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

I. CATALOG DESCRIPTION

Course Number:	PHYS1130
Course Title:	Selected Topics in Astronomy
Prerequisite(s):	PHYS1030 Astronomy
Catalog Description:	A continuation and extension of Astronomy (PHYS1030), designed for students who would like a more detailed look at specific areas in astronomy. Possible topics: astronomy and relativity; life in the universe; cosmic rays; pulsars, quasars, and black holes; evolution of galaxies, origin of the universe, active galaxies; astrophotography and spectroscopy.
Credit Hours:	3.0
Class Hours:	45
Total Contact Hours:	45

II. COURSE OBJECTIVES: *Course will:*

A. Study the special and current topics in astronomy today.
B. Study the mechanism that astronomers use to study objects found in the universe.
C. Understanding of the processes that govern the select objects found in the universe.

III. STUDENT LEARNING OUTCOMES AND GENERAL EDUCATION LEARNING OUTCOMES

A. Student Learning Outcomes**:** *Student will be able to:*
- **1**. Determine the correct settings on camera for astrophotography.
- **2**. Distinguish between spectral lines to determine elements.
- **3**. Distinguish between time and special effects of motion and gravity.
- **4**. Determine how variables effect predictions.
- **5**. List general and unique characteristics of active galaxies.
- **6**. Research current topics and formula discussions.

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. Astrophotography and spectroscopy
B. Special and general relativity
C. Life in the universe and the Drake equation

D. Cosmology and active galaxies
E. Current astronomical discoveries and topics

V. INSTRUCTIONAL MATERIALS

A. Suggested Text(s):

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

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. Hands on activities
5. Videos

VII. METHODS OF EVALUATION

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

1. Quizzes
2. Class participation
3. Hands on 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