

Standards for Promotion in Mathematics and Statistics
Statement by the
Promotion and Tenure Committee
Department of Mathematics and Statistics
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This statement gives an overview of community standards in mathematics and statistics.

TEACHING

A majority of the teaching load in the department consists of service courses, including courses for engineers, physical scientists, social scientists and teachers. There are special advanced undergraduate courses for majors and there is an extensive graduate program. Each professor is expected to be able to teach all of the undergraduate courses in one or more broad categories such as pure or applied mathematics, statistics, or teacher preparation. Undergraduate mathematics and statistics courses are generic in that the material to be covered in a course is well established. Almost all courses have specific prerequisites and, in turn, are prerequisites for other courses. Generally, there are set topics to be taught and only modest opportunity for deviation from them. The primary instructional materials used are text books.

The main teaching evaluation is done by peer review through classroom observations. Part of the evaluation of faculty teaching is done using the IDEA forms, which rate instructors on a scale of zero to five. It is common that student IDEA ratings of faculty teaching are lower in the large lecture beginning courses such as calculus. The fact that students have considerable difficulties with these classes is a nationwide phenomenon. Letters from students and students' written comments on IDEA forms often give a clearer picture of teaching styles and competence than the numerical scores.

It is uncommon for junior faculty to supervise Ph.D. students.

RESEARCH

Research in most mathematics and statistics departments is carried out over a broad range of topics, from applied to highly theoretical areas. This research is disseminated through publications in professional journals, lectures at professional societies and other departments, and occasionally research level books. Mathematics and statistics journals are all refereed, as are most conference proceedings.

Journals are often subfield specific and vary in scientific ambition and reputation. Researchers should try to have their work appear in a cross section of journals, some general and some specialized. In mathematics, especially pure mathematics, authors are usually listed alphabetically. In some application areas, and some journals, author order is significant. The committee will provide guidance on this issue. It is always understood that joint authorship indicates a significant contribution by each author. Accepted papers carry the same weight as published papers (typically, results are widely circulated as preprints and many journals have publication delays of one to two years).

The standards for publication vary by sub-discipline, but it is common for excellent researchers to produce one or two papers per year. Some researchers produce considerably more and a few highly respected researchers produce considerably fewer. The diversity of research areas in the department makes it difficult for a faculty member to fully evaluate most colleagues, so evaluation of research relies on letters written by colleagues outside of the university. Federal funding for research is difficult to obtain; about one in three active researchers in all fields of mathematics and statistics receives federal support, with applied areas doing somewhat better. Therefore, obtaining a grant is an indication of a strong research program. Funding is primarily for personnel costs, so that total awards are generally small.

SERVICE

The department teaches nearly 16,000 students per year; thus much of the departmental service is focused on the undergraduate program. Other service within the department includes participation on standing committees, the organization of seminars and colloquia, and student mentoring at all levels. In addition, faculty members frequently sit on M.S or Ph.D. committees of students in engineering and science, and advise faculty from other departments on mathematical, statistical, or computing problems. Also, the department serves as a resource for information on

mathematics, statistics, and computing for the state. Departmental service responsibilities for the junior faculty are kept at a minimum, so that they can concentrate on their teaching and research. Service to the profession includes reviewing and refereeing papers and proposals, and helping organize scientific meetings.