

CALIFORNIA STATE UNIVERSITY CHANNEL ISLANDS

NEW COURSE PROPOSAL

PROGRAM AREA _____ BIOLOGICAL AND PHYSICAL SCIENCES

1. Catalog Description of the Course. *[Include the course prefix, number, full title, and units. Provide a course narrative including prerequisites and corequisites. If any of the following apply, include in the description: Repeatability (May be repeated to a maximum of ___ units); time distribution (Lecture ___ hours, laboratory ___ hours); non-traditional grading system (Graded CR/NC, ABC/NC). Follow accepted catalog format.]*

PHYS 105: INTRODUCTION TO THE SOLAR SYSTEM (4)

Three hours of lecture and two hours of activities per week.

Descriptive introduction to the astronomical properties of the Solar System. Topics include: the historical development of astronomy, the laws that govern the behavior of the Universe, the properties of the stars and galaxies, including their origin and evolution and the Big Bang theory. Activity sessions will include computer-simulated exercises, and two field trips.

GenEd: B1

2. Mode of Instruction.

	Units	Hours per Unit	Benchmark Enrollment
Lecture	___3___	___1___	___20___
Seminar	_____	_____	_____
Laboratory	_____	_____	_____
Activity	___1___	___2___	___20___

3. Justification and Learning Objectives for the Course. (Indicate whether required or elective, and whether it meets University Writing, and/or Language requirements) *[Use as much space as necessary]*

This course will form part of the Science concentration within the Teaching and Learning Option of the Liberal Studies major. Because it requires a mathematical background in high-school algebra and trig only, and does not use calculus, it is likely to appeal to those with a curiosity for exploring astronomy but who do not yet have skills in calculus.

Through this course, students will be able to

- explain the basic concepts and physical principles of astronomy
- describe the astronomical properties of the planets in our solar system
- demonstrate the usefulness and accuracy of astronomical predictions
- search and retrieve practical information
- use a variety of programs to simulate astronomical phenomena
- organize and express ideas clearly and convincingly in oral and written forms.

4. Is this a General Education Course YES NO

If Yes, indicate GE category:

A (English Language, Communication, Critical Thinking)	
B (Mathematics & Sciences)	X
C (Fine Arts, Literature, Languages & Cultures)	
D (Social Perspectives)	
E (Human Psychological and Physiological Perspectives)	

5. Course Content in Outline Form. *[Be as brief as possible, but use as much space as necessary]*

Introduction to Astronomy, time and spatial scales, scientific notation, survey of planets.

Night sky. Celestial Sphere. Seasons.
Motions in the sky. Phases of the moon. Eclipses.
History of Astronomy.
Gravity and orbits. Light and telescopes. Information from distant objects.
Origin of the Solar System.
The Sun. Inner planets: Mercury, Venus, the Earth and Mars.
Outer planets: Jupiter, Saturn, Uranus, Neptune and Pluto.
Meteorites, Asteroids and Comets.
Life, evolution and death of stars. Supernovae and black holes.
Origins of life in the Universe.
Astronomy beyond the Solar System. Conclusions.

There will be at least two field trips, one to a planetarium and one to an observatory.

6. References. [Provide 3 - 5 references on which this course is based and/or support it.]

- **Seeds, *Foundations of Astronomy*** (Brooks/Cole Pub Co; ; 7th edition, January 2003: **ISBN:** 0534392040)
- ***Worlds Apart: A Textbook in Planetary Sciences***
by Guy J. Consolmagno, Martha Schaefer (Contributor) (Prentice Hall; ; 1994: **ISBN:** 0139641319)
- **J.K. Beatty et al.: *The New Solar System***. (Cambridge Univ ; 4th edition,1998): **ISBN:** 0521645875
- **Paul G. Hewitt, *Conceptual Physics***, 9th edition, Addison Wesley Publishing, 2001)).

7. List Faculty Qualified to Teach This Course.

Physics faculty
Dr. Geoff Dougherty

8. Frequency.

a. Projected semesters to be offered: Fall X Spring Summer

9. New Resources Required.

a. Computer (data processing), audio visual, broadcasting needs, other equipment

Six pairs of binoculars for observing the night sky (see http://skyandtelescope.com/howto/scopes/article_256_1.asp)
Telescope

b. Library needs

c. Facility/space needs

Activities to be run in a PC Lab

10. Consultation.

Attach consultation sheet from all program areas, Library, and others (if necessary)

11. If this new course will alter any degree, credential, certificate, or minor in your program, attach a program modification.

 Dr. Geoff Dougherty
Proposer of Course Date