WEBER STATE UNIVERSITY

2007-2008 PROGRAM REVIEW **EXECUTIVE SUMMARY**

DEPARTMENT OF MATHEMATICS

December, 2007

● **Program Mission Statement**

* MATHEMATICS DEPARTMENT MISSION STATEMENT *

DEPARTMENT ROLE

The main purpose of the department is to provide students with the tools necessary to competently integrate mathematics into their personal and professional lives. We strive to create an environment that makes that possible. Quality teaching of relevant courses is our central objective.

Students taking mathematics have various goals that include intellectual enrichment, employment in industry, teaching and graduate work. We offer a curriculum that meets or exceeds their needs in each area, both in terms of content and of teaching styles. Since mathematics is central to many fields, we design our course offerings in a manner sensitive to the needs of other disciplines.

Because mathematics is a rapidly developing field and the best teachers are those who remain active in their discipline, we engage in such activities as mathematical and educational research, inservice teacher training, and course and curriculum development. Professional and scholarly work is both expected and encouraged.

Approved November 2001.

The mission statement supports the mission of Weber State University and is appropriate for the Mathematics Department.

● **Curriculum**

The Weber State University Department of Mathematics has three types of emphases for the Mathematics major. The Regular Emphasis is more theoretical and prepares mathematics majors for graduate school, although if they were to choose their electives properly they could still qualify for industrial employment. The Applied Emphasis prepares majors to gain employment in industry, but again by choosing their electives properly, they could still qualify for graduate school. The Mathematics Teaching Emphasis prepares majors to teach in Utah high schools; this program is driven by state requirements. All elementary teachers must take Math 1050, College Algebra, and the two course sequence Math for Elementary Teachers. In addition, students can take upper division math specialist courses to give them an endorsement in elementary mathematics.

Changes were recently made to both the Applied Mathematics Major and the Mathematics Teaching Major. The Applied Mathematics Major now gives students a direction to go based on their interests, and appropriate courses for each track are suggested in the catalog. All students come in for advising, and the exact program they do is worked out with the Chair of the department.

Courses are offered often enough that students can usually finish their degrees in four years, although sometimes that is difficult for a teaching major, given the extra courses required in the College of Education. Offering upper division courses more often is desirable, and would happen, if

there were more students.

The general education courses (and their prerequisites) are the ones that fulfill the university Quantitative Literacy requirement. These courses are virtually the same across the state, as per Board of Regents articulation agreements.

Many of our courses provide service to other majors and minors, such as science majors, business majors, technology majors, and others. We are open to suggestions by others in regards to these courses, but most are very standard across the country. Gauging by conversations and remarks by people in other departments, it seems like our service courses are fulfilling the needs as required.

The new Developmental Mathematics Program has been set up to help success in developmental courses which are prerequisite to the quantitative literacy courses.

The curriculum for each program has been the result of a thoughtful and ongoing process. We frequently review programs around the country for new ideas and to see that the current curriculum is relevant and close to what other quality institutions are offering. The curriculum for each emphasis is consistent with the department mission statement and national standards. Courses are offered frequently enough to satisfy most majors and minors, and all general education students.

● **Student Learning Outcomes and Assessment**

Mathematics students should enjoy resources that are sufficient for achieving their goals. While obtaining mathematical knowledge, they should also have a reasonable freedom in the choice of their courses. Mathematics service courses should meet the overall varied needs of client departments. Students in these courses should obtain the required mathematical knowledge.

The outcomes and procedures sections of the document were put into place by the Mathematics Department. Data collection has been ongoing. Given the limits on funding, what is planned should prove to be adequate for giving a fair sense of the success of the Mathematics Department programs. To get better data and to be able to be more certain of the success of these programs, more funding (and personnel to help) will be necessary.

● **Academic Advising**

The chair of the department is the official academic advisor for all mathematics majors and minors. Other faculty members are encouraged to advise students as well, but students are always eventually sent to see the chair. The chair will also give advice to students or other advisors on the university quantitative literacy requirement as needed.

Academic advising for mathematics majors and minors is sufficient for their needs. Individual programs are planned with the advisor so students can graduate in a timely manner. Career opportunities are also discussed. Sometimes help in advising is done by other faculty members that give students a well rounded opinion.

