

# PHY 212: General Physics II – Electricity and Magnetism

## Fall 2023 Course Syllabus

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### Overview

In Physics 212, you will learn about electricity, magnetism, and the unification of the two: **electromagnetism**. Radio communication was a direct consequence of improved scientific understanding of these subjects, and hence our present-day hyper-connected society owes much of its existence to the work of the pioneers who uncovered the laws of electromagnetism. **The objectives of this course are:** (1) To develop a basic understanding of the laws of electromagnetism; (2) to develop the ability to apply these new concepts, both qualitatively and quantitatively, to familiar and unfamiliar physical situations.

### Course details

<i>Instructor/ Professor</i>	<b>Eric Coughlin</b> <b>Email:</b> <a href="mailto:ecoughli@syr.edu">ecoughli@syr.edu</a> , <b>Office:</b> 263-4 Physics Bldg. <b>Office Hours:</b> Tuesdays, 11:00AM - 1:00 PM
<i>TA's</i>	<b>Ananya Bandopadhyay, <a href="mailto:abandopa@syr.edu">abandopa@syr.edu</a></b> <b>Daniel Paradiso, <a href="mailto:dparadis@syr.edu">dparadis@syr.edu</a></b> <b>Nandita Tiwari, <a href="mailto:natiwari@syr.edu">natiwari@syr.edu</a></b> <b>John Batarekh, <a href="mailto:jvbatare@syr.edu">jvbatare@syr.edu</a></b>
<i>Concerns</i>	For questions on Kudu (see below) homework problems, please contact the TA appropriate to your recitation section. For other matters, please contact Eric.
<i>Lecture times</i>	Tue. & Thur., 9:30-10:50 AM, Stolkin Auditorium (Physics Bldg 1 <sup>st</sup> floor)
<i>Credits</i>	3
<i>Prerequisites</i>	PHY 211 or PHY 215 (General Physics I) PHY 221 (General Physics I Laboratory) MAT 285 or MAT 295 (Calculus I)
<i>Co-requisites</i>	PHY 222 (General Physics II Laboratory) MAT 286 or MAT 296 (Calculus II)
<i>Recitation</i>	Your recitation section will meet for 55 minutes each Wednesday and Friday.
<i>Enrollment issues</i>	If you are having trouble adding/dropping the course, or switching sections, please speak with Kristine Weisblatt via email: <a href="mailto:phyacademics@syr.edu">phyacademics@syr.edu</a>
<i>Blackboard</i>	Your grades will be posted on blackboard: <a href="http://blackboard.syr.edu/">http://blackboard.syr.edu/</a>
<i>Kudu (Online homework)</i>	We will use the free online homework system, Kudu, for this course (see below for instructions on signing up).
<i>Physics clinic</i>	A physics clinic is operated in room 112 of the Physics Bldg. You can drop by to get help with physics problems.
<i>Lab</i>	There is a lab for this course, PHY 222, but the lab and the course are <i>completely disconnected</i> . Therefore, if you have a question regarding the lab, you must ask the lab instructor or your lab TA.

## Textbook

There is one book for this class, the **Openstax free textbook** - "University Physics Volume 2": <https://openstax.org/details/books/university-physics-volume-2>. You can download a pdf (but make sure it is the most up-to-date version!) or use your internet browser.

## Homework and recitation

Homework will be completed online. We will use Kudu, which is free. Instructions for signing up for our course:

1. Go to [www.kudu.com](http://www.kudu.com).
2. Create an account – **Important: in the Student/University ID field, please use your \*9 digit\* SUID (ignoring the last 0 on your ID card)**

This should send you to a box where you have your info. Please enter your \*9 digit\* SUID 123456789 (ignoring the last -0 on your cards)

First Name

Last Name

Email

@syr.edu

Student/University ID

Your SUID here!



This should be the unique ID assigned by your university/institute that your instructor will use to match your account to university records e.g A13579123

3. Click the red "+" button to sign up for a new course and **search for the course ID: 7u3ksy**
4. To access this course directly go to <https://www.kudu.com/?course=7u3ksy>.
5. This is a FREE course and you will not be charged any fees.
6. Make sure you see "PHY-212-F23" on your Kudu homepage.
7. If you need assistance contact [support@kudu.com](mailto:support@kudu.com).

