PHYS 597 Electricity and Magnetism for Educators

COURSE SYLLABUS: Fall 2014

Instructor: Dr. Robynne Lock
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COURSE INFORMATION

Textbook: *Mathematical Methods in the Physical Sciences, 3rd edition* by Mary L. Boas

Recommended text: *Pocket Book of Integrals and Mathematical Formulas* by Ronald J. Tallarida

Course Description

Advanced physics requires the ability to apply a variety of mathematical techniques. Topics covered include series, complex numbers, linear algebra, partial differential equations, vectors and curvilinear coordinates, linear and non-linear systems, boundary value problems, Fourier transforms, separation of variables, Sturm-Liouville eigenfunction expansion theory, numerical techniques, and probability

This course requires advanced mathematical techniques. Students are expected to have a basic understanding of calculus, including multivariable calculus.

Student Learning Outcomes

1. Students will be able to use complex numbers, linear algebra, and probability in physics contexts
2. Students will analyze wave problems using differential equations.
3. Students will apply vector calculus to physics problems.

COURSE REQUIREMENTS

Instructional / Methods / Activities Assessments

This course will consist of lecture and active problem-solving. Students are expected to complete relevant readings prior to class. Students are encouraged to ask questions during lecture.

GRADING

Grades will be based on two components:
Exams   60%
Homework   40%

Grading scale:
90% < A <100%
80% < B < 89%
70% < C < 79%
60% < D < 69%
        F < 60%

Exams: There will be two midterms and a final. They will be weighted equally. Midterms will be scheduled at least two weeks in advance. The date will depend on the speed at which material is covered.

Homework: Homework will be assigned weekly. Assignments will be graded primarily for effort but also for correctness. The lowest 2 homework grades will be dropped.

COURSE AND UNIVERSITY PROCEDURES/POLICIES

Course Specific Procedures

1. No electronics are allowed to be used during class.

2. Eating is not allowed. However, covered drinks are allowed.

3. Attendance will be taken by sign-in sheet.

4. The instructor must be notified about any absences as soon as possible, preferably by email.

5. You are responsible for obtaining notes and class announcements from missed classes.

7. Excessive absences may result in being dropped from the course.

8. When emailing the instructor, include the course and section number 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.

10. Homework is due at the beginning of class. Late work will be accepted at 10% off per day late.

11. Students are expected to be professional and respectful.

University Specific Procedures

ADA Statement

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
StudentDisabilityServices@tamuc.edu

Student Conduct

All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment. (See *Code of Student Conduct from Student Guide Handbook).*

COURSE OUTLINE / CALENDAR

Week   (**Exam dates are approximate**.)
8/26	Calculus review
9/2	Series
9/9	Complex numbers
9/16	Linear algebra
9/23	Probability and statistics
9/30	Exam 1
10/7	Fourier series and transforms
10/14	Differential equations
10/21	Differential equations
10/28	Differential equations
11/4	Differential equations
11/11	Exam 2

11/18	Vector calculus
11/25	Vector calculus
12/2	Review
Final	