

## Physics Yeshiva College

### MISSION STATEMENT

January 2014

The mission of the Yeshiva College Physics Major is to equip students with a solid foundation of physics knowledge and skills through their course work and experiences working directly with faculty, who are committed to scholarly research, teaching, and service. Physics Majors acquire expert knowledge on physical principles and scientific, mathematical and critical reasoning skills, which prepare them for success in a diversity of careers including science, law, medicine, engineering, business and finance. In addition, many graduates go on to earn graduate degrees in the field.

#### Goals & Objectives:

1. Students will be able to understand physical principles behind natural phenomena.
  - a. Students will be able to define key physical concepts and terminology
  - b. Students will be able to identify key physical laws and how they explain observed phenomena
  
2. Students will be able to analyze scientific problems, generate logical hypotheses, evaluate evidence, and tolerate ambiguity.
  - a. Students will be able to apply the steps of the scientific method to identify significant problems, develop and test hypotheses, and collect, analyze, and communicate data.
  - b. Students will be able to collect and compare multiple sources of evidence on a research topic.
  
3. Students will be able to effectively communicate scientific knowledge using their own informed perspectives both orally and in writing
  - a. Students will be able to produce presentations for their peers in class setting and/or conferences
  - b. Students will be able to write reports based on the material learned in class and/or in research.

#### Student Learning Goals and Objectives

##### 4. Goal:

To prepare Physics and Engineering Physics majors, and other science and engineering students, for success in graduate school, professional school, or in their chosen field.

##### Objectives:

- a. Students demonstrate appropriate competence and a working knowledge of classical physics,

including the areas of mechanics, electricity and magnetism, thermodynamics, optics, and in modern physics, including the areas of atomic physics, solid state physics, statistical mechanics, and quantum mechanics.

b. Students demonstrate competence in the physics laboratory, including a working knowledge of basic electronics and the ability to work independently.

c. Students demonstrate the ability to identify and apply the appropriate analytic, numerical, computational, and other mathematical tools necessary to solve physics problems.