

CALIFORNIA STATE UNIVERSITY CHANNEL ISLANDS

NEW COURSE PROPOSAL

PROGRAM AREA

1. Catalog Description of the Course. *[Follow accepted catalog format.]*

Prefix PHYS Course# 107 Title THE STARS AND BEYOND Units (3)

3 hours lecture per week

☐ Prerequisites

☐ Corequisites

Description A tour through the stars and galaxies will uncover some major mysteries of the Universe. Topics include: the historical development of astronomy; the laws that govern the behavior of the Universe; the birth, life and death of stars; the collision of galaxies; and evidence for the birth and end of the entire Universe.

<input checked="" type="checkbox"/> Gen Ed	<input type="checkbox"/> CR/NC	<input type="checkbox"/> Repeatable for up to units
Categories B1		
<input type="checkbox"/> Lab Fee Required	<input checked="" type="checkbox"/> A - Z	Total Completions Allowed

2. Mode of Instruction.

	Units	Hours per Unit	Benchmark Enrollment	Graded Component	CS # (filled in by Dean)
Lecture	3	1	24	<input checked="" type="checkbox"/>	
Seminar				<input type="checkbox"/>	
Laboratory				<input type="checkbox"/>	
Activity				<input type="checkbox"/>	

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]*

In the last few years there has been an explosion in public interest in many aspects of astronomy, as evidenced by an avalanche of books and articles written for a general audience. Recent photos from the Hubble telescope have piqued an interest in the expansive universe that lies beyond our reach. Scientists are discovering daily new heavenly objects, and they are continually updating theories on the formation of the universe using sophisticated computer models. An understanding and appreciation of astronomical phenomena and occurrences opens the mind to a new and mysterious realm.

Through this course, students will be able to:

- Explain the basic concepts and physical laws governing all objects in the universe.
- Describe the astronomical properties of the planets in our solar system.
- Describe the physical characteristics of our sun and the evolution of stars.
- Describe the formation of galaxies and the models for the universe, such as the Big Bang.
- Discuss how astronomical events have impacted life as we know it.
- Demonstrate the usefulness and accuracy of astronomical predictions.
- Organize and express ideas clearly and convincingly in oral and written forms.

The course does not meet the University Writing and/or Language requirements.

4. Is this a General Education Course YES ☒ NO ☐
If Yes, indicate GE category and attach GE Criteria Form:

A (English Language, Communication, Critical Thinking)

- | | |
|------------------------|--------------------------|
| A-1 Oral Communication | <input type="checkbox"/> |
| A-2 English Writing | <input type="checkbox"/> |
| A-3 Critical Thinking | <input type="checkbox"/> |

B (Mathematics, Sciences & Technology)

- | | |
|-----------------------------|-------------------------------------|
| B-1 Physical Sciences | <input checked="" type="checkbox"/> |
| B-2 Life Sciences – Biology | <input type="checkbox"/> |

B-3 Mathematics – Mathematics and Applications	<input type="checkbox"/>
B-4 Computers and Information Technology	<input type="checkbox"/>
C (Fine Arts, Literature, Languages & Cultures)	
C-1 Art	<input type="checkbox"/>
C-2 Literature Courses	<input type="checkbox"/>
C-3a Language	<input type="checkbox"/>
C-3b Multicultural	<input type="checkbox"/>
D (Social Perspectives)	<input type="checkbox"/>
E (Human Psychological and Physiological Perspectives)	<input type="checkbox"/>
UD Interdisciplinary	<input type="checkbox"/>

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

The course will cover:

- Spaceship Earth – a look at our skies
- Our solar system and the mechanism of formation
- The planets – four rocks and four gas giants
- Our sun – our solar furnace
- Stellar evolution – the birth, life and death of stars
- The stellar graveyard – home to white dwarfs, neutron stars & black holes
- Our Milky Way – we're one of a 100 billion
- Galaxies – a universal billiard's game
- Dark Matter and Dark Energy – greater than all the matter in the universe
- Cosmology -- the Big Bang or the Big Crunch

Does this course overlap a course offered in your academic program? YES ☒ NO ☐

If YES, what course(s) and provide a justification of the overlap? A portion of this course (about 10%) covers our Solar System, which is the basis of the existing course Phys/Astr 105 Introduction to the Solar System. However, this current course treats it in a very general way, as a part of the whole Universe, whereas PHYS/ASTR 105 is much more detailed.

Does this course overlap a course offered in another academic area? YES ☐ NO ☒

If YES, what course(s) and provide a justification of the overlap?

Signature of Academic Chair of the other academic area is required on the consultation sheet below.

6. Cross-listed Courses (Please fill out separate form for each PREFIX)

List Cross-listed Courses

Signature of Academic Chair(s) of the other academic area(s) is required on the consultation sheet below

Department responsible for staffing: Physics

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

Jeffrey Bennett, et al.: The Cosmic Perspective. (Pearson) 3rd Edition
Eric Chaisson & Steve McMillan: Astronomy, A Beginner's Guide to the Universe. (Pearson) 4th Edition
Michael A. Seeds: Foundations of Astronomy. (Brooks Cole)
Stephen A. Gregory & Michael Zeilik: Introductory Astronomy & Astrophysics. (Brooks Cole)
Thomas Arny: Explorations, An Introduction to Astronomy. (McGraw Hill)

8. List Faculty Qualified to Teach This Course.

Dr. Geoff Dougherty

9. Frequency.

a. Projected semesters to be offered: Fall ☒ Spring ☒ Summer ☐

10. New Resources Required. YES ☐ NO ☒

If YES, list the resources needed and obtain signatures from the appropriate programs/units on the consultation sheet below.

- a. Computer (data processing), audio visual, broadcasting needs, other equipment)
- b. Library needs
- c. Facility/space needs

11. Will this new course alter any degree, credential, certificate, or minor in your program? YES ☐ NO ☒

If, YES attach a program modification form for all programs affected.

Dr. Geoff Dougherty
Proposer of Course

2/22/2005
Date

Approvals

Program Chair

Date

Curriculum Committee Chair

Date

Dean

Date

California State University Channel Islands
New Course Proposal Consultation Sheet

1. Course Title: PHYS 107 The Stars and Beyond

2. Program Area: Biology and Physics

Recommend Approval

Program Area/Unit	Program/Unit Chair	YES	NO (attach objections)	Date
Art				
Biology				
Business & Economics				
Education				
English				
History				
Liberal Studies				
Mathematics & CS				
Multiple Programs				
Psychology				
Library				
Information Technology				