

Date: June 30, 2010

To: Tracy Pellett
Associate Vice President for Undergraduate Studies

From: Kirk Johnson
Dean, College of the Sciences

Subject: 2009-2010 Program Review, Physics Department

You have asked me to provide commendations and recommendations as part of the program review process for the Physics Department. These observations consider the self-study, the external evaluator's report, as well as on the context and resource issues with the college.

The department prepared a self-study and hosted the campus visit of the external reviewer. Dr. Kenneth Krane provided a focused set of recommendations in his report. My commendations and recommendations reflect some of the same points he addressed. My commendations and recommendations reflect some of the same points he addressed. The department's strengths are instructional performance, a sound assessment program, faculty service to the community, and growth in both enrollment and in faculty and student scholarship. The challenges the department faces include student advisement regarding the value of a degree in physics and employment options for graduates, declining support from the college and university, continued efforts in curriculum and staff planning, and a shortage of faculty labor power, and a cramped and antiquated facility.

COMMENDATIONS:

- The department maintains a collegial and collaborative working environment. Department members are cognizant of and value the contributions each member makes to the team or greater whole.
- The department's recently hired chair has energized the department and has helped to stabilize faculty ranks and allowed department to expand curriculum offerings and increase the number of undergraduate students (as measured by FTE) served by the department.
- Although it is a small department with little experience in hiring, new faculty and staff appear to be integrated seamlessly into the working environment. Mentoring opportunities are available and the department has developed model guidelines for consistency in faculty and staff performance review.
- Physics faculty members have embraced a department culture that is student-centered. The engagement of undergraduate students in the discipline is one of its major strengths. The value department members place on instructional

- performance and student/faculty interaction is evident in the consistently high performance in SEOI scores, high rate of student/faculty research collaboration, and in the student placement records presented in the self-study.
- Department philosophy and practice reflects the teacher/scholar model. The department's SEOI scores and student feedback provided to the external reviewer attest to the quality of instruction provided by the department, and the faculty are actively engaged in scholarship as evidenced by the department's overall rate of publications, conference presentations and grant applications.
 - The department has implemented a programmatic assessment plan and utilizes assessment results in curricular planning. The revision of the department's introductory course (into a combined lecture/laboratory format) and the adoption of alternate year scheduling for upper-division courses were not only fiscally sound but were based on assessment results. Similarly, department efforts to explore the feasibility and methodology associated with SCALEUP constitutes evidence of continuing efforts to develop a curriculum based on both local level assessment and an analysis of nationwide changes in the manner in which undergraduate physics curriculum is offered.
 - Department philosophy and practice reflects the teacher/scholar model. The department's SEOI scores and student feedback provided to the external reviewer attest to the quality of instruction provided by the department.
 - The faculty are actively engaged in high impact nationally and internationally recognized scholarship as evidenced by the department's overall rate of publications, conference presentations and grant applications.
 - Student advisement is approached in a consistent and thoughtful manner, and the department is to be commended for implementing appropriate course prerequisites.
 - Although the rate of failing grades and course withdrawals was brought to the attention of the external reviewer, he found the observed rates to be in keeping with other Physics Departments. It is also likely that the observed rates of course failures and withdrawals has more to say about a lack of adequate mathematics preparation students have when admitted to CWU than it does for the manner in which students are advised or educated by the department.
 - The department's recent hires have stabilized and strengthened the undergraduate curriculum and led the department to propose an innovative multidisciplinary masters program in computational sciences.
 - The department contributes to the broader university mission through the provision of service coursework for other majors and the general education program, and the faculty (and to a lesser extent students) support and participate in a broad array of service activities in the community and in university governance.

RECOMMENDATIONS:

- *Undergraduate Assessment, Recruitment and Advising:* Both the external reviewer's findings and the self-study document suggest the department has made

great strides in its assessment, recruitment efforts, and in student advising, but there is some room for improvement in each area. While the department is to be commended for implementing logical course prerequisites and a predictable cycle for all courses, it is recommended that the department institute a program to better track its graduates. This will not only yield additional assessment data concerning success rates in the world of work (employer data) and in graduate programs, but it will also assist the department in its student advisement activities. Although students express great satisfaction with the department, they appear to lack a complete understanding of the value of a degree in physics and what undergraduates do in the world of work. Linking the curriculum with guest lectures and survey data on graduates would fill this void and assist students in making informed decisions. Finally, while Astronomy courses yield solid enrollments, relatively few students enroll in that minor. Clearly based on course enrollment it should be more popular. The department might benefit from an analysis of the apparent disconnect here.

- *Facilities:* Although the department has recently acquired additional space in Lind Hall, this does not make up for the lack of proper facilities. The building is an antiquated historic science facility which despite past renovation has outdated classroom and laboratory furnishings coupled with electrical and weight-bearing/stabilization issues. These detract from the department mission, compromising instruction, research, grant, and equipment needs. The department hopes to rectify this through the successful application to the state for Science Phase II design and construction funding (scheduled for the next two biennia).
- *Staffing:* Given the external reviewer's comments regarding FTE faculty strength in comparable departments Physics at CWU appears to be understaffed. The reviewer argued fairly strongly against combining Physics with another department in response to its relative power differential with other COTS departments. The reviewer pointed to recent increases in both lower and upper division course enrollments as justification for additional faculty resources (this was a department that should be grown in strength). Therefore, if the current enrollment patterns continue into the 2010/2011 academic year I will support this department for the next available COTS expansion/reallocation TT position. I would like to see the department use this as an opportunity to address the external reviewer's diversity concerns within the department.

SUMMARY:

In summary, the Physics Department has a strong student-centered identity with a well defined disciplinary focus when it comes to its undergraduate mission. The department faculty maintains a strong record of instructional performance and scholarship. However, there is some work to be done when it comes to assessment, student recruitment and advisement, the quality of facilities assigned to the department, and faculty resources.