

SOUTHERN UTAH UNIVERSITY
DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE

DEPARTMENT ASSESSMENT PLAN 2003-2004

Mission Statement

We understand that a rich and appropriate mathematics education is needed by all disciplines at Southern Utah University. Not only do we serve future mathematicians, scientists, business strategists and engineers but also future teachers of mathematics and computer science students as well as those pursuing studies in the arts and humanities. Except for reading, no other skill is so universally needed across the entire breadth of our society as those that our department is responsible to teach.

The department of mathematics and computer science is committed to offering a well-rounded academic program that will enhance the lives of both the casual observer of our discipline and the most serious minded science students. The demand for knowledge we offer is enormous in both industry and education. In secondary schools the two greatest shortages of qualified teachers across the nation are in mathematics and technology. This provides us with a great opportunity to serve both our students and the nation, and we feel that it is our mission to do so.

Goals

The department of mathematics and computer science has six specific areas of responsibility. They are:

1. General Education
2. Service courses for other departments
3. Preparing mathematics and computer science teachers for secondary schools
4. Preparing our majors for employment in industry
5. Preparing our majors for graduate school
6. Providing in-service opportunities for improvement of mathematics teaching in elementary and secondary schools.

Objectives

1. We will offer sufficient general education courses, both in numbers of sections and in levels of proficiency expected, to accommodate the demands placed on us by student needs, student abilities, and student interests.
2. We will advise students into general education courses that will be both meaningful and manageable with the abilities and background they have.
3. We will offer the computer and mathematical instruction that is needed and requested by the major departments we serve.

4. We are committed to prepare our mathematics education majors with both the mathematical knowledge and the teaching skills necessary for successful teaching careers in secondary schools.
5. We will prepare our majors for successful careers after graduation.
6. We will prepare our majors for successful admission into graduate schools.
7. We would recruit more quality students to the university and into our department.
8. We would increase our retention rate of majors and ratio of upper division students.
9. We would increase the effectiveness of our teaching.
10. We will increase the opportunities for elementary and secondary teachers of mathematics and computer science to update and improve their subject matter knowledge.

Implementation and Assessment

1. We offer courses that range from pre-algebra, requiring essentially no background, to courses that the most advanced entering students can find challenging, and offer them frequently enough and with enough sections that students need not be turned away from courses they need. All of our general education courses are offered every semester.

While our general education and service courses are very standard compared to the same courses at other universities and use "mainstream" textbooks, we are committed to make them the best we can, so we have begun reviewing every course – its content, objectives, and assessments. If a course cannot be justified it will be deleted. If its content cannot be justified, it will be changed. We began the reviewing process a year ago and intend to complete it before the end of the next year.

2. We look at student high school transcripts and give placement tests to acquire evidence of student background and abilities in order to properly advise them into the appropriate level of mathematics and computer science courses. The placement exams are prepared and administered by Susan Peterson and Lohra Wolden and are reviewed and updated each year.

While all students are advised, whether or not they accept that advice is up to the individual student. This advisement process has been going on for three years. Beginning Fall Semester, 2002, data has been, and is still being collected to compare the success of those students who follow the advice given to those that do not. When this is completed data will be gathered for the purpose of comparing the success of students since the placement testing began with those before that time.

3. Specific content requests are made by departments of business, education, and engineering for the service courses we teach to their majors. We honor those requests. We also keep abreast of that which is being done in those courses at other universities across the country to make certain that our courses are in line with that which is being done elsewhere.

Recent requests have been made by the business department and, as a result, we have cooperated in scheduling an experimental section of business calculus that is being taught by one of the business faculty members. We welcome suggestions and cooperate in any way we can to improve the service we provide.

4. We require all of the state (level 4 mathematics endorsement requirements for the state of Utah) and nationally (National Council of Teachers of Mathematics "Standards For Teaching Mathematics") recommended subject matter and methods courses of our mathematics education majors. The mathematical knowledge is assessed through classroom testing, an exit exam, and an exit interview. We are now beginning to also require that they take the national ETS test as an exit exam. Teaching effectiveness is assessed through observations and evaluations of a cooperation teacher in the secondary schools, a supervising mathematics professor, and a supervising education professor. The exit exam, a report of the exit interview, and the student teacher evaluations are a permanent part of the students' files.

