SOUTHEAST COMMUNITY COLLEGE
DIVISION OF ARTS AND SCIENCES
Sciences
Revision Date: 07-01-23

I. CATALOG DESCRIPTION

Course Number:	PHYS1030
Course Title:	Astronomy (with Lab)
Prerequisite(s):	MATH0950 or equivalent
Catalog Description:	The study of the nature and motions of the night sky, along with the planets, the Sun, the stars and their lives, galaxies, and the structure of the universe. This is an elementary course designed for non-science majors with an approach that uses minimal mathematics. The laboratory allows students to study selected topics in more detail. The course is taught in an interactive style that integrates lecture and laboratory into one combined session.
Credit Hours:	4.0
Class Hours:	45
Lab Hours:	30
Total Contact Hours:	75

II. COURSE OBJECTIVES: *Course will:*

A. Study the nature of the night sky and its motions.
B. Study the physical principles used by astronomers to discover the universe.
C. Understanding of the processes that govern the objects found in the universe.

III. STUDENT LEARNING OUTCOMES AND GENERAL EDUCATION LEARNING OUTCOMES

A. Student Learning Outcomes**:** *Student will be able to:*

1. Describe the principles of motion and the events of the night sky.
2. Explain how astronomical objects are located and cataloged.
3. Explain the phases of the Moon and eclipses.
4. Explain the effects and principles of the universal law of gravity.
5. List properties of electromagnetic radiation and relate them to physical quantities pertaining to astronomical applications.
6. Identify parts of a telescope and distinguish between the different types of telescopes along with describing their basic operations.
7. List general and unique characteristics of planets, asteroids, comets, and the Sun.
8. Outline the general life cycle of stars from formation to death according to mass size.
9. Describe the basic structure of the Milky Way and distinguish between other galactic types.

B. General Education Learning Outcomes

1. GELO #3: Critical Thinking & Problem Solving
Outcome: Collect, identify, interpret and analyze data.
Outcome: Synthesize information to arrive at reasoned solutions to problems.
Outcome: Evaluate the validity of arguments, alternatives, data, outcomes, and/or impacts of actions.

2. GELO #5: Analytical, Quantitative, and Scientific Reasoning
Outcome: Apply mathematical and scientific methods to solve problems from an array of contexts and everyday situations.
Outcome: Understand and create logical arguments supported by quantitative and scientific evidence and communicate those arguments in a variety of formats.

Outcome: Effectively develop strategies, algorithms, or experiments (or performing experiments) to better describe the systems or to solve the problems.

Outcome: Manipulate formulas, data sets, graphs, tables, etc. in a way to produce a meaningful outcome.

IV. CONTENT/TOPICAL OUTLINE (*course outline may provide more detailed information*)

A. The Sky
B. The Solar System
C. The Sun
D. The Stars
E. The Universe of Galaxies

V. INSTRUCTIONAL MATERIALS

A. Suggested Text(s):

1. OpenStax: Astronomy. OpenStax CNX, https://openstax.org/details/books/astronomy.

2. Seeds, Michael, *Foundations Of Astronomy* (14th edition), Cengage. ISBN-10: 1337399920; ISBN-13: 9781337399920.

VI. METHODS OF PRESENTATION/INSTRUCTION

A. Methods of presentation typically include a combination of the following.

1. Lectures
2. Small group discussions
3. Demonstrations
4. Laboratory exercises
5. Videos

VII. METHODS OF EVALUATION

A. Methods of evaluation typically include a combination of the following:

1. Daily quizzes
2. Class participation
3. Laboratory work
4. Homework
5. Exams

B. SCC GRADING SCALE

A+	95-100	C+	75-79	F	59 or less
A	90-94	C	70-74		
B+	85-89	D+	65-69		
B	80-84	D	60-64		

VIII. SPECIFIC COURSE REQUIREMENTS

None