

Physical Sciences Program Review

Executive Summary

In 06-07, faculty in the Physical Sciences Division conducted Program Review in the following program areas: Division Office; Astronomy/Physics; Earth Science; Chemistry; and Mathematics.

Support team members who participated in these reviews include Sal Cardinale, Leandro Castillo, Gary Fuller, and Susan Steele.

Program Strengths and Support Team Commendations

Support Team members noted that all of these programs have excellent, dedicated and experienced faculty. The faculty members are committed to the success of their students, whether it is in preparing them for transfer in a physical science major, providing foundational work in general education and for other science emphases, or offering opportunities for life-long learning. In addition to creating new curriculum, revising current offerings, and incorporating technology, Physical Science instructors devote significant time assisting individual students and creating opportunities for hands-on learning

Challenges

All programs in Physical Sciences noted that a major challenge is the adequacy of their budgets for supplies, as well as for the maintenance and updating of equipment. In addition, Astronomy and Earth Sciences find their field trip budgets insufficient to support their programs' respective needs.

Although two math classrooms have been upgraded to multi-media status in Jan/Feb 2007, the physical environment in the Physical Sciences building remains a challenge. There are problems with heating and cooling, the size of the laboratories is inadequate to meet student demand, and the Chemistry program notes that safety equipment in the labs has been acquired but not installed.

A third challenge has to do with laboratory support. The scheduling possibilities available to Astronomy/Physics depend on the availability of laboratory support; Chemistry **reports that** the level of support in their laboratory is not sufficient to allow for the installation of safety equipment.

The final challenge is specific to Engineering. Students who want to transfer into a college or university engineering program are more competitive if they have taken lower division engineering courses. However, enrollments in the engineering courses are relatively low, not uncommonly falling below the fifteen student minimum.

Goals

Chemistry, Astronomy/Physics, Engineering, and Earth Sciences are desirous of increasing their enrollments. The support team encourages their efforts on this score. The next step is to move beyond desire. The support team recommends that these programs develop and implement a plan for enrollment growth.

Mathematics' major goal is to improve the support offered students in the Mathematics Learning Center, by increasing the hours it is available to students, adding a director who can attend full-time to student needs, and finding a dedicated location. In light of the projected growth in students taking mathematics courses with the change in graduation requirements, the support team believes these goals are worth pursuing. The support team also notes that, while the director is necessary to the vision that Mathematics has for the future, the addition of a director also offers the department the opportunity to think critically about the program and its curriculum. The support team encourages Mathematics to take advantage of this opportunity.

Support Team Recommendations

1. Unless the College wishes to consider the elimination of Engineering – an unpalatable prospect – strategies for building the enrollment in this program should be actively pursued. The responsibility of developing and implementing these strategies falls, in part, to the Physical Sciences Division and the Engineering Program. Both should be actively recruiting among current MPC students and developing an aggressive outreach program. But the College is partially responsible as well, in terms of its marketing and student recruitment efforts.
2. It appears that the mathematics learning center will continue to develop as a unit physically distinct from the learning center on the first floor of the library devoted to supplemental instruction and language learning. The support team recommends that the programs associated with both learning centers make a concerted effort to collaborate on improving student success.
3. MPC is actively pursuing efforts to grow its enrollment. The support team recommends that the science programs in the Physical Science Division take a more active role in this effort. This involves active outreach to local communities, but it may also involve rethinking course scheduling and course delivery.

Overarching Issues

A number of the issues identified in the Division's self-study are not division-specific.

- a. Since the appropriateness of supply budgets for departments and divisions has not been confirmed after the budget reductions that took place in fiscal year 2002-2003, the support team recommends that the College develop a plan to address supply and equipment budget needs for all divisions to ensure that they are consistent with college goals.
- b. At least a portion – hopefully, a significant portion – of the campus’ facility needs should be met under the College’s facility renovation plan. The support team, therefore, underscores the importance of improving classroom and laboratory space. The planned remodel of the Physical Science Building represents a great opportunity for the College to make the necessary improvements on both of these counts.
- c. As MPC positions itself for enrollment growth across the board, the desire to grow is not specific to programs in Physical Science. The support team notes this context for growth in the Physical Sciences and emphasizes the need for all segments of the campus community to attend to outreach and marketing.