

# ELABORATION OF THE MATHEMATICS PROGRAM STANDARDS FOR TEACHING FACULTY

## Preamble

The faculty of the Mathematics Program endorses the University standards as well as those of the School of Natural Sciences and Mathematics. Both sets of standards were used as the basis of these Program standards for the Mathematics faculty. University, School, and Program standards will be employed in our review and evaluation of full time faculty for the purpose of awarding tenure and promotion. In addition, these Program standards can be used in full or in part to provide insight into the effective teaching and service of faculty in Instructor and other NTT positions, as well as the effective teaching of part time and adjunct faculty. These Program standards are not intended to replace the standards provide by the University or School of NAMS, but to further elucidate the areas of teaching, scholarship, and service as they apply to the Mathematics program. Wording that applies specifically to the Mathematics program is italicized in this document. In addition, specific examples provided in this document are not intended to be exhaustive but are intended to help a candidate build a framework of opportunities to contribute to successful teaching, research and service.

### 6.1. Teaching

6.1.1 Educating students, both inside and outside the classroom, studio, or laboratory is the University's primary purpose. Therefore, performance in teaching carries the greatest weight in the evaluation of faculty. All aspects of teaching, including preceptorial teaching, will be evaluated in order to gain a clear understanding of each faculty member's performance. Same as University standards.

*Excellence in teaching is our highest priority in the Mathematics program, and effective teaching in mathematics is both performative and tutorial. Vibrant teaching relies on a strong classroom persona. However, to be effective, there is a greater burden on an instructor of Mathematics to foster understanding. Therefore, teaching done in small groups and with individuals in office hours provides further evidence of effective teaching.*

*The Mathematics Program encourages faculty to demonstrate teaching effectiveness based on their own unique pedagogical philosophy and as guided in this document. The Mathematics program recognizes that teaching styles differs from instructor to instructor and that successful teaching takes many forms. Therefore, in fulfillment of these standards, each faculty member should clearly describe their own personal teaching philosophy and should provide concrete evidence of fulfilling that philosophy in mode of instruction, instructional resources, and assessment.*

6.1.2 The Mathematics Program in the School of Natural Sciences and Mathematics (NAMS) encourages the faculty to demonstrate teaching effectiveness by a variety of methods. Individual faculty members may have a unique way of dealing with the challenges of teaching. In addition to traditional classroom teaching, we recognize that

faculty are often involved in independent studies and supervising student research which may present additional time constraints and challenges. To demonstrate teaching effectiveness, we encourage the faculty to rely on several indicators of successful teaching including but not limited to the ones listed in the following sections. In broad terms excellence in teaching is characterized by:

6.1.2.1 A thorough and current command of the subject matter, teaching techniques and methodologies of the disciplines one teaches. Syllabi, teaching portfolios, and other course materials may be submitted as indicators, as well as peer evaluations of teaching.

*The Mathematics program values pedagogical research and activities that strengthen faculty teaching. Continuing professional development into current educational trends can also serve as an indicator of this charge.*

6.1.2.2 Sound course design and delivery in all teaching assignments – whether program or General Studies, introductory or advanced offerings -- as evident in clear learning goals and expectations, content reflecting the best available scholarship, and teaching techniques aimed at student learning. (See School standards for examples of indicators of successfully meeting this standard.) *Sound course design and delivery may further include a variety of University, Program and faculty designed assessment methods and the revision of course design based on data gathered from those assessments. The Mathematics program values reflective teaching that dynamically addresses changes in educational culture and student learning styles.*

6.1.2.3. The ability to organize course material and to communicate this information effectively. The development of a comprehensive syllabus for each course taught, including expectations, grading and attendance policies and the timely provision of copies to students. *Course organization may also be evidenced by effective online resources including Blackboard and regular communications with students via email.* (See School standards for additional indicators.)

6.1.2.4 Excellence in teaching also entails respect for students as members of the Stockton academic community, the effective response to student questions, and The timely evaluation of and feedback to students.

6.1.2.5 Challenge and motivate students in a variety of ways; for example assigning interesting projects (individual and/or group) using real life data, using concepts related to their majors whenever possible and student presentations thus bringing enthusiasm and excitement to the learning process.

6.1.2.6. Develop and show evidence of a variety of teaching methods, to be able to address the diverse learning styles of students. This can be achieved in many ways including, but not limited to, giving students thorough syllabi, worksheets in

class, hands on individual or group projects, computer-based assignment and oral presentations. The program can measure and assess these by documented written materials from faculty, official student evaluation comments, informal student correspondences (past and present), classroom observation etc.