## Recitation problem sets

For each meeting of your recitation section there will be a corresponding Kudu assignment that includes problems for you to solve. You should look at these problems before recitation and try to solve as many of them as you can, **but you do not need to submit any of your answers before recitation**. At the recitation section meetings, you will have a chance to review your understanding of the problems with other students in small groups. In a given week, you will have two sets of Kudu problems, one for the Wednesday and one for the Friday recitation. After working on these problems individually and together, you should **submit your final answers online in your Kudu account for credit, by the end of the weekend (due by Sunday night)**. We encourage you to work these problems out on paper or in a separate app on your laptop or tablet, and wait to submit your answers until you are satisfied with your understanding. Attending recitation and learning with your peers is essential for keeping up in this course; to reward this, you will earn credit for attending recitation, and additional credit for working with your classmates in your small groups. Finally, you are given credit for your score when you submit the Kudu problems.

### **Two-week problem sets**

You will also be assigned additional problems on Kudu that are due approximately every two weeks. You are encouraged to work on these problems with your peers as well. Note that the problems will be available before you have learned all the necessary material, so you will not be able to do them all immediately. We will cover the material in lecture before the problems are due.

### **Quizzams**

There will be 5 assessments throughout the semester, which are designed to be a hybrid between a short quiz and a more traditional, longer exam. **These will be held in Stolkin during scheduled class times.** If you cannot make it to a particular scheduled Quizzam, please let Prof. Coughlin know ASAP.

Because this is a large-enrollment course (typically  $> 200$  students), the quizzam format will be multiple choice; this will enable us to return your scores to you in a timely manner. However, we would like to give you partial credit, as physics is most often about the process and the sequence of steps taken to arrive at an answer, rather than the answer itself. Therefore, below each question we will provide you space to show your work, and even if you select the wrong answer you will be eligible to receive partial credit.

You may bring a single, one-sided sheet of notes/equations to use for each Quizzam. ***You cannot use any external assistance.*** This includes online “answer mills,” such as Chegg, Slader, etc. Using services like these is a serious Level 2 violation of S.U.’s academic integrity policy (see below), and will result in a failing grade for the semester, probation, or potentially more serious repercussions for a repeat offense. Uploading of any course materials (homework or exam questions) to services like these is an egregious Level 3 violation of S.U.’s academic integrity policy, and is additionally a violation of United States copyright laws. Additional information about academic integrity can be found later in this document.

## Calendar

Under **Topic**, the number in parenthesis is the chapter in the text. The exact timing of lecture topics may change slightly during the semester.

<i>Week</i>	<i>Date</i>	<i>Topic + Chapter reading</i>	<i>Notes</i>
<b>1</b>	8/29 8/31	Electric charges & forces (5)	<b>Welcome!</b>
<b>2</b>	9/5 9/7	Electric fields (5)	
<b>3</b>	9/12 9/14	Electric fields (5)	<b>Quizzam 1: Thursday 9/14</b>
<b>4</b>	9/19 9/21	Gauss' law (6)	
<b>5</b>	9/26 9/28	Gauss' law & Electric potential (6,7)	
<b>6</b>	10/3 10/5	Electric potential (7)	<b>Quizzam 2: Thursday 10/5</b>
<b>7</b>	10/10 10/12	Capacitance (8)	<b>No class: Tuesday 10/10</b>
<b>8</b>	10/17 10/19	Capacitance, Current & resistance (8,9)	
<b>9</b>	10/24 10/26	Current & resistance (9)	<b>Quizzam 3: Thursday 10/26</b>
<b>10</b>	10/31 11/2	DC Circuits (10)	
<b>11</b>	11/7 11/9	Circuits, Magnetic forces & fields (10,11)	
<b>12</b>	11/14 11/16	Magnetic forces & fields (11)	<b>Quizzam 4: Thursday 11/16</b>
<b>13</b>	11/21 11/23	<b>THANKSGIVING WEEK</b>	<b>No class: Tuesday 11/21, Thursday 11/23</b>
<b>14</b>	11/28 11/30	Sources of magnetic fields (12)	
<b>15</b>	12/5 12/7	Electromagnetic induction (13)	
<b>16</b>	12/12	<b>Quizzam 5</b>	<b>Quizzam 5: Tuesday 12/12</b>

## Grading

The distribution of points used in determining your final grade is:

- Quizzams 50%
- “Two-week” Kudu homeworks 25%
- Recitation (15% Kudu problems, 5% attendance, 5% participation) 25%

Your grade in this course is not curved. Thus, it is possible for every student in the class to get an “A”. Your course grade will be based on the following scale:

		A	90-100	A-	85-89
B+	80-84	B	75-79	B-	70-74
C+	65-69	C	60-64	C-	55-59
D	40-54				
F	0-39				

## Laboratory

PHY 222 is the laboratory component of PHY 212, but it is taught independently of PHY 212.

