Physics 302

Electromagnetic Waves
Spring Semester 2019

Room:	Seaver Hall 109
Time:	**TR 9:40 - 11:10am (lecture 9:40 - 10:55am)**
Instructor:	Dr. Gabriele Varieschi
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Office hours:	TR 1:00 – 2:00 pm; and by appointment.
Web page:	http://gvarieschi.lmu.build/physics_302.html
Required Text:	**David J. Griffiths – Introduction to Electrodynamics – Fourth Edition – Cambridge University Press (or Prentice Hall). ISBN-13:** 978-1108420419 **ISBN-10:** 1108420419 (free pdf book can be also found online). We will cover chapters 5-8 and 12 of this book during the second semester.
Other useful books:	Your old PHYS 201 textbook (for an elementary introduction to electromagnetism).
(not required)	Reitz, Milford & Christy – Foundations of Electromagnetic Theory – Addison Wesley (another popular undergraduate text). John D. Jackson – Classical Electrodynamics – Wiley (a leading graduate level textbook).
Objectives and Topics:	We will cover several chapters of the textbook in the following order: Part I – Magnetostatics in vacuum: magnetic field and forces, Biot-Savart law, Ampere's law and magnetic potential. Part II – Magnetic fields in matter. Magnetization and linear media. Electrodynamics: electromotive forces, electromagnetic induction, Faraday's law. Maxwell's equations. Conservation Laws. Part III – Special relativity. Lorentz transformations and tensor notation. Electrodynamics in tensor notation.
	Prerequisite: PHYS 301.
Learning Outcomes:	Understand the foundations of classical electromagnetism from a more advanced point of view. Conceptually understand the theoretical framework of electromagnetic fields and related Maxwell equations. Be able to solve problems of increasing complexity, dealing with the applications of electromagnetism.
Tests:	There will be two tests during the semester. They will all count toward your final grade, so please try not to miss any of them.
Test Dates:	TBA
Final Exam:	**Thursday, May. 9, 8:00am-10:00am, or a take-home exam.** The final exam is cumulative and equivalent to 2 tests.

Homework: Homework assignments will be given, typically one or two for each chapter of the book. Problem sets will be not be graded, but students will present their solutions in class for credit.

Grading:

Class Attendance & Participation	10 %
Homework Presentation	18 %
Test 1	18 %
Test 2	18 %
Final Exam	36 %

Grading (approx.): 0-50%=F; 50-55%=D; 55-60%=C-; 60-65%=C; 65-70%=C+; 70-75%=B-; 75-80%=B; 80-85%=B+; 85-90%=A-; 90-100%=A.

Academic Honesty: Academic dishonesty will be treated as an extremely serious matter, with serious consequences that can range from receiving no credit for assignments/tests to expulsion. It is never permissible to turn in any work that has been copied from another student or copied from a source (including Internet) without properly acknowledging the source. It is your responsibility to make sure that your work meets the standard of academic honesty set forth in the "LMU Honor Code and Process" which appears in the *LMU Bulletin* (see http://bulletin.lmu.edu/)

Americans with Disabilities Act:

Students with special needs as addressed by the Americans with Disabilities Act who need reasonable modifications, special assistance, or accommodations in this course should promptly direct their request to the Disability Support Services Office. Any student who currently has a documented disability (physical, learning, or psychological) needing academic accommodations should contact the Disability Services Office (Daum Hall Room 224, 310-338-4535) as early in the semester as possible. All discussions will remain confidential. Please visit http://academics.lmu.edu/dss/ for additional information.

Syllabus changes: If necessary, this syllabus and its contents are subject to revision; students are responsible for any changes or modifications announced in class.

Have a nice semester. Good luck!