6.1.3 Where appropriate, additional measures of teaching excellence are:

6.1.3.1 Ability to use technology in teaching.

6.1.3.2 The capacity to relate the subject matter to other fields of knowledge. *This includes other disciplines of study and other academically valid skills, including scholarly inquiry, critical thinking, and modes of mathematical communication (e.g. proof writing, verbal and written mathematical communication, use of Latex, etc.)*

6.1.3.3 Seeking opportunities outside the classroom to enhance student learning of the subject matter.

6.1.3.4 The ability to lead, promote, and/or participate in successful credit-bearing experiences in community engagement, service learning, international education, and global engagement. *The Mathematics program recognizes the additional time and effort that faculty must commit to experiential learning, independent studies and student research projects.*

6.1.3.5 Ability to create an inclusive and respectful environment

6.1.3.6 Evidence of effectiveness for alternate assignments and/or non-teaching responsibilities should be demonstrated.

6.1.3.7 *Evidence of addressing the decolonization of mathematical topics. The Mathematics program recognizes the historical entrenchment of western thought in mathematical topics. Thus, the Mathematics program highly value teaching that addresses the decolonization of mathematics and promotes a recognition of mathematical contributions from diverse cultures.*

6.1.3.8 *Evidence of reflective teaching. The Mathematics program recognizes the value of reflection in teaching. Evidence of reflective teaching that alters unsuccessful teaching strategies or expands successful teaching strategies, based on student evaluations, student responses, personal reflection, etc., will be highly valued by the Mathematics program.*

6.1.3.9 *Evidence of successful teaching outside the discipline of Mathematics. The Mathematics program values teaching in the General Studies curriculum and independent studies and research projects that fall outside the scope of Mathematics. Faculty may display effectiveness in teaching in these areas using the same metric of indicators described in this document. In addition, the*

*Mathematics program recognizes that unique indicators may be needed for these unique teaching experiences.*

6.1.4 *Measurement tools used to evaluate teaching effectiveness may include some or all of the following (This is not intended as an exhaustive list, and the program will accept other reasonable evidence as provided by the candidate):*

6.1.4.1 *Results and reflections from student evaluation tools, including IDEA, small class evaluation instrument. (Evaluation using university provided tools should follow the current MOA requirements for student evaluation of teaching based on position and rank of the individual faculty member.) In addition, faculty designed evaluation tools are acceptable means of producing indicators of effective teaching.*

6.1.4.2 *Results and reflection on current Preceptor Evaluation form may be used for evidence of effective Preceptorial teaching*

6.1.4.3 *A teaching portfolio providing a statement of teaching philosophy and samples of syllabi, course assignments, exams, class activities, projects, evaluation tools, example of instructor's feedback to students, and correspondence with student or faculty that support effective teaching. Samples that display a unique aspect of a faculty's instruction will be most helpful as indicators.*

6.1.4.4 *Written reports provided by peer observation, the number and timing of which is laid out by the current MOA appropriate for a faculty member's position and rank.*

6.1.4.5 *Evidence of professional development activities related to excellence in teaching and learning.*

## 6.2. Scholarly and Creative Activity.

6.2.1. The teacher-scholar model recognizes that a serious and continuing commitment to engaging in the scholarship or creative activity of one's discipline and/or interdisciplinary work, consistent with rank and/or assigned responsibilities, enriches teaching and is the foundation of sustaining excellence within the classroom. Additionally, consideration should be given to scholarship in areas different than the candidate's specialty, if it contributes to the candidate's intellectual and scholastic development and reputation, as it is consistent with Stockton's mission as a liberal arts college *and the faculty member's current contract with the University. Scholarly activities that involve students and that lead to co-authored publications and presentations at professional meetings will be viewed as being especially valuable. Peer reviewed articles in professional or pedagogical journals, conferences, presentations, and successful grant applications all indicate successful scholarship.*

6.2.2 Publications and creative work in support of reappointment and tenure are those achieved during the applicant's probationary period. Activity in support of a post-tenure promotion or range adjustment is that work completed since the most recent promotion or range adjustment. Same as University standards

6.2.3 The College recognizes a wide variety of scholarly vehicles: disciplinary or interdisciplinary research, pedagogical research, applied research, integrative scholarship, artistic or creative activity, grant writing, and grant acquisition. Scholarly or creative activities may take many forms and use different vehicles to communicate with the broader academic community. Same as University standards.

6.2.3.1 The College recognizes that the time and effort required to complete scholarly or artistic projects may vary markedly among disciplines and subdisciplines. Such variance is addressed in approved school and program standards. *Scholarly research in Mathematics may involve lengthy timeframes of inquiry and investigation. Well-documented work with progress towards a result will be viewed as scholarship by the Mathematics program when the candidate provides appropriate evidence of value.*

6.2.4 The burden is always on the candidate to document the excellence of one's work. In cases of shared or multiple authorship, clarification of the degree of one's participation is expected. In cases of conference presentations or proceedings, clarification should be provided with regard to the selectivity of the review process. Same as University Standards.

