

PHYS 512: Classical Electromagnetism
COURSE SYLLABUS: Spring 2018
TR 9:15 am – 10:47 am - Science Building room 146

Instructor: Carlos Bertulani
Office Location: Science 140
Office Hours: TR 11:00 am - 12:15 pm
Office Phone: 903-886-5882
University Email Address: carlos.bertulani@tamuc.edu

Preferred Form of Communication: face-to-face, classroom, e-mail

COURSE INFORMATION

Catalog Description:

PHYS 512. Classical Electromagnetism
3 semester hours

A course designed to introduce students to classical electrodynamics: electrostatics, magneto-statics, multiple expansions, solution of boundary value problems, slowly varying currents, electromagnetic energy and momentum, Maxwell's equations and applications.

Textbook:

Classical Electrodynamics, J.D. Jackson, John Wiley & Sons, New York,
ISBN: 9780471309321

Course Content: We will cover the first 6 chapters of the book.

1. *Introduction to electrostatics.*
2. *Boundary-value problems in electrostatics I.*
3. *Boundary-value problems in electrostatics II.*
4. *Multipoles, electrostatics of macroscopic media, dielectrics.*
5. *Magnetostatics, Faraday's law, quasi-static fields.*
6. *Maxwell's equations, macroscopic electromagnetism, conservation laws*

Student Learning Outcomes

- Students will understand the discipline-specific knowledge covering the subjects listed above.
- Students will be able to show a working knowledge of a broad array of physical phenomena that are based upon fundamental concepts.
- Students will have strong physical reasoning and problem solving skills and apply these skills to the solution of theoretical and applied problems.
- This course will offer a curriculum emphasizing physical science to produce professionals capable of applying broad theoretical insight to solution of practical problems.

Syllabus/schedule subject to change

Syllabus Change Policy

The syllabus is a guide. Circumstances and events, such as student progress, may make it necessary for the instructor to modify the syllabus during the semester. Any changes made to the syllabus will be announced in advance.

COURSE REQUIREMENTS

Activities Assessments

The following measures will be used to assess the success of this course in achieving the above objectives: 3 midterm tests, homeworks, and a final exam.

GRADING

Final grades in this course will be based on the following scale:

A = 90%-100%

B = 80%-89%

C = 70%-79%

D = 60%-69%

F = 59% or below

Assessments

Homeworks: 35%

Midterm exams: 15% each

Final Exam: 20%

Exams:

- There will be three midterms and a final. Your exam grade will be computed from the average of all of your midterm grades. The exams will be weighted equally (15% each). The final will be cumulative and accounts for 20%. See the course calendar for exam dates.
- **Make-up exams will only be allowed for excused absences.** See course policies below for details on excused absences.
- At the instructor's discretion, **a take-home component may also be assigned in order to test the students on more difficult or time-consuming problems.** Students must do their own work on any take-home components of exams.

Homework:

- Several homework assignments will be assigned throughout the semester. They will account for 35% of the grade.
- **Homework is due at the beginning of the class one week after.**

- Students must do their own homework while discussions with others are strongly encouraged.
- **Homework cannot be typed. Must be handwritten.**
- Late homework will not be accepted.

COURSE AND UNIVERSITY PROCEDURES/POLICIES

Course specific rules

1. Cell phone use is only allowed for class activities.
2. Eating is not allowed. However, covered drinks are allowed.
3. Attendance will be taken at the beginning of class.
4. **The instructor must be notified by email** (carlos.bertulani@tamuc.edu) **about any excused absences no later than 24 hours after the missed class.** Even if you choose to notify the instructor in person, you must still follow up with email within 24 hours of the missed class. If you do not follow this policy, you may not be able to make up missed exams or turn in late work except in extreme circumstances.
5. You are responsible for obtaining notes and class announcements from missed classes.
6. Excessive absences may result in being dropped from the course. **Any student who misses more than three consecutive classes without a proper excuse will be penalized a letter grade.**
7. When emailing the instructor, include the course and section number in the subject line.
9. **You are expected to check your email at least once a day for class announcements.** Emails will be sent to the email addresses you provided to MyLeo. Notify the instructor if you would prefer to receive emails at a different address.
11. Students should fully participate in class activities.
12. Students are expected to be professional and respectful and take responsibility for their learning. **If you find yourself struggling, the instructor is available to provide advice outside of class.**

Course outline/calendar (Tentative)

Weeks 1-3	Electrostatics
Weeks 4-8	Boundary-value problems
Weeks 9-11	Macroscopic media and magnetism
Weeks 12-13	Maxwell's equations

Exam dates (Tentative)

Exam 1	03/01
Exam 2	03/27
Exam 3	04/17
Final Exam	05/08

Student Conduct

All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment. The Code of Student Conduct is described in detail in the Student Guidebook: <http://www.tamuc.edu/admissions/registrar/documents/studentGuidebook.pdf> Students should also consult the Rules of Netiquette for more information regarding how to interact with students in an online forum: Netiquette <http://www.albion.com/netiquette/corerules.html>

Academic Integrity

Students at Texas A&M University-Commerce are expected to maintain high standards of integrity and honesty in all of their scholastic work. For more details and the definition of academic dishonesty see the following procedures: Undergraduate Academic Dishonesty 13.99.99.R0.03 <http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/undergraduates/13.99.99.R0.03UndergraduateAcademicDishonesty.pdf> Graduate Student Academic Dishonesty 13.99.99.R0.10 <http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/graduate/13.99.99.R0.10GraduateStudentAcademicDishonesty.pdf>

Students with Disabilities

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact:

Office of Student Disability Resources and Services

Texas A&M University-Commerce

Gee Library- Room 132

Phone (903) 886-5150 or (903) 886-5835

Fax (903) 468-8148

Email: StudentDisabilityServices@tamuc.edu

Website: [Office of Student Disability Resources and Services](http://www.tamuc.edu/campusLife/campusServices/studentDisabilityResourcesAndServices/)

<http://www.tamuc.edu/campusLife/campusServices/studentDisabilityResourcesAndServices/>

Nondiscrimination Notice

Texas A&M University-Commerce will comply in the classroom, and in online courses, with all federal and state laws prohibiting discrimination and related retaliation on the basis of race, color, religion, sex, national origin, disability, age, genetic information or veteran status. Further, an environment free from discrimination on the basis of sexual orientation, gender identity, or gender expression will be maintained.

Campus Concealed Carry statement: Campus Concealed Carry - Texas Senate Bill - 11 (Government Code 411.2031, et al.) authorizes the carrying of a concealed handgun in Texas A&M University-Commerce buildings only by persons who have been issued and are in possession of a Texas License to Carry a Handgun. Qualified law enforcement officers or those who are otherwise authorized to carry a concealed handgun in the State of Texas are also permitted to do so. Pursuant to Penal Code (PC) 46.035 and A&M-Commerce Rule 34.06.02.R1, license holders may not carry a concealed handgun in restricted locations. For a list of locations, please refer to ([http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedure s/34SafetyOfEmployeesAndStudents/34.06.02.R1.pdf](http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedure%20s/34SafetyOfEmployeesAndStudents/34.06.02.R1.pdf)) and/or consult your event organizer). Pursuant to PC 46.035, the open carrying of handguns is prohibited on all A&M-Commerce campuses. Report violations to the University Police Department at 903-886-5868 or 9-1-1.