# PHYS 313 - 0101

*For latest information on the course, please regularly check **announcements** (https://umd.instructure.com/courses/1362389/announcements) !*

**Course Description:** A first course in electricity and magnetism at an advanced level. Electrostatics; solutions to the Laplace and Poisson equations in cartesian and spherical coordinates; electric fields in matter; and magnetostatics. Study of boundary value problems and extensive use of vector calculus.

**Title:** Electricity and Magnetism I (Spring semester 2025)

**Credits:** ***4***

**Prerequisite:** MATH241**,** PHYS 273 (Waves) and PHYS274 (Math Methods I) or equivalent

**Topics:** see table below

**Instructors:**

Information on how, when, and where you can communicate with the instructors of the course

| Role | Name | Email | Phone | Office[1] | Office hours |
|---|---|---|---|---|---|
| **Professor** | Dr. Xiangdong Ji | xji@umd.edu (mailto:kagashe@umd.edu) | (301) 405-6018 | PSC-3120 | 11am-12pm Tu & Th |
| **TA** | Sagar Airen | sairen@umd.edu | | PSC 3260 | 3 pm -4 pm Tu & Th (PSC 3260) |

[1]PSC is the **Physical Sciences Complex** (https://goo.gl/maps/YpYNUSdGy2BXxSwL6) , which is *different* from the lecture hall building.

Unless there is a time-sensitive issue, email is preferred for communication over phone.

**Class times and location:**

**Lecture Time & Place:**

*1:00-1:50 pm. on Monday; Rm 1113 Atlantic Building*

*12*:30 - 1:45 pm on Tuesday and Thursday; Room 1410 **Toll Physics Building** (https://goo.gl/maps/YPeuCdEVSw2VB8kV8)

(https://goo.gl/maps/YPeuCdEVSw2VB8kV8)

**Course Details:**

**Required Textbook:**

Introduction to Electrodynamics, D.J. **Griffiths**, fifth Edition, Prentice Hall

**Homework:**

- The **homework assignments** (https://umd.instructure.com/courses/1362389/files/folder/Homework%20Assignments) (problem sets) will generally be assigned Thursday on ELMS under Files Homework Assignments and will be due the Thursday of the following week.
- Late homework will be accepted at the discretion of the instructor (in particular, a valid documented excuse such a medical problem, religious holiday, or serious family crisis is required), but not after solutions have been uploaded.
- No homework will be dropped for any reason. For full credit for any written homework or exam problem, in addition to the correct answer, you must show the steps/justify your approach as much as possible.
- **Solutions to homework** (https://umd.instructure.com/courses/1362389/files/folder/Homework%20Solutions) (and exams) will be posted on ELMS under Files Homework Solutions
- See **general guidelines on completing homework** (https://umd.instructure.com/courses/1362389/pages/homework-guidelines) and submitting homework for more details

**Exams:**

There will be 2 midterm exams given during the lecture periods (1 hours 15 minutes in length). Both exams will contribute to the final grade for the course.

*Tentatively*, these are scheduled for Feb. 27 (Thursday) and April 10 (Thursday).

The final exam will be given during the standard exam period: xx on Monday, May xx

There will be no make-up for the exams, unless there is a strong documented excuse (medical problem, religious holiday, or serious family crisis).

Details such as which topics will be covered in each exam will be posted later.

**Grade**:

The semester grade will be based on the homework, in-class exams and the final exam with the following tentative weights:

- Homework: 20%
- Midterm Exam 1: 25%
- Midterm Exam 2: 25%
- Final Exam: 30%

**Attendance:**

Regular attendance and participation in this class is the best way to grasp the concepts and principles being discussed. Please try to attend every class and to read up the relevant chapter(s) of the textbook **before** coming to the class. Some **class notes** (https://umd.instructure.com/courses/1362389/files/folder/Class%20Notes) may be posted.

