Welcome to Physics 181! Here is some basic but crucial information about the course. Please read it carefully.

**Contact information**

Instructor: Marco Bonett-Matiz  
\(\text{Marco.Bonett-Matiz@Yale.edu}\)  
TA: TBA  
Office Hours: TBA based on student’s availability, but feel free to ask me anything before or after class.

**Classes and discussion sessions**

Lecture/Discussion MTThF 9:30-10:45am/11am-noon Room: TBA.

**Textbook**

Required: TBA

**Polling devices**

Please check out a clicker from the Bass library before the first day of classes; you will not need a license.

**Meeting one-on-one**

Please sign up for a one-on-one meeting on Friday, July 5\(^{\text{th}}\) room TBA. My intention is to be pro-active and answer any questions to help you succeed in our class.

**Course prerequisites**

Our class makes extensive use of both differential and integral calculus. Please refer to the Online Course Information site for specific details on class prerequisites.

**Course description (Learning objectives)**

Our class will discuss calculus-based classical electromagnetism at the introductory level with a brief exploration of modern physics. You will learn standard techniques to solve problems in electro-statics, magneto-statics, E&M waves, and quantum mechanics. Toward the end you will have a conceptual understanding and geometrical intuition of the electro-magnetic field, as well as an appreciation for the role of symmetries.

More generally, our class offers you the opportunity to sharpen your critical thinking skills. You will learn a logical and consistent mathematical framework to describe electromagnetic fields. In the process, you will practice transferable skills such as problem-solving and quantitative reasoning.

**Reading assignments and course schedule**

Reading assignments included in the Course Schedule are mandatory before the corresponding class. You may find it difficult to follow the in-class discussion if you do not prepare, especially since I assume familiarity with their content. These reading assignments are straightforward which will allow us to emphasize more complex aspects during class.

**Quizzes**

There is a quiz at the beginning of every class that tests your understanding of the previous lecture or the reading assignment; for the most part they consist of conceptual questions. Please work on the problem sets between lectures to prepare for the quizzes; you may find them challenging otherwise. No make-up quizzes will be offered.

The quizzes start sharp at 9:30 am and consist of three multiple-choice for a maximum of three points. You have 6 min for your individual submission, followed by 4 min of peer discussion before resubmission. If the second score is higher one point is added to your initial submission. Nothing happens if your second score is the same or lower than the first.

**Homework policy**

\(^{1}\)Some of the material for the class has been repurposed from Phys S181 2011, taught in collaboration with Ross Boltyanskiy

\(^{2}\)http://students.yale.edu/oci/search.jsp
• **Deadlines:** Problem sets are posted every Monday/Thursday and are due at the beginning of class on the following Friday/Tuesday respectively. To help you stay on track I will implement a *strict* deadline policy: Late homework will only be accepted under extreme circumstances, and I must grant permission before the day is due. Your grade will be docked 10% for each day your homework is late and it will not be accepted after the solutions are posted.

The purpose of this policy is to prevent you guys from falling behind.

• **Collaboration:** Studying collaboratively will help you understand the material better. I strongly encourage you to work in groups when solving the problem sets, preparing for exams, etc. However, you *must* submit only material that reflects your understanding. There is *zero tolerance* for cheating and/or copying of homework solutions.

Problem sets and solutions will be posted on the Canvas server.

**Exams**

The three exams are:

- **First Exam:** Monday, July 8th, 9:30 am - 10:20 am, Chapters 21 - 23.
- **Midterm:** Friday, July 19th, 9 am - noon, Chapters 21 - 30.
- **Final Exam:** Monday, July 29th, 9 am - noon, Chapters 21 - 36 (except 34).

The exams consist of two main sections: (i) A multiple-choice section with conceptual questions similar to the quizzes, and (ii) two/four/five main problems for the first/midterm/final exam respectively. The problems are similar to homework exercises but not as involved mathematically. Three hours are allotted for the midterm and final which based on past experience is more than enough time for all students.

**Grades**

Your course average and letter grade are determined according to:

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
<th>Grade Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participation</td>
<td>5%</td>
<td>(94, 100) → A</td>
</tr>
<tr>
<td>Quizzes</td>
<td>15%</td>
<td>(88, 94) → A−</td>
</tr>
<tr>
<td>Homework</td>
<td>20%</td>
<td>(83, 88) → B+</td>
</tr>
<tr>
<td>First exam</td>
<td>10%</td>
<td>(78, 83) → B</td>
</tr>
<tr>
<td>Midterm</td>
<td>20%</td>
<td>(73, 78) → B−</td>
</tr>
<tr>
<td>Final</td>
<td>30%</td>
<td>(69, 73) → C+</td>
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The fixed intervals are to prevent competition for grades and I reserve the right to adjust them on your favor. If you average a 96% or greater I will submit a note of distinction with your letter grade.

**Withdrawing**

I will work hard to help you succeed, and I will provide prompt feedback. We should be proactive and discuss early on if you are struggling with the material. Should you need to withdraw, you must do so by Wednesday, July 17th to prevent any record of the class on your transcript. For detailed information and dates refer to the summer session website.³

**Academic honesty**

Academic dishonesty will not be tolerated in this class. Any work that you submit must be completely your own. If you used a resource to write your solution, you must cite the source. No copying, no cheating, and no other kinds of dishonest behavior will be tolerated. For more information please see Yale’s policy on academic honesty and related matters.⁴

**Words of advice**

This class is very fast-paced because it condenses four months’ worth of material into five weeks. Here are some tips that will help you stay on top of the course:

- Although the discussion sessions are not mandatory, I strongly suggest you attend. In them, we will cover more difficult problems in more detail compared to what I am able to do during lecture.
- Come to class on time. Classes are short and dense, so missing the beginning will make it difficult for you to understand the later parts. Also, no make-up quizzes will be given.
- Attend the tutoring sessions at the CTL Times/dates TBA.
- If you find yourself falling behind, ask for additional help and *immediately* put additional time into studying. Falling behind by a few lectures can be very detrimental in a 5-week course.
- Ask questions! If something is unclear, you are only helping me and your peers when you ask to explain it again. I will be happy to clarify the material and go over anything that is unclear.

> Please do not hesitate to ask me any questions.

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³http://www.yale.edu/summer

⁴http://yalecollege.yale.edu/content/academic-honesty