● Faculty

Currently the mathematics faculty consists of 11 full-time people and one three-quarter time person. The Developmental Program has one full time director (acting as of now) and ten full time lecturers, although one has resigned and won't be here starting spring 2008. Over the current school semester, both in mathematics and developmental mathematics, we have employed 45 different people as adjunct instructors, with several teaching more than one section for the year (some more than one in a semester). For the 2006-2007 academic year mathematics and developmental mathematics taught almost 34,000 student credit hours, which translated to 18.27 FTE (full time equivalent) for contract faculty and 14.08 FTE for adjuncts (counting both math and developmental math). See appendices 3 and 4. Adjunct FTE was calculated based on money paid for them assuming a 12 hour per semester load. The number of majors reported in the appendix is slightly lower than department records. About half our graduates are teaching majors.

As of the 2007-2008 academic year the Mathematics Department has five full-time tenured full professors, one three-quarter-time tenured full professor, one full-time tenured associate professor, three full-time assistant professors (tenure-track), and two full-time instructor specialists (tenured). The Developmental Mathematics Program has one full time tenured associate professor (acting director) and ten full-time lecturers (non-tenure-track). Of the Mathematics faculty, ten have Ph.D.'s, and two have masters degrees. Of the Developmental Mathematics faculty, one has a doctorate, seven have masters, one has two bachelors degrees (but has resigned), and two have bachelors. In the Mathematics Department, two of the faculty are female, ten are male. There are no minorities, although three are from foreign countries. In the Developmental Mathematics Program, four are female, seven are male, with no minorities. Areas of faculty expertise include Functional Analysis, Real Analysis, Algebra, Differential Equations, Linear Algebra, Approximation Theory, and Mathematics Education. Years of teaching experience varies from one year to over thirty years. See appendix 4.

● Program Support

The Department of Mathematics receives support mostly from the legislature. Some student fees are used to help upgrade the student computer lab. We have several scholarship funds that were made possible by donations. Occasionally faculty members receive grants to help them accomplish what they desire. Mostly these grants are in-state, but sometimes they are national. Our funds are not adequate for our needs, but to the extent that they are able, the Dean and the Provost provide good support.

The Mathematics secretary is very competent and helpful. The Developmental Mathematics Program has hired a secretary, which helps tremendously in program support. Some students are working as tutors and/or graders, and some run off exams for the Developmental Program.

The Dean supports the Mathematics Department very well with needed money for computers and

new courses. Support for Developmental Mathematics is good and provides for full time lecturers. The Provost has supported new sections of courses when needed. The problem is just that there is not enough money from the state to support everything that is needed in the Department. New chalk boards or white boards are needed in many of the classrooms. More classrooms are needed. Library funding is adequate for most of the needs, but for researchers, more journal access is necessary.

● Relationships with External Communities

There is no official liaison mechanism between the Mathematics Department and external communities of interest. Informally we have several former and current students who work for local companies. They keep us informed about how our students fair in the workplace and they let us know of upcoming needs in their companies so that we can make certain our future students will have good employment prospects. Our Math Education people work closely with teachers in the school districts and math supervisors. This forms our liaison with elementary and secondary schools in the area.

● Students, Faculty, Contact/Adjunct Faculty and Staff statistical summaries

See the appendix for details. It is desired to be able to rely on adjuncts less in the future.

Any student wishing to major or minor in mathematics need only declare this with the chair. All are accepted. The number of majors has been down in recent years, but seems to be making a rebound.

The Weber State Mathematics Department graduates and retains students consistent with its mission. More students are needed before courses can be offered more often. Also, secondary school mathematics teachers are in high demand, so the department is working hard to make courses available to in-service teachers, as well as potential new teachers. Mathematics enrollments are down across the country including WSU, but effort is being made to reverse that trend. Some departmental scholarship money is available, but much more is needed. Academic standards and quality are high, and diversity is encouraged.

Program Summary

The programs offered by the Mathematics Department have quality, consistency, qualified faculty, and are meeting students' needs.

The Mathematics Department has been responsive to prior reviews. The program plans are resulting from careful planning and analysis of the mission statement, student learning outcomes, curriculum, teaching and learning efforts, academic advising, faculty, staff, and students.