PHYS 3730: Relativity

3 Credit Hours

Prerequisite: A grade of "C" or better in PHYS 2212 and PHYS 2212L

PHYS 3730 is a thorough presentation of the principles of Special Relativity, and an introduction to the General Theory of Relativity. Students learn the underlying basis for the equations of relativity and also how to apply these equations to problem-solving. During this course, students will also learn specific mathematical methods that are particularly appropriate for this subject.

PHYS 4200: Mechanics II

3 Credit Hours

Prerequisite: PHYS 3210

This course is a survey of more complex problems in mechanics. Student will study the motion of non-inertial frames, nonlinear and coupled oscillations as well as chaotic motion. Students will learn the dynamics of rigid bodies, continuous systems and fundamentals of fluid mechanics

PHYS 4210: Quantum Mechanics I

3 Credit Hours

Prerequisite: PHYS 3710, PHYS 3260, MATH 2203, and MATH 2306

This course presents a systematic development of quantum mechanical laws. Students will be introduced to Dirac's notation and will learn about the theory of angular momentum quantization and will use the operator formalism to solve the Schrödinger's equation in 3-dimensions for a particle in a central force field, and the simple harmonic oscillator.

PHYS 4220: Electromagnetism II

3 Credit Hours

Prerequisite: PHYS 3220 and MATH 2306

This course completes the presentation of electromagnetic theory by building on the start contained in other courses. In this course students will learn about electric and magnetic fields in matter, they will study both the propagation and the generation of electromagnetic waves in space and time, and come to understand the connection between relativity and electromagnetic theory.