**Academic Honesty:**

Note that, although you are encouraged to discuss homework with other students, any work you submit must be your own and should reflect your own understanding. In fact, the main way you will understand Physics (and do well on the exams) is by doing the homework (that, too, by yourself).

In addition, academic dishonesty, such as cheating on an exam or copying homework, is a serious offense which

may result in suspension or expulsion from the University.

The University of Maryland, College Park has a nationally recognized Code of Academic Integrity, administered by the Student Honor Council. This Code sets standards for academic integrity at Maryland for all undergraduate and graduate students. As a student you are responsible for upholding these standards for this course. It is very important for you to be aware of the consequences of cheating, fabrication, facilitation, and plagiarism. For more information on the Code of Academic Integrity or the Student Honor Council, please visit **here (https://www.google.com/url?q=http://shc.umd.edu/SHC/Default.aspx&source=gmail-html&ust=1661623091700000&usg=AOvVaw1eZnnV99HaPotI5_D_w2Ey)**. To further exhibit your commitment to academic integrity, please **sign the Honor Pledge (which covers all examinations and Assignments)** and turn it in as **"Homework 1"**:

"I pledge on my honor that I will not give or receive any unauthorized assistance (including from other persons and online sources) on all examinations, quizzes and homework assignments in this course."

**Course Evaluations:**

Your participation in the evaluation of courses through CourseEvalUM is a responsibility you hold as a student member of our academic community. Your feedback is confidential and important to the improvement of teaching and learning at the University as well as to the tenure and promotion process. **CourseEvalUM (https://www.google.com/url?q=http://www.courseevalum.umd.edu/&source=gmail-html&ust=1661623091701000&usg=AOvVaw0gC15PfRMWR7yVFUPY4_0v)** is open until middle of December for you to complete your evaluations for Fall semester courses. By completing all of your evaluations each semester, you will have the privilege of accessing the summary reports for thousands of courses online at Testudo.

**(TENTATIVE) schedule** of Physics 373 topics, exams, and holidays (more detailed schedule, for example, by chapter-sections, might be posted as part of the **announcements (https://umd.instructure.com/courses/1362389/announcements)** ***(https://umd.instructure.com/courses/1331286/announcements)*** roughly at the beginning of each week; the homework assignments will also indicate this.)

Tentative schedule of topics in lectures

| Week | Dates | Main Topics | Chapter in Griffiths |
|---|---|---|---|
| **1** | Jan. 27, 28, 30 | Vector Analysis | 1 |
| **2** | Feb. 3,4,6 | Vector Analysis | 1 |
| **3** | Feb. 10,11, 13 | Electrostatics | 2 |
| **4** | Feb. 17,18, 20 | Electrostatics | 2 |
| **5** | Feb. 24,25, 27 | Potentials, exam1 | 1, 2 |

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|---|---|---|---|
| **6** | Feb. 3,4,6 | Potentials | 3 |
| **7** | Mar. 10,11,13 | Potentials | 3 |
| **8** | Mar. 17,18,20 | Spring break | |
| **9** | March 24,26,27 | Electric fields in Matter | 4 |
| **10** | March, 31 April 1, 3 | Electric fields in Matter | 4 |
| **11** | April 7,8,10 | Electric Fields in Matter; midterm2 | 4, |
| **12** | April 14,15,17 | Magnetostatics | 5 |
| **13** | April 21,22,24 | Magnetostatics | 5 |
| **14** | April 28,29,May 1 | Magnetostatics; Magnetic Fields in Matter | 5, 6 |
| **15** | May, 5, 6, 8 | Magnetic Fields in Matter | 6 |
| **16** | May 12, 13 | Magnetic Fields in Matter | 6 |
| **17** | May??? | Final exam | Cumulative (2-6) |

# Course Summary:

| Date | Details | Due |
|---|---|---|
| Thu Feb 6, 2025 | Assignment 1 (https://umd.instructure.com/courses/1383878/assignments/7090184) | due by 11:59pm |