PHY 6610 Syllabus Winter 2017

TEXT: **INTRODUCTION TO ELECTRODYNAMICS** by David J. Griffiths, 4th edition. ISBN 13: 978-0321856562, ISBN 10: 0321856562.

LECTURE: M W F 11:30 – 12:20 p.m.

LOCATION: 177 Physics

LECTURER: GIOVANNI BONVICINI

OFFICE: 335 Physics Research Bldg. (666 W. Hancock)

E-MAIL (preferred method of contact): AD6204@wayne.edu

OFFICE Hours: one hour right before class and one hour right after class (MW 10:20-11:20, MW 12:30-1:30).

HOMEWORK: One per Chapter, given at the end of each Chapter. The course covers chapters 7-12 of the book.

PERFORMANCE EVALUATION:

2 partial exams :	45%
Final exam:	45%
Homework :	10%

The partial exams dates are preliminarly set on February 17 (Friday) and March 20 (Monday), covering respectively Chapter 7 and 8 and Chapters 9 and 10.
The final exam is on Monday May 1 at 10:15 (note time!).

FINAL GRADES:

A	>= 90 %
A-	85 - 89
B+	80 - 84
B	75 - 79
B-	70 - 74
C+	65 - 69
C	60 - 64
C-	55 - 59
D+	50 - 54
D	45 - 49
D-	40 - 44
F	< 40

Learning Outcomes

After completing this class, you are expected to ...

- Be able to compute the resistance and EMF of complex circuits.
- Understand Faraday's Law, displacement current
- Understand energy and momentum of the EM field, and be able to compute the stress tensor for a variety of fields.
- Have a working knowledge of EM waves in vacuum, matter, waveguides and cavities. Be able to derive optics laws from the laws of propagation of free waves.
- Understand and apply Maxwell's equations for fields and potentials. Understand retarded potentials and consequences of choice of gauges.
- Be able to calculate the properties of radiation emitted by simple radiating systems, including energy and momentum carried by radiation.
- Become familiar with special relativity, particle kinematics and Lorentz transformations. Be able to cast Maxwell's equations in relativistic forms and be able to compute the properties of radiation in different relativistic frames of reference.