

# **Department of Mathematics Program Review**

## **Dean's Response**

**June 19, 2008**

The mission of the College of Science states:

The College of Science provides quality education in the natural sciences and mathematics. The college offers majors and minors in seven departments (Botany, Chemistry, Geosciences, Mathematics, Microbiology, Physics, and Zoology). The college also supports students through its Developmental Mathematics Program. The departments and programs of the College of Science support professional and graduate school preparatory programs, and contribute significantly to the general education of students by improving scientific understanding of the natural world and quantitative literacy. Education is provided through formal classes, laboratory and field experiences, and undergraduate research projects. Student learning is also supported by departmental clubs and professional preparatory organizations. The college promotes science and mathematics teaching through the Center for Science and Mathematics Education, and community outreach through such facilities as the Layton P. Ott Planetarium and Museum of Natural Science.

The programs in the Department of Mathematics are designed to contribute to the overall mission of the College of Science by providing general education courses, support courses for other programs, and major programs that prepare students for employment or further education.

The program review team noted a number of strengths in the current program: (1) "...the effort to provide upper-division math specialist courses to obtain the Elementary Education Mathematics Endorsement is unique in the State of Utah and the effort is well recognized by K-8 school administrators."; (2) "There is a significant amount of scholarly activity among the current faculty, a noteworthy accomplishment given the 12-hour teaching loads!"; (3) "Essentially all classes at the calculus level and above are taught by Ph.D. level faculty, a worthy goal for any institution of higher education in the State of Utah."; (4) "Splitting off the Developmental Math Program seems to be a good idea, and considered as such by most department members."; (5) "Faculty interviewed by the review team expressed strong support of the Department Head and his leadership."; (6) "The WSU mathematics faculty is a healthy mix of experienced and young faculty, all of whom are competent..."; (7) "...as a Department have established an overall rigorous, well-constructed curriculum."; and (8) "...faculty commitment and financial support by the College of Science and WSU administration for research and scholarly activity...".

The Dean agrees with the assessment of the program review team regarding the identified strengths of the program. A great deal of effort has been put forward toward improving the developmental mathematics program and freeing up the Ph.D. faculty to focus on courses for quantitative literacy and above, along with giving additional attention to research and scholarship within the Department of Mathematics. It is gratifying to see that the program review team's sense of the Department is that it is healthy, has good faculty with a strong curriculum, and that the research and scholarly activity in the program is both productive and effective.

Along with its strengths, the review team identified a number of challenges for the programs in the Department of Mathematics: (1) low numbers of majors; (2) amount of time available to support faculty scholarly activity; (3) the space in Building 4 "poses many challenges for the department. The building itself is old, in need of repair, and highly unattractive when compared to the numerous modern, appealing structures on the WSU campus."; (4) the low pay of Developmental Mathematics teachers should be improved; (5) "the Department's web site is out of date and does not match the level of design and quality of other departments in the College of Science."; and (6) the operating budget needs to be increased.

Again, the Dean believes that the review team has done a good job of identifying significant challenges that should be addressed by the Department of Mathematics as it continues to move forward and strengthen its program over the next five years.

The review team correctly points out that the limited number of majors in the program is a concern, which is an issue that has persisted for many years. It is also an appropriate suggestion that more emphasis be placed on recruiting, especially in the area of mathematics teaching. In order to help address the issue in Mathematics, coupled with the desire to increase enrollments in all programs in the College of Science, the College has a very active publicity and recruitment committee with representation from every department in the College. The College's general advisor also supports the publicity and recruitment activities of the committee. The committee has recently revised recruitment materials that are provided to the recruitment office and it has assisted in updating our departmental and college web pages, including those in Mathematics and Developmental Mathematics, which are now completed and active. In addition, a monthly College of Science E-Newsletter is published out of the Dean's office which features one department or program in each issue, along with special announcements.

It is of paramount importance that graduates of Weber State University develop a significantly deeper understanding of and appreciation for science and mathematics, and that the number of students majoring in the sciences and mathematics increase. Of course this is not simply a Weber State University issue, but it reflects national trends. As documented in countless state and national reports, the low level of understanding and expertise in STEM fields (Science, Technology, Engineering, and Mathematics) is at a crisis level for United States in terms of maintaining a competitive advantage in the world economically, technologically, and scientifically.

The review team also mentioned that “there is a significant amount of scholarly activity among the current faculty, a noteworthy accomplishment given the 12-hour teaching loads!” However, the review team also pointed out that perhaps adjustments could be made by “differentiating those loads ... to support scholarly activity ...”. The College of Science Chairs’ Council has been discussing the issue of necessary time for research and scholarship, particularly as it applies to undergraduate research, and plans to revisit the issue in a more focused way during Fall Semester, 2008. The issue is becoming increasingly important to the entire college given (a) the rapid growth in undergraduate research, (b) the very conservative policy of providing 0.25 TCH per SCH, which is far too restrictive for the time-intensive mentoring required of undergraduate research, and (c) the importance of supporting active research programs for faculty interested in remaining current in their disciplines, which is a fundamental requirement of excellent teaching, especially in rapidly developing disciplines. The Dean anticipates that a formal policy regarding reassigned time for research and scholarship activities will emerge from this fall’s discussion.

Space constraints are also serious and ongoing issues in the College of Science, negatively impacting all departments. The Science Laboratory building is now nearly 40 years old (completed in 1969) and the adjacent Lind Lecture Hall is only one year younger. The design and current status of the Science Lab building is highly restrictive to collaborative projects and suffers from significant fire, earthquake, and asbestos issues. Furthermore, Buildings 3 and 4 (the Department of Mathematics and the Developmental Mathematics Program are currently housed in Building 4) are the oldest buildings on campus and are now 50 years old. It is a high priority of the Dean to address building constraint issues for the entire College of Science, including the Department of Mathematics and the Developmental Mathematics Program. The Dean fully concurs that it is in the best interest of the faculty and their programs if the Mathematics and Developmental Mathematics faculty and staff can be housed together with the rest of the faculty and staff in the College of Science. The opportunities for collaborative work and increased collegiality make this issue of critical importance to the College.

Finally, the review team has identified two other related issues, namely the relatively low salaries of the Developmental Mathematics program faculty (specifically the lecturers) and the need to increase operating budgets. In both cases the issues stem from limited funding available, particularly E&G funding. The general issues of salaries and operating budgets are continually focused on, and ongoing attempts are made to address them in positive ways. Although E&G funding is limited, some one-time funding has been made available to address such issues as remodeling and new furnishings in Building 4 classrooms, but the ability to significantly increase salaries continues to be a struggle. Fortunately this is also a very serious concern of central administration, and some positive strides have been made in that area over the past few years.

The Dean greatly appreciates the thoughtful self-study developed by the Department of Mathematics, the numerous informed comments made by the program review team, and the reflective response by the Department. Many of the concerns and recommendations suggested

by the review team are already being addressed, but the many recommendations will also certainly be very helpful in strategically planning for the next five years of the program.