Statement of Significant Scholarly/Artistic Work
Department of Mathematics, Statistics, and Computer Science
Saint Olaf College

Introduction

The Department of Mathematics, Statistics, and Computer Science (MSCS) believes its faculty should be active and engaged scholars, connected to their profession, and active in a sustainable program of scholarly activity. Since we recognize that scholarly careers evolve over time and that diversity of professional activity contributes to a robust department, we identify the following general principles for the professional activity of MSCS faculty.

1. Faculty should ordinarily be actively *engaged in a community of scholars* beyond St. Olaf.
2. The department endorses a *wide range of professional activities* as appropriate and worthwhile.
3. Faculty scholarship should include activities that are *public* and *peer-reviewed*.
4. The department strongly supports and values *undergraduate research* as a professional activity.

Active and engaged scholars: The department recognizes that an active program of professional activity keeps faculty connected with their professions throughout their careers. The department recommends that such activity include a community of scholars beyond St. Olaf.

Wide range of professional activities: The department recognizes many forms of professional activity, some applying more to one discipline or field than another. Examples appear below.

Public and *peer-reviewed:* The highest standard by which mathematicians, statisticians, and computer scientists across the country are evaluated is through peer-reviewed, publicly available publications and presentations. We expect that a portion of our faculty's scholarship results in professional assessment by disciplinary peers.

Undergraduate research: Engaging students in research projects of their own stimulates their interest in mathematics, statistics and computer science, provides a culminating undergraduate academic experience, and prepares them for careers and graduate school. We encourage faculty to support undergraduate research, especially through activities that result in public and peer-reviewed presentations.

Types of scholarly and artistic work

The following list of examples suggests, but does not exhaust, the range of professional activities that the department considers appropriate and worthwhile. The ordering generally reflects decreasing significance, although exceptions can be made in specific cases. The relative value of talks, conference proceedings, and other activities may differ among the MSCS disciplines.

- *Peer-reviewed publications,* such as research papers, peer-reviewed proceedings, textbooks, monographs, expository articles, pedagogical articles, and reviews, whether in print or electronic media.
- *Undergraduate research mentoring and/or collaboration*, that consists of research work done by or with students, resulting in public and/or peer-reviewed presentation by students or faculty/student teams. The scholarly content of a faculty member's role in undergraduate research projects must be considered on a per-case basis.
- *Grant proposals*. Proposals may exhibit substantial intellectual merit even when they are not funded. We note that some grant solicitations by agencies such as NSF require an extensive and rigorous peer-review process resulting in funding of 25% or less of submitted proposals.
- *Talks, panels, and posters*, which may be invited (especially valued) or contributed. Peer reviewed and invited talks vary in prestige across the disciplines in MSCS. In some of our fields, peer-reviewed presentations at leading conferences carry more prestige than most journal publications.
- *Disciplinary leadership activities,* including national offices in professional organizations, participation in disciplinary committees and task forces, and conference committees.
- *Developing and presenting workshops* at professional meetings or as separate events.
- *Software development* that is a primary or integral component of research. Software development often carries this role in Computer Science, whatever the subfield, and carries a similar role in some scholarly activities in the department's other disciplines.
- *Interdisciplinary research collaborations and consulting activities* that typically continue over a period of time. These indicate scholarly breadth, involve intellectual creativity in one's own discipline, and advance knowledge in a collaborating discipline.
- *Posing or solving published problems*. Publishing significant problems, conjectures, or their solutions has particular scholarly significance in Mathematics and Mathematics Education, and in the most mathematical aspects of the department's other fields.
- *Refereeing papers and proposals*. Refereeing is an essential contribution to the field and often requires insight and scholarly reflection on new material.

<center>**Determination of significance**</center>

Scholarly work: The significance of scholarly work in the MSCS department is determined by the extent of peer review required for publication, presentation, or participation; the academic prestige of the sponsoring institution (publisher, granting agency, etc.); any honors or awards received for the activity; other indicators of importance in the discipline or in public life.

Collaborative work: Collaborative work is not assumed to be less significant than work prepared by a single author; the significance of a faculty member's contribution to a specific collaboration depends on the nature of that contribution.

Undergraduate research: The MSCS department has identified three aspects of student development towards undergraduate research. In *guided discovery* exercises, students carry out step-by-step instructions to obtain a known result, often in the context of a course assignment. In *independent investigation*, a student explores an open-ended question whose answer is not known or not widely known, whether or not in the context of a course. We encourage write-ups and public presentation of independent investigation projects, at least in local venues, and ideally in professionally reviewed undergraduate research conferences and journals. *Scholarly inquiry* is independent investigation that makes an original intellectual or creative contribution to a discipline.

In these terms, creating guided discovery exercises is pedagogy. Independent investigation short of scholarly inquiry may play a useful supporting role in subsequent significant professional activity. Developing a productive environment for quality independent investigation projects requires significant intellectual and professional energy from a faculty member. Collaboration in public, peer-reviewed scholarly inquiry is clearly professional activity.

<center>**Expectations for accomplishment**</center>

MSCS departmental expectations for significant professional activity at various ranks differ by *degree of accomplishment* and *scope of influence*. A faculty member should provide evidence of consistent engagement in scholarly activity throughout his or her appointment.

1. **Assistant Professor in the fourth year (or equivalent).** By the time a faculty member is reviewed in the fourth year we expect some level of scholarly engagement beyond the dissertation and progress towards the level of Associate. This engagement is part of a scholarly career trajectory and should give evidence of progress towards dissemination.

2. **Associate Professor.** By the time a faculty member is reviewed for promotion to Associate Professor, we expect a record of accomplishments having an impact beyond St. Olaf, as described above, with promise of continued accomplishments and the potential for broader impact. Examples: peer-reviewed publications in recognized

journals; peer-reviewed presentations (such as talks, panels, or posters) at professional meetings; or submitted peer-reviewed grant proposals to major funding agencies.

3. **Professor.** By the time a faculty member is reviewed for promotion to Professor, we expect a continuing record of accomplishments and a recognized presence within one's disciplinary community. Examples: a record of publications that identifies the candidate in a scholarly community; invited talks or presentations at professional meetings; successful grant proposals; leadership in professional organizations; or development and presentation of professional workshops.