

**PHY 331 - Principles of Modern
Electromagnetism**

Fall 2011

Instructor: [Dr. Igor A. Shovkovy](#)

Days: Monday, Wednesday, Friday

Time: 12:55 p.m. – 1:45 p.m.

Location: [PRLTA 313](#) (Polytechnic)



Description: A study of the unified description of electromagnetic phenomena provided by Maxwell's equations in differential and integral form. The planned list of topics includes Maxwell's equations, electrostatic fields, Laplace's and Poisson's equations, dielectrics, magnetic fields and materials, electromagnetic induction and Faraday's law, displacement current and Ampere's law, electromagnetic waves, and, if time permits, the photon theory of light.

Objectives: Students develop a sound theoretical understanding of electromagnetism

Prerequisites: APM 270 (Mathematics of Change I), MAT 274 (Elementary Differential Equations) or MAT 275 (Modern Differential Equations). Students should have practical knowledge of using differential equations to solve physics problems.

Textbook: *Introduction to Electrodynamics* (3rd edition) by David J. Griffiths.

(ISBN-10: 013805326X)

Attendance policy: Attendance is expected. Students are responsible for all material presented in class, all homework, and for all changes to the schedule or plans announced in class.

My office is Wanner Hall 340J

My office telephone number is 480-727-1953

My e-mail address is Igor.Shovkovy@asu.edu

Office hours: Mon 9:00 – 10:00 a.m., Wed 9:00 – 10:00 a.m., and by appointment.

Grading policy:

Homework	35 points
Midterm exams	30 points
Quizzes	15 points
Final exam	20 points
TOTAL	100 points

The grades will be determined as follows:

A (90%-100%), **B** (78%-89.99%), **C** (66%-77.99%), **D** (54%-65.99%), **E** (less than 54%)

Homework. Homework is truly one of the most important components in this course. This is because doing homework is the only way to really learn the material and build a good intuition for physics. Solving physics problems effectively is a skill that students must develop. The only known way to achieve this is by practicing. The lectures will only cover the key concepts. The text will elaborate on these concepts and provide further explanation of their meaning and on how one uses them to solve problems. There is no way to do well in this course if you do not give the homework assignments the effort they require. (Allow about 4 hours per week for homework assignments.)

Your homework assignment should be neatly and clearly written. The front page should list your name, the date and the homework assignment number. Each problem should be clearly labeled. The problem solutions should contain detailed explanations. Late homework will not be accepted.

Midterm exams. There will be two midterm exams on the dates shown below in the tentative schedule. Each midterm exam covers the chapters covered since the beginning of the course, or since the last midterm exam. Textbooks and notes will **not** be permitted during the exams.

Quizzes. There will be 2 or 3 short quizzes during the semester. Books and notes will **not** be permitted during quizzes. The tentative dates of quizzes are given in the schedule below, but the actual dates will be announced in class. Quizzes will cover topics from the homework assignments, from the lectures, or from the textbook.

Final Exam. A **comprehensive** final exam is *tentatively* scheduled for **December 9, 2011** (Friday) at **9:50 a.m.** Textbooks and notes will **not** be permitted during the final exam.

Electronic devices. The use of cell phones, pagers, personal digital assistants (PDAs), iPods, iPads, laptops, and other similar electronic devices is **not** permitted during lectures, exams and quizzes.

Tentative schedule

The exact schedule for lectures, quizzes and examinations will depend on how long it takes to cover the material. The following is my best guess as of now. See also the tentative [plan of lectures](#) (also available at Blackboard).

Dates	Tentative schedule
August 19	First class
September 5	Labor Day – No class
September 16	1 st quiz
September 23	1st mid-term exam
October 14	2 nd quiz
November 7	3 rd quiz
November 11	Veterans Day – No class
November 23	2nd mid-term exam
November 25	Thanksgiving Holiday – No class
December 5	Last class
December 9	FINAL EXAM, see http://students.asu.edu/final-exam-schedule

Selected course materials, handouts, and grades can be obtained from [ASU Blackboard](#).

The course name is **PHY331: Prin Modern Electromagnetism (2011 Fall)**.

For student rights and responsibilities see the ASU web page: <http://campus.asu.edu/downtown/rights-and-responsibilities>

ADA policy: *ASU provides equal opportunity to qualified employees and students, and to members of the general public who have a disability and provides reasonable accommodation as appropriate in employment, the application for employment, services, programs, and activities. Individuals with a disability are those who have a physical or mental impairment that substantially limits one or more major life activity, have a record of such impairment, or are regarded as having such impairment. ADA coordinator must be contacted for assistance in all matters pertaining to compliance with this policy. The Disability Resource Center contact numbers are 480-965-1234 (Voice), 480-965-9000 (TTY).*

Last modified August 31, 2011