

EXECUTIVE SUMMARY
WSU Five-Year Program Review
Department of Physics
Fall 2012

SUMMARY PREPARED BY:

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The Department of Physics at WSU is a dynamic department with a highly-active faculty. We are engaged in scholarship, service to the profession and to the University, textbook-writing, undergraduate research, and community outreach. The faculty work together well and share a common vision congruent with the mission of the institution. The faculty have expertise in a broad range of physics specialties including astrophysics, condensed matter, particle physics, applied physics, physics education, space physics, nuclear medicine, and astrobiology. This expertise is well-matched to the mission of the department “ to provide high-quality instruction in physics at the undergraduate level”. Faculty have ongoing relationships with a long list of extramural entities including local schools and museums, larger research groups, and professional societies.

The department has undergone some changes since the last review (2007/2008). Significantly, the curriculum has been changed to include several options or “tracks” within the major (astrophysics, materials physics, computational physics, traditional) in addition to some changes to the applied physics and physics teaching majors. Concomitant with these changes, several new courses were added including *Galaxies and Cosmology*, *Nuclear and Particle Physics*, and *Materials Characterization Laboratory*. Several other courses were modified.

These changes have been made within the framework of our existing student learning outcomes. These outcomes (within our majors) include both physics knowledge and a skill set (laboratory, computational, presentation) that the department values and assesses in a variety of ways detailed in the self-study document. Teaching and assessment of learning in the general education (PS) courses taught within the department are in-line with the standards set by the university general education and assessment committees. Our courses and

outcomes will continue to be modified based on internal discussions, and external input such as our participation in the Tuning Project. The department anticipates modifying our assessment procedures as outcomes assessment becomes more standardized and formal across campus.

Dr. Inglefield, department chair, is the primary source of academic advising in the department for the Physics and Applied Physics majors, as well as general matters. Physics Teaching majors and minors are advised by Dr. Johnston. While there is no mandatory advising policy, students are required to meet with the advisor for major declaration and graduation signoff. Given the size of the program (~10 graduates per year) the general availability of advising seems to be adequate. Students appear to be satisfied by the availability and quality of advising as measured, for example, by our exit survey.

The majority of all instruction, including all upper-division instruction, is done by contract faculty. We currently have 13 contract faculty (12 tenured faculty and 1 full-time visiting faculty) in the department. Adjunct faculty typically teach some of our lower division laboratory courses (PHYS 2019, 2029, 2219, 2229) and general education and service courses offered in the evenings (PHYS 2010, 2210, 2220, PHYS/ASTR 1040). Contract faculty are reviewed annually with course evaluations and interviews with the chair in accordance with university and COS policy. The hiring of adjunct faculty is done with care to ensure an appropriate educational background for the course being taught. Adjunct faculty typically present a lecture to the entire faculty at the level of the prospective course. Students evaluate the adjunct faculty in every course they teach.

The contract and adjunct faculty, like the physics community, do not fully match the diversity of the community we serve. Of the 13 contract faculty, three are female and one is a minority (Asian). We anticipate being able to improve the diversity of our faculty through future hires.

The department employs a secretary and a laboratory manager while the planetarium employs two staff members. Staff are reviewed on an annual basis in accordance with university policies and procedures. The staff is adequate, but not optimal, to support the department's mission. In particular, the laboratory manager is split between maintaining materials for our lower-division laboratories and lecture demonstrations for our general-education and service courses. This is problematic as these laboratories and lectures often occur at the same time in different buildings throughout the day. The staff continue to pursue professional development opportunities.

In the past the department has had difficulties coordinating efforts with some offices on campus (Purchasing, Office of Sponsored Projects, and Scholarships). At the time of the last review, problems with the Office of Sponsored Projects were noted. That particular situation has improved greatly in the eyes of those faculty members of the department who frequently deal with OSP.

We are running out of space as a department (and probably as a college). This semester, the lecture hall we use for most of our large enrolment classes is booked, and nearly full, from 7:30 am to 8:00 pm some days. We have no additional office space for new faculty. The department strongly supports the efforts of the college to secure funding for a new science building and would like to continue to be an active participant in the planning of that building.

The department has made significant progress in confronting the issues raised in the last review as detailed in section I. In one case however, the situation remains unchanged. The department supported the alternative workload model, proposed by the previous dean, to compensate faculty engaged heavily in undergraduate research through reduced teaching loads. This model did not garner the college-wide support necessary to be implemented but we would like to continue this discussion.

In preparing this self study, the department recognized the need for more formal and systematic assessment and realized that significant time had passed since some larger issues had been discussed. We anticipate working the Office of Institutional Effectiveness and with collaborators in the Tuning Project to update its learning outcomes and assessment procedures. We also recognized a need for better internal planning for maintenance of major equipment and better long-term planning in general. Department morale is good and we anticipate good things for the next five years.