**Department/Program Review Summary**

**2017-18**

**Department:** Physics (PHY)

**Date of Review:** April 13, 2018

**Review Team Members and Titles:**

Dave Collins, Provost

Adam Arnold, Assistant Professor, Law

April Carpenter, Chair/Associate Professor, Management and Marketing

Jared Cutler, Assistant Provost of Accreditation and Assessment

Jason Deibel, Chair, Physics Department, Wright State University

Cari Gigliotti, Division Assessment Coordinator, Science, Math and Engineering

Dave McFadden, Professor, Allied Health Instruction

Robert Minto, Manager, Student Enrollment Center, Enrollment Management

Andrew Owen, Program Aide, Student and Community Engagement

Derek Reed, Predictive Analytics Researcher, Research, Analytics and Reporting

Shari Rethman, Dean, Liberal Arts, Communication and Social Sciences

Cole Rodesky, Academic Advisor, Academic Advising

Deborah Strehle, Associate Professor, English

**Department Members Present:**

Tony Ponder, Dean, Science, Math and Engineering

Lalitha Locker, Chair/Professor, Physics

Faculty and Staff:

Marlon Aldridge

Douglas Bradley-Hutchinson

Loretta Christon

Lori Cutright

Lee Day

Shan Huang

**Commendations:**

* The Review Team was impressed by the department’s approach to researching alternative instructional modalities, which led to the integrated lecture/lab approach currently utilized in Physics courses. This would have entailed a great deal of effort, and is indicative of the department’s commitment to increasing the success of its students.
* The assessment work that the department has engaged in during the last few years is truly impressive. The use of common items across all sections of a course has enabled the department to gather large amounts of assessment data, and without question required a great deal of time, work, and collaboration within the department to set up. The department deserves a great deal of praise for the work they have put into setting up their current assessment approach.
* The department has cultivated excellent relationships with Wright State University and the University of Dayton, including representatives from those institutions on their Advisory Board, initiating collaborations with colleagues at these institutions, and developing articulation agreements that allow Sinclair students to transfer as juniors. These relationships are extremely beneficial to our students, and the department deserves credit for developing and maintaining these relationships with our local university partners.
* The Physics Resource Lab represents an important support for students in Physics courses. The Review Team was also appreciative of the department’s willingness to share space with the Chemistry Resource Lab while it is displaced by the G4 project. This is an excellent example of interdepartmental support and collaboration, and speaks well of the spirit of collegiality in the department.
* The department did an outstanding job of addressing goals and recommendation from the most recent Program Review. While some of the goals were no longer applicable, the recommendations were clearly prioritized by the department, and some of them entailed a heavy lift to implement. Development of new program outcomes, establishment of common questions in exams and assignments, and many of the other recommendations required a substantial commitment of time and effort, and it is to the department’s credit that they utilized these recommendations as an improvement opportunity.
* The Review Team was surprised to learn of the extent of the department’s outreach to the community, particularly its work providing in-service classes, workshops, and other educational experiences to Dayton Public Schools personnel. These kinds of pre-college connections are vital to attracting students to Sinclair, and illustrate a highly commendable commitment to community service.
* The department has pursued and received grants that have provided scholarship opportunities and valuable educational experiences for students, which is yet another example of their commitment to helping their students succeed.
* Physics is generally regarded as an academically challenging subject for most students – yet the course success rates in this department are comparable to the institution overall. It is remarkable that the department is able to maintain a relatively high level of courses success compared to the rest of the institution in an area that so many students find so difficult.
* While there have been few graduates from Physics in recent years, the department provided transfer data for students who had completed the PHY 2201 and PHY 2202 courses, reporting valuable information regarding transfer outcomes for students in those courses.
* The Review Team was impressed by the mission statement in the self-study. Not only did it show a recognition that the department supports students with “diverse origins, with a wide ranges of needs and goals,” it also displayed a commitment to lifelong education and to inspiring “curiosity and excitement about the physical world we inhabit and the scientific disciplines that study it.” What an exceptional summary of the mission of the department and its values!
* The department has piloted Open Educational Resources (OERs) in AST 1112, and is preparing to develop OER materials for AST 1111. The economic benefits in terms of savings in textbook costs to our students is substantial, and the department has earned praise for helping to lessen the burden of educational costs for its students, even though the development of OERs is generally time and resource intensive. Well done!
* The department has seen a steady increase in Average Class Size, which appears to be the result of conscious efforts to increase section sizes. In a time of tight budgets, this attention to strategies for improving efficiency is extremely important.
* The department benefits from the strong leadership of the department chairperson, and from committed faculty and staff who go above and beyond both in helping their students succeed and in offering service to the community.

