Program Review Report

Yuba Community College District

YC - Physics & Astronomy Program Recommendations

Program Description: The Physics/Astronomy department is a small, single-fulltime faculty program that primarily provides the background physics education required for engineering and life science majors. Chemistry, computer science, and mathematics majors may also require physics, but the vast majority of students are engineering and life science. The department also offers an introductory Astronomy course that many students take to fulfill general education science requirements. Yuba College rarely sees Physics majors. Physics is particularly important for engineering students, and the courses taught at Yuba may be the only pure physics courses that they take in the pursuit of an undergraduate degree.

Physics 2A/3A and Physics 2B/3B are the lecture/laboratory course designations for the algebra-based courses that most life science students take. Physics 4A, 4B, and 4C are the designations for the calculus-based courses that engineering students take (no separate laboratory course). Physics 2 series courses are both offered each semester. Physics 4A and 4C are offered only in the spring, and 4B is offered only in the fall. Typically, the 2 series has 20-35 students beginning the series every semester, and the 4 series has 20-35 students beginning the series each spring semester.

The program maintains a considerable inventory of equipment for demonstrations and laboratories. Maintenance of the equipment and the setup of laboratories and demonstrations require considerable time and budget commitment.

The physics program has seen a slow steady growth over the last 5 years that has lead to the department doubling the number of sections of the 2 series. These two courses were previously offered only once a year and are now offered every semester. The size of the class entering the 4 series in Spring 2012 is right at the room capacity.

Year of Review: 2012-2013

Type of Review: Annual Update

Executive Summary: The Physics/Astronomy department is a small, single-fulltime faculty program that primarily provides the background physics education required for engineering and life science majors. The department also offers an introductory Astronomy course that many students take to fulfill general education science requirements. The program has very stable enrollment and staffing requirements. The only significant curriculum issue involves the life science students. For some years now, some schools are requiring calculus-based physics courses for life science majors. The department believes that it is time to study this issue again in collaboration with the biology department. One side of the issue is that the algebra-based courses we now teach reach more students than we would with a calculus-based series. The other side is that we limit the schools to which our students can transfer. This issue will be studied in the coming year(2012/2013).

While, in the long run, the department believes that a part-time laboratory setup/equipment maintenance person is needed, no request will be made in the current budget environment.

The department's long-term goal is to continue to provide first-class preparation for all students who require physics for their majors.

UPDATE 2012/2013:
The study of the transfer status of Algebra/Trigonometry-Based Physics has been completed. The results are included in the Recommendation Status section of Tracdat. Not much has changed since the last survey about 5 years ago. A significant number of University of California campuses do not allow transfer to satisfy Life Science major requirements. The most important (most commonly transferred to) schools, however, continue to accept it. This includes almost all of the California State system schools and the University of California Davis campus. The results of the survey have been disseminated to the Life Science faculty and a final decision will be made after they provide their input.

The department has submitted, through Curricunet, an application for a Transfer Model Curriculum degree for Physics. Upon approval by the Curriculum Committee, the application will be submitted to the state.

Future Goals and Program Direction: The department's long-term direction is to continue to provide first-class preparation for all students who require physics for their majors.

Curriculum & SLO Assessment Summary : While all the courses offered by the Physics/Astronomy department have been through at least one SLO assessment, no significant problems or issues have surfaced. The department has used the results of the assessments to make minor shifts in emphasis or time devoted to particular subjects.

Recommendations	Plans of Action & Budgetary Impact / Tasks	Status	Feedback & Follow-Up
YC - Physics & Astronomy Program Recommendations - Physics Course Requirements for Life Science Majors - Perform a survey of physics course requirements for life science majors at California 4-year colleges. Whether Yuba should teach an algebra-based physics series or a calculus-based physics series for life science majors has been an ongoing issue. Some schools will not accept the algebra-based series. We would cut down on the number of students we could serve, however, if we went to a calculus-based series. University of California Davis still accepts the algebra-based series we teach, and that is where a large fraction of our students go. We should, however, gather data on a reasonably comprehensive list of schools and discuss the requirements with the biology department. **Year(s) Requested:** 2011-2012 2012-2013 **Request Date:**	**Plan of Action:** Gather data during the Spring 2012 semester. Meet with biology faculty to discuss the data in the Fall 2012 semester. **Type:** Curriculum/SLO **Budgetary Impact:** None	10/14/2012 - The survey of schools has been completed and the data are given below: Biology Biochem UC Davis yes yes UC Santa Barbara yes yes UC Irvine No No UC Berkeley Not offered Requires full Calculus-based Physics UC San Diego yes Requires full Calculus-based Physics UC Los Angeles No No UC Riverside No No CS Chico yes yes CS Sacramento yes yes CS Los Angeles No No Ca. Polytechnic SLO yes yes San Diego State yes yes Note: The notation ?requires full Calculus-based Physics? means that they require the calculus-based physics series taken by engineers and that they do not offer a lower-level series for Life Science majors	

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03/01/2012 **Inactive Date:** 02/01/2013 **Recommendation Priority:** 2. Medium Priority		At the time of writing the 2012/2013 program update (10/15/2012) these data have been disseminated to the Life Science faculty; but they have not yet responded with comments. **Recommendation Progress:** Recommendation Addressed/Satisfactory Progress **Reporting Year:** 2012-2013	