**We cannot help with logistical issues regarding the laboratory course.**

## Public Health

**What to do if you’re not feeling well:** One of the most important things you can do is to **stay home if you are sick.**

**What to do if you’re seriously sick:** If you have an illness or injury that interferes with your ability to do work in our class, *talk to us!* The Center for Disability Resources also helps students with short-term injuries and illnesses – concussions, broken bones, etc. If you are sick or hurt, we will work with you and with CDR to do whatever we can to accommodate your condition.

If you are sick and miss things, we will be flexible with deadlines to allow you to catch up. If you miss a large amount of class (two weeks or more), you may be eligible to take an “incomplete grade” in the course. If you think you might need to use this option, it is important to talk to us as early as possible so we can discuss arrangements. In general, only students who have completed a meaningful amount of classwork with a passing grade are eligible to take an incomplete.

## Syracuse University’s academic integrity policy

Syracuse University’s academic integrity policy reflects the high value that we, as a university community, place on honesty in academic work. The policy defines our expectations for academic honesty and holds students accountable for the integrity of all work they submit. Students should understand that it is their responsibility to learn about course-specific expectations, as well as about university-wide academic integrity expectations. The university policy governs appropriate citation and use of sources, the integrity of work submitted in exams

and assignments, and the veracity of signatures on attendance sheets and other verification of participation in class activities. The policy also prohibits students from submitting the same written work in more than one class without receiving written authorization in advance from both instructors. The presumptive penalty for a first instance of academic dishonesty by an undergraduate student is course failure, accompanied by a transcript notation indicating that the failure resulted from a violation of academic integrity policy. The presumptive penalty for a first instance of academic dishonesty by a graduate student is suspension or expulsion. SU students are required to read an online summary of the university's academic integrity expectations and provide an electronic signature agreeing to abide by them twice a year during pre-term check-in on MySlice. For more information and the complete policy, see <http://academicintegrity.syr.edu/>.

### **Disability-related accommodations**

If you believe that you need accommodations for a disability, please contact the Office of Disability Services (ODS), <http://disabilityservices.syr.edu>, located in Room 309 of 804 University Avenue, or call (315) 443-4498, TDD: (315) 443-1371 for an appointment to discuss your needs and the process for requesting accommodations. ODS is responsible for coordinating disability-related accommodations and will issue students with documented "Disabilities Accommodation Authorization Letters", as appropriate. Since accommodations may require early planning and generally are not provided retroactively, please contact ODS as soon as possible.

### **Religious observances policy**

SU religious observances notification and policy, found at <http://hendricks.syr.edu/spiritual-life/index.html>, recognizes the diversity of faiths represented among the campus community and protects the rights of students, faculty, and staff to observe religious holidays according to their tradition. Under the policy, students are provided an opportunity to make up any exam, study, or work requirements that may be missed due to a religious observance provided they notify their instructors before the end of the second week of classes for regular session classes and by the submission deadline for flexibly formatted classes.

For fall and spring semesters, an online notification process is available for students in MySlice / StudentServices / Enrollment / MyReligiousObservances / Add a Notification. Instructors may access a list of their students who have submitted a notification in My Slice Faculty Center.

## Equal opportunity, inclusion and resolution services

The Code of Ethical Conduct is a statement of principles guiding the activities of all faculty, staff, and students. It provides, in part, that we: Respect the rights and dignity of all persons and recognize that discrimination or harassment in any form undermines the fundamental principles of the University; and Support a respectful environment through our own actions, encourage respectful behavior in others, and speak out against hatred and bias. Additional information can be found at [www.syr.edu/hcd/equal-opportunity.html](http://www.syr.edu/hcd/equal-opportunity.html). If you have any concerns about these matters, write to the Office of Equal Opportunity, Inclusion and Resolution Services at [titleix@syr.edu](mailto:titleix@syr.edu).

We want to hear your feedback! You are an important part of our community, and we value your opinion; if you have any comments, concerns, or suggestions that you would like to relay anonymously, you can fill out the survey found here (you can also use the QR code below): [https://syracuseuniversity.qualtrics.com/jfe/form/SV\\_9pORpTKnq6pLeyF](https://syracuseuniversity.qualtrics.com/jfe/form/SV_9pORpTKnq6pLeyF)

