 – 4pm
 - Monday: 7:15 – 9:15pm

Text: *College Physics: a strategic approach*, 4th Edition, by Randall Knight, Brian Jones, and Stuart Field, Pearson 2018. The most recent edition of the text is not required. Mastering Physics access (see the section on Homework) includes access to a digital copy of the textbook.

Moodle: <https://moodle.lafayette.edu/course/view.php?id=23790>

Mask Policy: This semester masks will be required in Labs and will be provided. Masks are optional during lectures. However, more so than protecting the wearer from viruses, wearing a mask protect others from a contagious wearer. If you are feeling ill, please do not attend lectures and contact me if you would like to schedule an office hour appointment to review any missed lectures when you are feeling better.

Course Description: Electric and magnetic fields; electromagnetic induction; electric circuits; waves; geometrical and physical optics; foundations of quantum mechanics; and nuclear physics. Physical ideas are stressed, but considerable emphasis is placed on problem solving. This course counts toward the Natural Sciences Unit of the Common Course of Study.

Course Objectives: This course builds on the ideas of forces, motion, and energy to introduce the concepts of electricity, magnetism, waves, and optics. The foundation concepts of quantum mechanics and nuclear physics will also be briefly introduced. Students should leave the course with a working conceptual understanding of electromagnetic fields, circuits, ray optics, waves, and an appreciation of the modern physics topics of quantum mechanics and nuclear physics particularly as they pertain to real-world and practical applications. Most importantly, however, students should leave the course with confidence in their skills solving problems in new, unfamiliar situations and see the physics in the world around them.

Course Feedback: There will be three non-anonymous surveys given throughout (at the beginning, middle, and end of) the course. These surveys are intended to help me get to know you and let me know how I can improve the course. Submission of the surveys will be required as part of students' participation grade in the course. Additionally, an anonymous form is available through the Moodle site to provide more immediate feedback at any time.

Grading:

- Homework: 30% (Average grade of 10 highest of 11 assignments)
- Labs: 20%
- Exams: 25% (2 mid-term exams each worth 12.5%)
- Final: 20%
- Participation: 5% (3 course surveys, and pre-/post- CLASS scientific attitudes survey)

Homework: Homework is assigned through the Mastering Physics online platform. Students will need to [sign up](#) for the 18-week access.r.

Homework will be assigned once a week and will be due on a date determined by the results of the initial class survey. On the weeks before exams, assignments will be split between online and hand-written submission. Students may work alone or in groups, and collaboration is encouraged. However, please work out the solutions for yourself whether you work alone or in a group. There will be 11 assignments given over the course of the semester, and the lowest individual homework grade will be dropped in the calculation of final grades.

Exams: In-class mid-term exams are currently scheduled for Feb. 24th and Apr. 7th (both Fridays). Exams will be closed book, and an equation sheet will be provided. Scientific and graphing calculators will be allowed, but no cell phones.

My Schedule:

	Monday	Tuesday	Wednesday	Thursday	Friday
8:00 AM					
8:30 AM					
9:00 AM				PHYS 112 - LAB	
9:30 AM					
10:00 AM					
10:30 AM					
11:00 AM	PHYS 112 - Lecture		PHYS 112 - Lecture	Office Hours	PHYS 112 - Lecture
11:30 AM					
12:00 PM	Lunch				
12:30 PM					
1:00 PM	PHYS 112 - Lecture		PHYS 112 - Lecture	PHYS 112 - LAB	PHYS 112 - Lecture
1:30 PM					
2:00 PM					Office Hours
2:30 PM	Lab Meeting				Office Hours
3:00 PM					Office Hours
3:30 PM					
4:00 PM		SI Meeting	Physics Tea		
4:30 PM					

Schedule subject to change. Will be finalized by the second week of the semester

Statement on Diversity and Inclusion: Individuals from marginalized backgrounds have been, historically and presently, underrepresented in the physics community. This is partially due to a culture of privilege and elitism that over values sacrifice and commitment to excellence which, while intended to encourage personal growth, can result in a standard that is more easily reached by people with more privilege, and thus exacerbating inequity. The field of physics will benefit from the inclusion of people with diverse experiences and perspectives, so I want all students to feel welcome and have a sense of belonging in this course. Please let me know if anyone, including myself, makes you feel uncomfortable or unwelcome in this course. Studying physics has been an empowering and rewarding experience for me, and I hope to make this class meaningful so that you leave this course with a similar feeling of empowerment and accomplishment.

Academic Integrity: You are expected to abide by the principles of intellectual honesty outlined in the [Lafayette Student Handbook](#).

Learning is a collaborative process, I encourage you to discuss and collaborate with other students on homework. “Collaboration” does not mean “copying.” You must understand and individually write out your answer to each problem. Exams must be done on your own, using only materials specifically allowed.

Proper Use of Course Materials: At Lafayette College, all course materials are proprietary and for class purposes only. This includes posted recordings of lectures, worksheets, discussion prompts, and other course items. Re-posting such materials or distributing them through any means is prohibited. Such materials should not be re-posted or distributed through any means, e.g. CourseHero or Chegg. You must request my permission prior to creating your own recordings of class materials, and any recordings are not to be shared

or posted online even when permission is granted to record. If you have any questions about proper usage of course materials please ask me.

Academic Support: There many resources available to support your learning at Lafayette. Please see the [Academic Resource Hub](#) and the Center for the Integration of Teaching, Learning, & Scholarship ([CITLS](#)) for resources including (and not limited to) tutoring, study habits, time management, student athlete support, test preparation, and more.

Mental Health Support: There are many resources at Lafayette to support your mental health. Please reach out to me, your academic advisor, class dean, or any of the resources below about any difficulty you may be having with this course or others, especially if it interferes with your academic success:

- **Counseling Center:** Free, confidential counseling services as well as after-hours and weekend crisis support — 2nd Floor, Bailey Health Center — 610-330-5005
- **Class Deans:** 3rd Floor, Scott Hall — 610-330-5080
- **Togetherall:** Anonymous, peer-to-peer mental health support, 24/7, 365 days
- **Health Center:** 1st Floor, Bailey Health Center — 610-330-5001
- **One Pard:** Centralized resources to help students support themselves and their peers

Accomodations: Lafayette is committed to providing support and reasonable accommodations for students with disabilities who self-identify with Accessibility Services. Students requesting accommodations to alleviate the impact of their disability should register their needs as soon as possible with the Accessibility Services Office, which is housed in the [Academic Resource Hub](#). Once registered, students should request their accommodation letters to provide notification of their needs to their professors, on a semester by semester basis. If you have questions or concerns pertaining specifically to your accommodations within this course, please contact the instructor (me) to discuss them.

Mandatory Moodle privacy statement: Moodle contains student information that is protected by the Family Educational Right to Privacy Act (FERPA). Disclosure to unauthorized parties violates federal privacy laws. Courses using Moodle will make student information visible to other students in this class. Please remember that this information is protected by these federal privacy laws and must not be shared with anyone outside the class. Questions can be referred to the Registrar's Office.

Mandatory credit hour statement: The student work in this course is in full compliance with the federal definition of a four credit hour course.