Assessment: Assessment Unit Planning

Program Review 2014-15

YC - Physics & Astronomy Program Review

Year Under Review : 2014-15
Type of Review:
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.
Executive Summary (Include a list of team members): 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(2015/2016).

The department believes that a part-time laboratory setup/equipment maintenance person is needed.

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.

01IP. Department Goals (Click '?' for Prompt): The goal of the program is to provide the physics background for engineering students. Physics is taught in a way that will make them independent learners. Their long term success both, academic and professional, hinges on this important trait.
02IP. Access to Support Services (Click '?' for Prompt): -Office Hours, -DSPS, -Library Services
03IP. Follow up to question 02IP (Click '?' for Prompt): In addition to the services available, I recommend that we provide students with "discussion sections", where the entire class can attend a problem solving session lead by either an instructor or a tutor.
04IP. Degrees/Certificates (Click '?' for Prompt): The program doesn't offer any degrees at this point.
05IP. Improve Completion (Click '?' for Prompt): I am planning on holding Academic Excellency Workshops.
06IP. Course Outlines (Click '?' for Prompt): Yes, all of the courses have current CORs.
07IP. Collaboration (Click '?' for Prompt): The program is in the process of collaborating with library and tutoring services.
08IP. Catalog Currency (Click '?' for Prompt): No changes are needed at this point.
09IP. For CTE Programs Only (Click '?' for Prompt): N/A
10IP. DE Students (Click '?' for Prompt): N/A
11IP.Disproportionate Impact(Click '?' for Prompt): I don't think disproportionate impact is an issue.
12IP. Mapping (Click '?' for Prompt): Yes
13IP. Course SLOs (Click '?' for Prompt): I joined about two months ago, so I lack any data to make any assessment of required changes.
14IP. Program SLOs (Click '?' for Prompt): The program's SLOs include critical thinking and
15IP. Professional Development (Click '?' for Prompt): I haven't had a chance to participate in any professional development yet.

16IP. Reflection (Click '?' for Prompt): The program review mentions much needed resources, which will be used to improve the student experience and to improve their learning.
Are you ready to submit your final program review?: Yes

Program Recommendation: 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.

Recommendation Priority: 2. Medium Priority
Year(s) Requested: 2011-2012, 2012-2013
Request Date: 03/01/2012
Inactive Date: 02/01/2013

Plan of Action

Curriculum/SLO - Gather data during the Spring 2012 semester. Meet with biology faculty to discuss the data in the Fall 2012 semester. (Active)
Budgetary Impact: None
Timeline/Responsible Party: Fiering

Status

Reporting Year: 2013-2014 10/19/2013
Recommendation Progress: Recommendation Addressed/Satisfactory Progress
No response was received from any Biology faculty. Current curriculum will be maintained.

10/14/2012

Recommendation Progress: Recommendation Addressed/Satisfactory Progress
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

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.

Program Recommendation: Wireless Network

Add a wireless network to room 821.

Recommendation Priority: 2. Medium Priority
Year(s) Requested: 2013-2014
Request Date: 11/01/2013
Supporting Evidence : Evidence is not relevant to this recommendation.
Evaluation Plan: No evaluation plan.

Plan of Action

Equipment - In general, the department has adequate but rapidly aging equipment. The laboratories would be greatly improved with the addition of a wireless network for Internet and printer access. We have limited space, and the current hard-wired connections are very encumbering. The department also keeps one computer in the classroom for students to access materials on the Internet, and this computer is completely inadequate. It takes about 5 minutes to download a single page.Additionally, the recent upgrade of the computer that runs the audio/visual equipment was recently replaced. This, however, rendered the wireless keyboard and presentation remote controller inoperative. This greatly reduces the effectiveness of the equipment since the instructor has to stand in one place at the keyboard to switch slides. It is also very hard to see the screen from that position. (Active)

Budgetary Impact: Department funds will be adequate if other funds cannot be found.
Timeline/Responsible Party: Fiering - no definite timeline
Perkins Eligible: No
DE Related: No
HSI Related: No

Program Recommendation: Equipment Technician

Hire a 1/4 time equipment technician

Recommendation Priority: 3. High Priority
Year(s) Requested: 2014-2015
Request Date: 10/16/2015
Supporting Evidence : Every week, a significant amount of time goes into setting up and tearing down the lab equipment, which is

better spent creating high quality lab manuals. A lab assistant can help in setting up and tearing down the lab equipment. In addition, he/she can keep track of the inventory and order new equipment(if needed) and fix broken things in the lab.

Plan of Action

Staffing - Technical/Clerical - There is a clear need for an approximately one-fourth time technical assistant to maintain the physics equipment. (Active)

Budgetary Impact: There is currently no funding.

Timeline/Responsible Party: Fiering - not requesting this for this year and the current budget environment

Perkins Eligible: No

DE Related: No

HSI Related: No