



## **CURRICULUM GUIDE 2014-2015**

### **PHYSICS**

#### **Associate in Science in Physics**

The Associate in Science in Physics offered by Ohlone College is designed to prepare students for studying Physics at most universities. The core courses required in the Associate in Science in Physics will fulfill the lower division requirements for most campuses of the UC and CSU systems. This program will enable students to develop a strong foundation in physics and mathematics. Furthermore, the theoretical knowledge and laboratory skills acquired by students in this program will also enhance their success with obtaining entry-level jobs that require two years of college-level science and math.

Since some curriculum requirements may vary among transfer universities, it is imperative that students entering Ohlone's Associate in Science degree program in Physics meet with a counselor at the start of their academic work. Counselors will assist students in preparing a Student Education Plan that will prepare them to transfer to the university of their choice. Counselors will also advise students on the general education plan that best prepares them for future transfer.

#### **Requirements for Associate in Science Degree:**

- a) Complete the Major Field courses with a grade of C or better.
- b) Complete Ohlone College General Education (Plan A), CSU GE (Plan B), or IGETC (Plan C) requirements. These requirements are specified in the Ohlone College catalog.
- c) Complete at least 60 degree-applicable units with a 2.0 grade point average.
- d) Complete at least 12 units at Ohlone College.
- e) Complete at least 50% of the Major Field courses at Ohlone College.
- f) Complete PHYS-140, PHYS-141, and PHYS-142 at Ohlone College.

#### **Student Learning Outcomes**

1. Demonstrate a comprehension of physical and environmental reality by understanding how fundamental physical principles underlie the huge variety of natural phenomena and their interconnectedness.
2. Demonstrate a comprehension of biological reality by understanding how physical principles are at work in living organisms.
3. Demonstrate a comprehension of technology by understanding how things work on a fundamental level.
4. Build critical thinking and quantitative skills by gaining insight into the thought processes of physical approximation and physical modeling, by practicing the appropriate application of mathematics to the description of physical reality, and by searching for a physical interpretation of mathematical results.
5. Demonstrate basic experimental skills by the practice of setting up and conducting an experiment with due regards to minimizing measurement error and by the thoughtful discussion and interpretation of data.

6. Demonstrate basic communication and technical skills by working in groups on a laboratory experiment.
7. Retain information from course to course by aiming at proficiency in the correct use of all the fundamental laws and equations to solve integrated problems.

**MAJOR FIELD**

CHEM-101A	General Chemistry	5
CHEM-101B	General Chemistry	5
MATH-101A	Calculus with Analytic Geometry	5
MATH-101B	Calculus with Analytic Geometry	5
MATH-101C	Calculus with Analytic Geometry	5
MATH-103	Introduction to Linear Algebra	3
MATH-104	Differential Equations	5
PHYS-140	Mechanics	4
PHYS-141	Electricity and Magnetism	4
PHYS-142	Optics, Heat, and Modern Physics	<u>4</u>
Total Required Units:		45

**RECOMMENDED COURSES**

The following course is recommended because it is required in the lower division of some baccalaureate-granting universities:

MATH-159	Introduction to Statistics	(5)
----------	----------------------------	-----