



PHYSICS 408A – ELECTRICITY & MAGNETISM  
FALL 2018

Dr. Rosa Di Felice

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Office hours: MoWe 5:00-7:00pm

Lecture hours: MoWeFr 10:00-11:20

Lecture location: VHE 210

NOTES

Prerequisite: Phys 152 or 162

Corequisite: Math 245, Mathematics of Physics & Engineering I

TEXTS:

- David Griffiths: Introduction to Electrodynamics, Fourth Edition, Prentice Hall or Cambridge University Press.

ONLINE COURSE SUPPORT:

- The PHYS 408a home page is maintained on Blackboard at <https://blackboard.usc.edu>
- Under our home page you will find a copy of this lecture syllabus and schedule; solutions for completed homework; supplementary notes if needed.

CONTACT INSTRUCTOR AND TA:

In addition to exploiting office hours, students can contact the instructor by email and expect feedback within 24 hours, excluding the weekends.

The teaching assistant will communicate time and location of office hours at the beginning of the course.

HOMEWORK:

Homework will be assigned approximately every week.

Each homework has a target date. If an assignment is turned in to SSC 221 before 9 AM on the day following the target date, it is considered on time. If the assignment is turned in later than that, "late days" are assessed.

**Everyone is allowed up to ten late days over the course of the semester with no point penalty.** Weekends and holidays do not count toward the late-day total.

Your late day total will be updated on-line whenever you turn in an assignment. Once the tenth day is reached, any subsequent assignment must be turned in on the target date in order to receive credit. (If you turn in an assignment that pushes your late-day total to exactly eleven days, that one assignment will receive half-credit. Any assignment after that must be turned in on the target date to receive any credit.)

Graded homework will be returned in class within 10 days of the due date (to account for late submissions). Images of homework solutions will be posted on the course Blackboard page soon after the instructor has received the homework from all students.

#### EXAMINATIONS:

There will be two midterm examinations and a final examination. The midterm exams will be given during the regular class slot on Friday, September 21, and Friday, October 26. The final examination will be given on Monday, December 10, at 8-10am.

The exams are closed books, but formulas will be provided.

The grading will be based upon the following distribution of points:

Midterms	40%
Homework	20%
Final	40%

Please seek assistance immediately if you are having difficulty with the course. Help is available from the instructor and the teaching assistant(s).

If you have any conflicts with the scheduled exams, e.g. due to religious observance or overlap with other exams, please contact the instructor immediately, to arrange alternatives.

#### STUDENTS WITH DISABILITIES:

Students who need to request accommodations based on a disability are required to register each semester with the Office of Disability Services and Programs (DSP). In addition a letter of verification to the instructor from DSP is needed for the semester you are enrolled in this course. If you have any questions concerning this procedure, please contact the instructor and DSP at GFS 120, 213-740-0776.

#### ACADEMIC INTEGRITY:

Homework assignments may be done in collaboration with other students, and help is also available as noted above. **Under no circumstances should students seek out homework solutions from alumni of Physics 408a or from any other printed or online solution sets/manuals.**

Failure to abide by these rules will result in an automatic zero for the assignment and a report to the Office for Academic Integrity.

USC seeks to maintain an optimal learning environment. General principles of academic honesty include the concept of respect for the intellectual property of others, the expectation that individual work will be submitted unless otherwise allowed by an instructor, and the obligations both to protect one's own academic work from misuse by others as well as to avoid using another's work as one's own. All students are expected to understand and abide by these principles. Scampus, the Student Guidebook, contains the Student Conduct Code in Section 11.00, while the recommended sanctions are located in Appendix A: Students will be referred to the Office of Student Judicial Affairs and Community Standards for further review, should there be any suspicion of academic dishonesty. The Review process can be found at: <http://www.usc.edu/student-affairs/SJACS/>.

#### STATEMENT FOR OBSERVANCE OF RELIGIOUS HOLIDAYS:

USC's policy grants students excused absences from class to observe religious holidays: <http://orl.usc.edu/life/calendar/absences/> In this case, please contact your instructor in advance to agree on alternative course requirements.

## TENTATIVE SCHEDULE

Week	Dates	Chapter	Subject
1	8/20-8/24	1	Vector Algebra, Differential Calculus, Integral Calculus
2	8/27-8/31	1	Curvilinear Coordinates, The Dirac Delta Function, The Theory of Vector Fields
3	9/3-9/7	2	The Electric Field, Divergence and Curl of Electrostatic Fields, Electric Potential
4	9/10-9/14	2	Electric Potential, Work and Energy in Electrostatics, Conductors
5	9/17-9/21	1-2	Conductors, Review before Midterm I, Midterm I
6	9/24-9/28	3	Laplace's Equation, The Method of Images
7	10/1-10/5	3	Separation of Variables, Multipole Expansion
8	10/8-10/12	4	Polarization, The Field of a Polarizable Object
9	10/15-10/19	4	The Electric Displacement, Linear Dielectrics
10	10/22-10/26	3-4	Dielectrics, Review before Midterm II, Midterm II
11	10/29-11/2	5	The Lorentz Force Law, The Biot-Savart Law
12	11/5-11/9	5	The Biot-Savart Law, The Divergence and Curl of B
13	11/12-11/16	5-6	Comparison of Electrostatics and Magnetostatics, Magnetic Vector Potential, Magnetization
14	11/19-11/23	6	The Field of a Magnetized Object, The Auxiliary Field H
15	11/26-11/30	6	Linear and Nonlinear Media, Review before Final

## IMPORTANT DATES

- Beginning of classes – Monday, August 20, 2018
- Labor Day – Monday, September 3, 2018
- Last day to add classes or receive tuition refund – Friday, September 7, 2018
- Midterm Exam I – Friday, September 21, 2018
- Last day to withdraw without a “W” on transcript or change pass/no pass to letter grade – Friday, October 5, 2018
- Midterm Exam II – Friday, October 26, 2018
- Last day to drop with a mark of "W" – Friday, November 9, 2018
- Thanksgiving – Wed-Sun, November 21-25, 2018
- Last day of class – Friday, November 30, 2018
- Study days – December 1-4, 2018
- Final Exam – Monday, December 10, 2018, 8-10am