Scholarship and Professional Activity in Mathematics

The department expects that faculty members will demonstrate a sustained, ongoing, and purposeful record of scholarship and professional activity.

In evaluating a faculty member's scholarly and professional activity, the department is guided by three principles.

- Faculty scholarship should include activities that are public and peer-reviewed.
- Faculty should be actively engaged in a community of scholars beyond Ithaca College.
- The department endorses a wide range of professional activities as appropriate and worthwhile.

Scholarship and professional activity in mathematics may be conducted within the mathematical sciences, in related disciplines (including, but not limited to, computer science, statistics, mathematical biology, or mathematics and statistics education), in the teaching and learning of mathematics or its related disciplines, or through the application of mathematical techniques to other fields.

The department acknowledges that the typical rate of publication varies widely between subfields of mathematics and that different areas of mathematics afford opportunities for different types of professional activity. In addition, the department values the *quality* of scholarly work as much as the quantity, so that—for example—a single publication in a major journal may be valued more highly than multiple presentations at regional conferences. The quality of work is determined by its originality, depth, and relevance to the larger body of knowledge.

Scholarship

The forms of scholarship in mathematics include the types of scholarship described by the Ithaca College Policy Manual (Section 4.12.7.2.1). These include the scholarship of discovery, integration, application, and teaching.

There are three attributes that characterize scholarship in mathematics:

1. it is an application of disciplinary expertise,
2. the completed work has been evaluated and found of high quality by peers, and
3. the work has been disseminated.

Scholarship in mathematics can take many forms and be disseminated in many forums, some of which are subject to more stringent peer-review than others. Examples of scholarship in mathematics that may be included in the candidate's file include:

- Papers accepted by peer-reviewed journals or published in peer-reviewed conference proceedings
- Books accepted by a juried press
- Invited presentations at conferences
- Externally funded grants

- Presentations at conferences or papers in journals with peer-reviewed abstracts or proposals
- Peer-reviewed contributed presentations or panels at conferences
- Curricular materials and related projects on the scholarship of teaching and learning in mathematics that are reviewed by peers and disseminated

The American Mathematical Society has identified several characteristics of research and scholarship in mathematics that distinguish it from other disciplines.[1] For example, compared to researchers in other sciences, mathematicians typically have a lower rate of publication. Mathematicians generally do not view metrics such as Impact Factor as a meaningful or reliable indicator of the quality of research journals. Also, jointly-authored papers are common in mathematics and manuscripts in "pure" mathematics tend to list authors on joint papers in alphabetical order; however, other related disciplines may list authors in order of the significance of their contribution.

The department also recognizes that the field of mathematics education differs from that of pure mathematics and takes this into consideration when evaluating the scholarship and professional activity of its faculty members who pursue research in mathematics education. Manuscripts in mathematics education list authors in order of the significance of their contribution. In addition, we take into consideration recommendations from the Special Interest Group of the Mathematical Association of America on Research in Undergraduate Mathematics Education.[2]

- Due to the applied nature of mathematics education research and its reliance on external funding, the need to write grant proposals should be considered when assessing a candidate's scholarship.
- Faculty who specialize in mathematics education may be encouraged to assume substantial obligations, such as engaging in outreach to school systems, implementing professional development workshops, or redesigning curricula. These obligations should be taken into account when assessing scholarly output.
- Research projects in mathematics education often require gathering and analyzing a significant amount of data, which can substantially increase the time required to produce a publication. Consequently, works-in-progress, such as interim reports, should be considered when assessing scholarship.
- Many mathematics education research conferences include a stringent review process for talks and contributed papers. These papers and presentations should be given weight when assessing scholarship.

[1] https://www.ams.org/profession/leaders/culture/RatesofPublicationfinal.pdf
[2] http://sigmaa.maa.org/rume/guidelinesP1.html

Professional Activity

Beyond peer-reviewed scholarly work, the department values and expects its members to engage in professional activity that plays a role in supporting future scholarly endeavors, disseminating scholarly works to a broader audience, or engaging and contributing to the mathematical community. In addition, we value faculty efforts that support undergraduate research since engaging students in research projects of their own stimulates their interest in mathematics, provides a culminating undergraduate academic experience, and prepares them for careers and graduate school. We wish to stress that professional activity does not substitute for scholarship.