**Recommendations:**

* As noted above, the Review Team was extremely impressed by the integrated lecture/lab approach that has been adopted by the department based on previous research. The department is encouraged to document the impact that this change has had on student success in Physics courses. Moreover, opportunities to share the department’s work with integrated lecture/lab should be shared with other departments in Fall Faculty Professional Development Day, the Center for Teaching and Learning, and other appropriate venues.
* The department is strongly encouraged to continue its outreach to Dayton Public Schools. This highly commendable work should be maintained, and the department should pursue finding a new representative from Dayton Public Schools to serve on its Advisory Committee.
* The department is also strongly encouraged to continue its work expanding the use of OERs as planned with the AST 1111 course, and with any other courses as appropriate.
* It has been noted that there are a relatively small number of students in the Physics program – that being the case, the department is encouraged to explore one-on-one faculty advising with students who are enrolled in the program.
* The challenges for finding adjunct faculty in Summer term were discussed at length in the meeting with the Review Team – the department is encouraged to develop a proposal for allowing full-time faculty to use part of their load for the year in Summer, freeing adjuncts up for Fall and Spring term. The department should explore approaches for how this might be accomplished, gather data to support their recommendations, and submit a proposal to the Provost’s Office.
* The excellent work with the STEM Training and Retention of Students (CC Stars) grant was impressive – how can a similar effort be funded to continue to offer students research based awards and scholarship awards? Funds from Sinclair will be available for initiatives such as this in Fall 2018, information will be provided at that time to the division deans on how to apply for these funds – the department is strongly encouraged to consider this as a source of funding for this effort.
* It was noted in the conversation with the Review Team that students in the Engineering University Parallel Transfer program can take a few more courses and also earn the Physics degree – the department should explore ways of encouraging students to do this. Can Academic Advising assist in this effort?
* The Provost’s Office has suggested that funding may be available for the department to engage consultants to perform a review to identify ways the department can make improvements, similar to an accreditation site visit. The department is encouraged to consider taking advantage of this, in consultation with the Provost’s Office.

**Overall Assessment of Department’s Progress and Goals:**

The department did a truly outstanding job addressing its recommendations from the most recent Program Review. Many of these recommendations were not easily accomplished, and it was evident that the department had prioritized them, and invested the effort necessary to make them happen. The department’s work on common items on exams and assignments was particularly impressive, as was the other assessment work it initiated subsequent to the last Program Review.

While the goals from the last Program Review were largely no longer applicable, it appears that for the current Program Review the department has developed two goals that should remain relevant in the years to come. Revision of the PHY 2210 course and development of the Modern Physics course appear to be goals that will have a direct impact on student success, and the department is encouraged to prioritize completion of these goals in the near future.

The Review Team wishes to express how impressed it was with the work this department has done in recent years, in terms of assessment, instructional methodology redesign, and community outreach. This is a remarkable department, and it is hoped that it will continue the work that it is currently doing in the areas of assessment, instructional innovation, and engagement with Dayton Public Schools.

**Institutional or Resource Barriers to the Department’s Ability to Accomplish its Goals, if any:**

* Scholarships can make such a difference in helping our students reach their educational goals, yet often the scholarships Sinclair is able to offer are grant-funded. How can we find funding to continue scholarships and other opportunities for students once grants run out?
* The department noted the challenges associated with finding adjuncts to teach Summer sections, and a recommendation was made to explore allowing full-time faculty to use load for the year to teach Summer sections. If the department is able to develop a workable approach, other departments may also benefit, helping overcome barriers to staffing Summer sections across campus.