One measure of the effectiveness of the mathematics education program can be in the placement of our students into teaching positions upon graduation. At the end of the 2001 – 2002 and the 2002-2003 school years, every person who student taught in mathematics in our program, whether a major of a minor, had a teaching contract before the school year was over.

5. We require our majors to acquire skills that will make them employable upon graduation. We also require that they can demonstrate those skills not only on in-class assessments but also on a comprehensive examination before graduation and in an exit interview. As with the mathematics education majors, these will be kept in the students' files.

6. We require courses of our majors that are basic courses necessary to prepare them to do well on the GRE and to be able to enter graduate level courses and succeed in them. We gather data on the success rates of former students who have chosen this option. We plan to ask for their input and recommendations for improving that preparation, and to use this information to improve our program. Specific data we intend to keep includes: GRE scores of our graduates who take the exam, a record of those who do enter graduate school and of those who complete graduate degrees, and a file containing questionnaires that will be sent to former graduates asking for their evaluation of the education we have provided them.

We keep a record of those who apply to graduate school, and of those who are accepted.

7. Mathematics and computer science provide such vast career opportunities that recruitment into these areas is just a matter of informing and educating people. Recruiting them to the university can be more difficult because most colleges and universities offer majors in these areas. We can improve our effectiveness in this endeavor by having representatives at high school science fairs and career days, by sponsoring fairs and contests on our campus, and by directly approaching students, such as the sterling scholars identified by each high school in the area, who have already been chosen as gifted in mathematics and technology. To assess our effectiveness in this area we will 1) keep a record of our faculty participation in such events, 2) ask each of our new majors each year to identify their reason for coming to SUU and particularly for majoring in mathematics or computer science, and 3) keep track of the number of students that we have acquired as a result of our recruiting efforts. This can assist us in identifying the areas where we can make the best uses of our resources.

8. We are trying to improve in this area by identifying our majors early, staying close to them by assigning each a faculty mentor in our department and being kept aware of their future plans and needs. When a student informs us of plans to leave the university the mentor will interview the student to determine the cause. A record will be kept of reasons for students leaving college or transferring to another college or university. This will help us identify weaknesses in our own program. We can also make certain that most of our courses are typical of that which is being done at other universities across the country. This will facilitate transfer of students from other colleges and universities and recruitment of upper division students.

In the past year we have taken steps to improve retention. One of the major steps is to assign a faculty mentor to each of our majors, with the charge to get to know those students on both an academic and a personal level.

9. We are constantly trying to improve teaching. Teacher evaluations are given each semester and peer evaluations are made each year. They are used to identify areas where improvement is needed. These areas are reviewed in an annual stewardship interview with the department chair, and plans and commitments are made for necessary changes. Sufficient time is given for those changes to be made and differences in the evaluations will be looked for the following year. This is done in a spirit of assistance rather than threat or intimidation.

10. We are providing increased opportunities for in-service mathematics and computer science teachers to upgrade their training. The past two years we have been providing training to secondary mathematics teachers in the area during the summer that has been financed through a state grant. We are now in the process of applying for a partnership math and science grant to provide in-service training to teachers in Washington County.

. Special Challenges:

1. While we are able to provide sufficient sections of service courses on a frequent basis, we have a special challenge with regard to courses for our own majors. Because of financial restraints and low enrollment in upper division courses, some are not able to be offered frequently enough for all of our majors to complete all graduation requirements in a timely manner. When a course with significant prerequisites (requiring a student to be a junior or senior to take it) can be offered only one time per year, as most of our upper division courses are, or on alternating years, as some of our required courses are, a student who is out-of - phase or who must repeat a course, must, of necessity, stay at least an extra year or transfer to another university.
2. While we are often able to acquire grants to allow us to take programs out to in-service school teachers to upgrade their training and competence, it provides a special challenge to the department. If professors are to take courses to remote locations during the school year then, even if grant money funds the programs, we must find a way to cover the courses those professors would have been teaching on campus.