Supporting future scholarly endeavors: There is significant intellectual effort involved in the preparation for undertaking future scholarly endeavors. Examples include:

- Grant-writing activities: Proposals may represent significant intellectual merit, even when they are not funded, particularly when acceptance rates are low.
- Continued or new areas of study in the discipline*:* Pursuing scholarship in a new field often requires knowledge that can best be learned through further coursework and/or workshops.

Disseminating scholarly works to a broader audience: The dissemination of scholarly work can be achieved through efforts beyond traditional publication. Examples include:

- Papers submitted for publication or drafts of papers submitted for public critique (e.g., submitted on arXiv.org)
- Published books that have not undergone peer critique
- Books submitted for publication

Engaging and contributing to the mathematical and/or mathematics education community: Many activities of mathematicians contribute to the vitality of the discipline. Examples include:

- Presentations at conferences
- Refereeing papers for professional journals
- Reviewing published articles, manuscripts, or grant proposals
- Conducting workshops or mini-courses
- Giving a colloquium at another institution
- Serving on an advisory board for a grant, an editorial board, or a committee of a professional organization in the discipline
- Presenting a paper or being a member of a panel at a professional meeting

Engaging students in original research: It is important to note that the highly theoretical and cumulative nature of mathematics (and related fields) may present significant challenges for faculty members who wish to engage students in research. The department values the pursuit of faculty activities—such as engaging in secondary fields of scholarship—that support the development of collaborative projects with students. Important factors to consider when evaluating a faculty member's contribution to student- centered research include:

- Collaborating with students to pursue new contributions to the discipline often requires the application of significant professional expertise.
- Mentoring students as they engage in mathematical (or related) research may require the faculty member to apply significant disciplinary knowledge, often outside of the faculty member's primary scholarly work, to further the student's research.
- Work that results in publicly reviewed original intellectual contributions to the discipline is rare and thus is highly valued.

Criteria & Standards for Associate Professor

We value a wide variety of professional activities and expect that faculty members will establish scholarly goals that match their skills and interests with the needs of the department and/or college. We expect significant accomplishment and impact beyond the college including a minimum in most cases of two peer-reviewed publications. We note that "significant accomplishment" refers to the entire body of work-- scholarship and professional activity -- and not a specific piece of scholarship.

Ultimately a candidate for tenure and promotion must articulate (in the cover letter of the tenure and promotion file) how their professional activity and peer-reviewed scholarship has been pursued in a purposeful manner. They must demonstrate how her/his research accomplishments have positively impacted the mathematics community (in a broad sense, which may include students inside and/or outside the classroom) and colleagues within and outside the college. Finally, they must articulate their vision of how this professional activity will continue in the future.

Criteria & Standards for Full Professor

We expect candidates to demonstrate a sustained record of significant scholarly activity through the various forms as described above. A sustained record is one that occurs over a substantial period of time (normally 6 years after promotion to associate professor) and is determined by the department to have significant impact. The department recognizes that a faculty member may devote substantial effort to activity that does not lead to publication (e.g., switching to a new field of research, an increased focus on teaching, major service activities) between tenure and applying for promotion to professor.

The department considers the following as evidence for consideration in support of a record of scholarly or professional activity that demonstrates that a candidate has attained "regional or national stature in the discipline.":

a. Written evaluations provided by external readers of the candidates scholarly and professional materials assessing the quality and impact of the candidate's work
b. Three or more peer-reviewed publications since promotion to associate professor
c. Publication of a textbook
d. Invited lectures or presentations
e. Membership on the editorial board of an academic journal
f. Serving in a leadership role in one or more professional societies.
g. Funded competitive grants, such as NSF, NIH

The candidate's file need not reflect all of these elements, however the department will weight most heavily the evidence from category a.