COURSE SYLLABUS

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YEAR COURSE OFFERED:

SEMESTER COURSE OFFERED:

DEPARTMENT: Physics

COURSE NUMBER: PHYS 2326/2126

NAME OF COURSE: University Physics II

NAME OF INSTRUCTOR:

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The information contained in this class syllabus is subject to change without notice. Students are expected to be aware of any additional course policies presented by the instructor during the course.

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Learning Objectives

University Physics II (PHYS 2326)

Upon completion of this course, students will be able to:

- (CT, EQ) Apply Coulomb's Law and Gauss's Law to analyze electric fields and forces arising from various arrangements of static charge
- (C) Differentiate between electric potential and electric potential energy
- (CT, C, EQ) Describe how a capacitor stores energy and demonstrate how to determine the capacitance of, charge on, potential difference across, dielectric constant of, energy stored in, or dimensions of a capacitor
- (CT, EQ) Apply Kirchoff's laws and Ohm's law to determine a DC circuit component's current, voltage, or resistance
- (CT, EQ) Determine the magnetic field produced by various arrangements of moving charges by applying the Biot-Savart law or Ampere's law, and the vector cross product (right hand rule).
- (CT, EQ) Determine magnetic forces and torque on moving charges, current-carrying wires, and current loops
- (C, CT, EQ) Describe how electromagnetic induction occurs and apply Faraday's law and Lenz's law to determine various quantities for changing electric and magnetic fields in the vicinity of closed electrical loops or coils
- (C, CT, EQ) Describe how Maxwell's equations lead to electromagnetic waves and describe various properties of electromagnetic waves (e.g. light speed, electric and magnetic field magnitudes and directions; energy transfer, intensity, momentum, radiation pressure) and solve problems

- (C) Describe the basic regions of the electromagnetic spectrum in terms of wavelength, frequency and energy
- (CT, EQ) Apply known optical relationships (such as Snell's law, Malus's law, the thin-lens and lensmaker's equation, and equations for interference and single-slit diffraction) to solve for various quantities involved in optical refraction, polarization, magnification, interference and diffraction phenomena

Laboratory for University Physics II (PHYS 2126)
Upon completion of this course, students will be able to:

- (CT) Develop a hypothesis about a physics phenomenon related to electricity and magnetism, perform an experiment to test it, and compare to existing knowledge about the phenomena
- (C) Write laboratory reports to effectively communicate results of experiments performed, including experimental design, reporting data and calculations in tabular or graphical form, performing error analysis, and discussion of results
- (EQ) Collect experimental data and perform calculations to determine other physical quantities and interpret results
- (T) Work effectively with one or more students, considering different points of view, to achieve experimental results

Major Assignments/Exams

(Please remove blue text and insert all major course assignments and their weight in the final class grade for any assignments worth 10% or more)

Required Reading

(Please remove blue text and list the Title, Author, and Year of all required readings for the course)

Recommended Reading

(Please remove blue text and list the Title, Author, and Year of all recommended readings for the course)

List of discussion/lecture topics

(Please remove blue text and include here all main lecture topics for the semester - dates optional)