

Physics and Astronomy

Cyclical Program Review

Executive Summary

Program description

There are many options for physics education at York, including combining studies with other disciplines. Within the Department of Physics and Astronomy, students may choose among several study paths with different course requirements: Physics Stream, Applied Physics Stream or Astronomy Stream. The Department also offers opportunities to develop Honours Double Major and Honours Major/Minor programs with other disciplines in the Faculty of Science and Engineering or in other faculties.

Reviewers:

Dr. David Hanes, Department of Physics, Engineering and Astronomy, Queen's University (External)

Dr. Kenneth Ragan, William c. MacDonald Chair in Physics, McGill University (External)

Dr. René Fournier, Department of Chemistry, York University (Internal).

Site Visit: March 10-12, 2010

Reported to Joint-Committee: [date]

Outcome: The Joint-Committee on Quality Assurance concluded that the Decanal response adequately addressed the review recommendations. Rather than request a follow-up interim report, the committee met with the Dean Hastie and the Chair of the department, Professor Marshall McCall to discuss activities and initiatives underway or completed since the site visit.

Program Strengths identified by the reviewers

- The program is well-balanced and flexible, with a number of attractive degree options.
- Research within the department (laser labs, Mars Rover research and Bose-Einstein Condensate physics) informs the curriculum.
- There is a high level of student enthusiasm, resulting in good retention rates and a healthy intake of upper-year students who moved from other degree programs.
- Faculty members are dedicated to and enthusiastic about teaching with a commitment to placing researchers in introductory courses as a strategy to engage and retain a cohort of committed students.
- Laboratory space is well-used and a good variety of appropriate experiments are offered.

- A strong outreach component provides experiential learning opportunities and recruitment tools, with the Department providing good discipline-related employment opportunities.

Opportunities for Program improvement

The reviewers identified several opportunities for the program, addressed concerns provided by the program, and made specific recommendations.

Opportunities:

- The department is encouraged to take advantage of York's intention to reposition itself as more science-centric institution in a context of changing demographics and renewed government interest in science and technology.
- The expansion of engineering programs holds potential for opportunities for service teaching and student recruitment.
- The department is encouraged to make use of University recruitment and career counseling services.

Recommendations:

- The department is encouraged to improve an understanding of its students by maintaining better records, providing advisors, and maintaining contact with alumni, actions that the Sub-Committee notes would be greatly assisted by support from the University Administration
- Efforts to increase student engagement might include the provision of a designated student space, increased efforts to encourage students to attend department colloquia and to ensure that such colloquia are pitched at a suitable level, improved efforts to communicate research opportunities to students, and increased use of opportunities in the Faculty (e.g. Bethune College, Technology Internship Program, TIP).
- Teaching can be improved by increased coherence between lectures and tutorials and between courses and first year laboratories; more support should be provided to prepare and evaluate Teaching Assistants.
- Closer contact with the Mathematics department is recommended and stronger remedial programs are required.
- The profile of Physics and Astronomy at York, within York University, in the province, and nationally can be enhanced by way of an improved website, more engagement with local secondary teachers, and participation in University initiatives, such as spell out SPARKS.
- The reviewers endorsed improvement proposed in the Departmental Agenda of Concerns and encouraged immediate action on concerns not requiring resource commitments.

Decanal Implementation Plan

- Encouraged the department to continue to address the concerns identified in the Agenda of Concerns and endorsed by the reviewers.

- Supported the possibility for the department to nominate its members for prestigious external rewards
- Encouraged the department to attend to weak enrolments in a course designed to house research experience.

Executive Summary

The Joint-Committee on Quality Assurance met with Dr. Don Hastie, Interim Dean, Faculty of Science and Dr. Marshall L. McCall, Chair, Department of Physics and Astronomy on **April 10, 2013**.

The Dean explained that the department's request for new resources, including a position of Undergraduate Director or Coordinator, cannot be given priority given low enrolments. The Chair confirmed that many actions have been already taken to improve the quality of the Department's programs and identified the following:

- advising and mentoring has been improved
- the website has been redesigned
- communication with other University's services has been established (Bethune College, TIP)
- colloquia are being widely advertised
- a Coordinator of Undergraduate Research with responsibility to promote and facilitate research opportunities for undergraduate students will soon be in place
- program coherence has been improved

The Vice-Provost and the Joint Sub-Committee support enhancement to data accessibility and the tools that are necessary to track student progress, enhance time-to-completion rates, and maintain contact with alumni. The Sub-Committee will signal its views in its next report to Senate

Alice J Pitt, Vice-Provost Academic
June 11, 2013