

APC CURRICULAR PROPOSAL FORM

CURRICULAR PROPOSAL 2008-2009

DEPARTMENT OF PHYSICS

Note: No faculty vote is necessary on proposal I.

Proposal I: We propose a change in name of PHY 103 Earth Science to PSC 103 Earth Science

Rationale for Proposal I:

This course is as the title implies, earth science, which is a physical science but is not physics. The change also brings the course into parallel with our currently offered course, PSC 110 Physical Science, and with our proposed new course, PSC 105 The Cosmos. The catalog copy and course content would remain as is.

Note: The Physics Department submitted a sample syllabus for the course in Proposal II. With that information and the material supplied here both the General Education Task Force and the Academic Policies Committee voted to approve the proposal and take it to the PLNU faculty.

Proposal II: We propose the addition of a new general education course tentatively called The Cosmos, a four semester unit non laboratory course to meet the physical science general education requirements.

Rationale for Proposal II:

The Department of Physics and Engineering proposes this course as a non-laboratory option in the physical sciences. Initially we propose to offer one section of this course each year and to drop one section of Earth Science each year. Currently that would mean that two sections of The Cosmos and three sections of Earth Science would be taught each biennium in addition to the annual offering of Earth Science during summer school.

Before giving a rationale for the new course we should examine the rationale for Earth Science (previously The Physical World under the quarter system) that has been offered with only modest changes since Pasadena College times. Earth Science is offered under quadrilateral category IIIA (Exploring an Interdependent World: The Natural World) as a general education class. **However, Earth Science was created for and remains primarily a professional class for liberal studies majors and science secondary education majors.** Its content of geology, meteorology, oceanography and astronomy is specified rigorously by the California Department of Education. Our department has made serious efforts to add content that is faith specific and to otherwise try to fit the class into the PLNU general education model while maintaining our commitment to the state requirements. But the class remains quite unpopular among our general education students. Recent changes in our student demographics mean that only two or three sections of Earth Science are needed per biennium to meet the needs of our education majors. Therefore we feel we can drop one section per year of this course with no ill effects and design a course specifically intended to meet the needs of our general education students.

The department of physics is proposing this new course for the PLNU general education curriculum under IIIA (Exploring an Interdependent World: The Natural World), Exploring an Interdependent World, subsection A, The Natural World, for the Physical Science Group. **We propose a four unit course that will play a very similar role as the current Earth Science course but with content that is more pertinent to the interests of many of our students and also to the goals of: “integrating areas of study, revealing connections, developing perspectives, and building thinking skills.”** (PLNU Web Site)

We believe this course can be added to the current offerings with very little impact on the institution in costs or staffing while simultaneously enriching the curriculum and providing a course that many students will find much more pertinent to their personal efforts at understanding the world and integrating faith with knowledge. This course should prove especially effective at developing a rich environment for students to explore the relationship between their faith and current scientific perspectives on the universe.

We continue to take seriously our commitment to serving the professional requirements of the Liberal Studies major and plan to register any upper division Liberal Studies major who requests permission to enroll in Earth Science.

To the best of our knowledge the only other department potentially affected by the addition of this course is Chemistry because CHM 101, Chemistry and Society, is an option currently offered for meeting the physical science general education requirement. We have discussed our proposal with Chemistry chairman, Ken Martin, who has endorsed our proposal and agrees that The Cosmos is better suited for meeting the general education requirement than is Earth Science.

A brief outline of the proposed course is as follows:

- I. Culture, Mythology and the Beginnings of Modern Science
- II. Descriptive Cosmology
- III. Modern Cosmology and its astronomical basis
- IV. State of current theory including complications and suggested observational data that could lead to solutions
- V. Integration of modern cosmology and faith

Catalog Copy:

PSC 105 (4) The Cosmos – GE

An introduction to our place in the universe emphasizing religious, cultural and historic perspectives including modern developments in physics and astronomy. This is a non-laboratory course that meets the requirement in general education under the category The Natural World, but does not count toward a major in Physics.

Prerequisite: Mathematics 099 or equivalent

Equipment Needs Impact Statement

Name of proposed course ___ **PSC 105: The Cosmos**

What equipment is presently available to meet the students' needs in this area?

___ **We currently have a very old 10" telescope which needs to be partially reconstructed. There is also a 4" telescope available in the media center.**

What additional equipment is needed to meet the needs of this proposed course / program?

___ **We will need to purchase six to eight medium sized telescopes with clock driven mounts over the next few years. This will probably cost between \$8000 and \$12,000. There would be other incidental equipment and long-term supplies needed totaling \$2000 to \$3000**

From what source(s) will this additional equipment be funded, both in start-up and on an ongoing basis?

___ **We would propose that about one third of the equipment and long term supplies be funded by each of the following sources: institutional start-up funds, institutional equipment budgets and the Physics Department Fund. All ongoing supplies would be funded by the departmental supplies budget**

ITS Impact Statement

Name of proposed course: PSC 105: The Cosmos

Consult an ITS representative to determine the following:

What hardware and software are presently available to meet the students' IT needs in this area? (be specific)

None directly related to this course

What additional hardware resources are needed to meet the needs of this proposed course / program?

None needed for this course at the present time

What additional software resources are required?

None needed for this course at the present time

From what source(s) will these additional ITS resources be funded, both in start-up and on an ongoing basis?

None

The impact on ITS with the addition of this course / program will be:

None

Minor

Moderate

Major

(circle one)

Library Impact Statement

Name of proposed course / program: PSC 105: The Cosmos

Consult your Department's or School's Library Liaison to determine the following:

What books, periodical titles, and databases are presently available to meet the students' research needs in this area? (Be specific)

We are aware of "Sky and Telescope". We are investigating other periodicals and books available.

What additional Library resources/technology are required to meet the needs of this proposed course / program? (Include instructing students in research for this discipline)

We expect few if any resources are needed.

None needed for this course at the present time

From what source(s) will these additional Library resources be funded, both in start-up and on an ongoing basis?

Few if any are needed for this course. What few may be needed will fall within our department's annual library budget.

The impact on the Library with the addition of this course / program will be:

None/Minor

Moderate
(circle one)

Major

Media Services Impact Statement

Name of proposed course: PSC 105: The Cosmos

Consult your Department's or School's Library Liaison to determine the following:
R.B. Anthony was contacted and responded by email.

What Media resources are presently available to meet the needs in this area?
(Be specific)

We are aware of a few, mostly out-of-date videos. We are investigating.

What additional resources/technology are required to meet the needs of this proposed course / program?

We expect to purchase several up-to-date DVD's (total cost of less than \$1000). Furthermore it should be noted that many of these are needed in PSC 103 at the present time.

From what source(s) will these additional media resources be funded, both in start-up and on an ongoing basis?

We expect to purchase the DVD's through our annual departmental media budget but are prepared to spend additional funds from the Physics Department Fund.

The impact on Media Services with the addition of this course / program will be:

None

Minor

Moderate

Major

(circle one)