| **PROFESSOR:** |  |
| --- | --- |
| **OFFICE LOCATION:** |  |
| **OFFICE HOURS:** |  |
| **PHONE NUMBER:** |  |
| **E-MAIL:** |  |
| **SEMESTER:** |  |
| **DELIVERY METHOD:** |  |

# COURSE NUMBER AND TITLE, CATALOG DESCRIPTION, CREDITS:

## PHY 2048L General Physics I Laboratory (1 Credit)

This laboratory course accompanies PHY 2048 and is the first part of a sequence of two courses. The sequence includes investigations that illustrate and explore concepts and principles related to force and motion, work and energy, rotation, gravity, properties of matter, electric charges and currents, resistance and capacitance, magnetism and electromagnetic induction, optics, and nuclear radiation. The course is designed to encourage the concept of “learning by doing” and enhance student learning of physical concepts. It introduces students to experimental procedures, techniques and equipment; it involves setting up the laboratory equipment, collection of data, interpretation of experimental data and preparation of a lab report.

## PREREQUISITES FOR THIS COURSE:

(SB 1720 Testing Exemption or successful completion of Developmental courses in reading and writing); and MAC 2311 with a minimum grade of “C”

### CO-REQUISITES FOR THIS COURSE:

PHY 2048

## GENERAL COURSE INFORMATION:

Topic Outline

Experimental uncertainty (errors) and data analysis

Measuring density

Acceleration of gravity

Addition and resolution of forces

Atwood machine

Friction

Centripetal force

Work and energy

Projectile motion: the Ballistic Pendulum

Torques, equilibrium, and center of gravity

Simple harmonic motion

Simple pendulum

Archimedes’ principle

Standing waves

Air column resonance

## ALL COURSES AT FLORIDA SOUTHWESTERN STATE COLLEGE CONTRIBUTE TO THE GENERAL EDUCATION PROGRAM BY MEETING ONE OR MORE OF THE FOLLOWING GENERAL EDUCATION COMPETENCIES:

**C**ommunicate clearly in a variety of modes and media.

**R**esearch and examine academic and non-academic information, resources, and evidence.

**E**valuate and utilize mathematical principles, technology, scientific and quantitative data.

**A**nalyze and create individual and collaborative works of art, literature, and performance.

**T**hink critically about questions to yield meaning and value.

**I**nvestigate and engage in the transdisciplinary applications of research, learning, and knowledge.

**V**isualize and engage the world from different historical, social, religious, and cultural approaches.

**E**ngage meanings of active citizenship in one’s community, nation, and the world.

A. General Education Competencies and Course Outcomes

1. Listed here are the course outcomes/objectives assessed in this course which play an integral part in contributing to the student’s general education along with the general education competency it supports.

General Education Competency: Evaluate

Course Outcomes or Objectives Supporting the General Education Competency Selected:

Describe the principle of dimensional analysis and use it to derive approximate expressions of physical laws.

Identify the SI system of units and analyze the differences between base and derived units.

Interpret the laws of motion and apply them to solve problems in one and two dimensions.

Differentiate between and among the concepts of work, energy, power, and conservation of energy; examine the applications of these concepts, and use them to interpret and explain natural phenomena.

Define the concept of center of mass and use it to analyze the motion of a system of particles.

Describe the law of conservation of momentum, examine its applications, and use it to interpret and analyze natural phenomena.

Apply the concepts of momentum and energy to explain collisions.

Describe the concept of circular motion and use it to solve problems.

Use the laws of rotational kinematics and compare linear motion with rotational motion.

Describe the law of gravitation and use it to explain natural phenomena; combine this law with the laws of motion to explain planetary orbits.

Analyze the conditions for static and rotational equilibrium and critically discuss how the concept of torque relates to natural phenomena.

Describe the concepts related to fluid pressure and buoyancy; discuss natural phenomena and its relationship to Bernoulli’s equation.

Explain the properties of oscillations, waves and the Doppler Effect; apply these concepts influence natural phenomena.B. In accordance with Florida Statute 1007.25 concerning the state’s general education core course requirements, this course meets the general education competencies for science.

Students will demonstrate the ability to critically examine and evaluate scientific observation, hypothesis, or model construction, and to use the scientific method to explain the natural world.

Students will successfully recognize and comprehend fundamental concepts, principles and processes about the natural world.C. Other Course Objectives/Standards

None

## DISTRICT-WIDE POLICIES:

### PROGRAMS FOR STUDENTS WITH DISABILITIES

Florida SouthWestern State College, in accordance with the Americans with Disabilities Act and the College’s guiding principles, offers students with documented disabilities programs to equalize access to the educational process. Students needing to request an accommodation in this class due to a disability, or who suspect that their academic performance is affected by a disability should contact the Office of Adaptive Services at the nearest campus. The office locations and telephone numbers for the Office of Adaptive Services at each campus can be found at <https://www.fsw.edu/adaptiveservices>.

### REPORTING TITLE IX VIOLATIONS

Florida SouthWestern State College, in accordance with Title IX and the Violence Against Women Act, has established a set of procedures for reporting and investigating Title IX violations including sexual misconduct. Students who need to report an incident or need to receive support regarding an incident should contact the Equity Officer at [equity@fsw.edu](mailto:equity@fsw.edu). Incoming students are encouraged to participate in the Sexual Violence Prevention training offered online. Additional information and resources can be found on the College’s website at <https://www.fsw.edu/sexualassault>.

## REQUIREMENTS FOR THE STUDENTS:

List specific course assessments such as class participation, tests, homework assignments, make-up procedures, etc.

## ATTENDANCE POLICY:

The professor’s specific policy concerning absence. (The College policy on attendance is in the Catalog and defers to the professor.)

## GRADING POLICY:

Include numerical ranges for letter grades; the following is a range commonly used by many faculty:

| **Grade Percent** | **Letter Grade** |
| --- | --- |
| 90 - 100 | A |
| 80 - 89 | B |
| 70 - 79 | C |
| 60 - 69 | D |
| Below 60 | F |

(Note: The “incomplete” grade [“I”] should be given only when unusual circumstances warrant. An “incomplete” is not a substitute for a “D,” “F,” or “W.” Refer to the policy on “incomplete grades.)

## REQUIRED COURSE MATERIALS:

(In correct bibliographic format.)

## RESERVED MATERIALS FOR THE COURSE:

Other special learning resources.

## CLASS SCHEDULE:

This section includes assignments for each class meeting or unit, along with scheduled Library activities and other scheduled support, including scheduled tests.

## ANY OTHER INFORMATION OR CLASS PROCEDURES OR POLICIES:

(Which would be useful to the students in the class.)