Clarification of the evaluation of scholarly and creative activities are as follows:

6.2.4.1 The capacity to bring scholarly or creative projects to completion. This may be demonstrated by a publication and presentation record, as well as by periodic grant reports (where appropriate) *or by evidence deemed reliable and satisfactory established by candidate and Program. For projects that have not yet resulted in publication or are underway and not yet completed, current unpublished manuscripts and comments by knowledgeable peers both internal and external to the University are appropriate to include in the candidate's file.*

6.2.4.2 A mix of scholarly activities appropriate to one's appointment, e.g., in some cases scholarly activity will be primary, in others creative activity. *However, a candidate will have the opportunity to contribute to both scholarly and creative activities.*

6.2.4.3 Judgments of the worth and significance of the work by those qualified to make such judgments. These may include disciplinary peers, funding organizations, *conference organizers*, professional organizations, and ad hoc groups such as evaluation, judging, or refereeing panels.

#### 6.2.4.4 Documentation of the impact of one's work

- with students
- inclusion into the classroom or teaching laboratory
- within the scholarly area
- within higher education generally
- on documented standards of best practices in pedagogy
- in the application of one's work
- as evident in citations of one's work
- on public policy or institutions
- in the artistic/cultural realm
- or in educational settings
- *Particular value will be placed on research that effectively enhances teaching, either in content or pedagogy.*

6.2.4.5 Just as in the case of traditional scholarship involving the discovery of new knowledge, when one's work consists of pedagogical, integrative or applied scholarship, its significance may be documented by demonstration of clear goals, adequate preparation, appropriate methods, significant results, effective presentation, and reflective critique. Presentation before peers and colleagues and advancing the discipline are also expectations of alternate forms of scholarship. Same as University standards.

6.2.4.6 The University understands excellence in a variety of scholarly or creative activities to embody the following:

6.2.4.6.1 Books should be published by reputable academic or trade presses and reviewed in appropriate journals. Same as University standards.

6.2.4.6.2 Articles, essays, and creative writings should be published in appropriate scholarly/creative journals or venues, whether print or electronic. Some assessment should be made as to the quality of the journal in which the piece appears; in particular, its scholarly reputation and whether or not the journal or proceedings are peer reviewed. Same as School standards.

6.2.4.6.3 Scholarly and creative activity that involves students as co-presenters, coparticipants, or co-authors.

6.2.4.6.4 A presentation should be evaluated on the quality of its content and on the prestige of the meeting where it was delivered. Qualitative judgments are best made when copies of presentations are made available. National and regional meetings should rank higher than local meetings in most instances. Scholarly presentations should be ranked more highly than non-scholarly ones. *However, presentations that align with University's mission statement will be highly valued whether the presentation is local,*



*regional, or national.* Competitive selections as well as presentations receiving disciplinary acknowledgement for excellence should be noted. In most disciplines a record of scholarship based on presentations alone will not be evaluated as highly as one including refereed publications. Same as University standards.

6.2.4.6.5 Work in the arts may be evaluated by a number of different measures: assessment of its quality by peers or professional critics; the reputation of the gallery, museum, or other artistic venue where it is shown or presented; the respect afforded the organization for which it is performed or under contract; or some other measure of its success or impact (e.g. royalties, awards, or impact on public debate or on other artists). Same as University standards.

6.2.4.6.6 Other forms of scholarly or creative activity that may appear in emerging scholarly or artistic media such as online journals, websites, fora and blogs, may be included as well, provided that work is of sufficient quality and comparable standards of peer review can be applied to them.

6.2.4.6.7 Reviews (if submitted as documentation) from appropriate journals and other outlets may be included. Where reviews are included in a file as evidence of the worth of scholarly or artistic work, attention should be given to the professional credentials of the reviewer and the reputation of the journal or publication. Same as University standards.

6.2.4.6.8 Professional activities undertaken as a practitioner or consultant are considered scholarly activity when they go beyond the routine application of knowledge to the creation of new knowledge and the development of new standards for practice. Such qualities distinguish between scholarship and professional service. Those making the judgments regarding the standards for applied research necessarily involve more than clients and include academic peers familiar with the area of practice under consideration. These activities may include but are not limited to serving as a peer reviewer or an external program or department reviewer, serving on editorial boards of scientific or other professional journals and publications, and conducting contracted research with the appropriate evaluation by the contracting government agency or private company.

6.2.4.6.9 In those disciplines with strong expectations of practice to maintain current competency, appropriate standards for determining the significance of this work will be developed at the program level and approved through the standard procedure. Same as University standards

6.2.4.6.10 Grants or monetary awards that are funded or reviewed as fundable from governmental or non-governmental organizations are

considered examples of scholarship if those grants and awards are subject to external peer review. In addition, grant applications that receive positive reviews from the external evaluators and the University faculty may be included as evidence of scholarship.

6.2.4.6.11 Faculty engaged in community outreach can make a difference in their communities and beyond by defining or resolving relevant social problems or issues, by facilitating organizational development, by improving existing practices or programs, and by enriching the cultural life of the community. Scholarship may take the form of widely disseminating the knowledge gained in community-based projects in appropriate professional venues in order to share its significance with those who do not benefit directly from the project. Same as University standards.

### 6.3. University and Community service.

6.3.1. *Service is considered an important part of academic life, and a candidate is expected to be service oriented throughout their career.* The faculty role includes contributions to the achievement of the University's mission through effective participation in governance activities including leadership roles at the Program, School, or University-wide levels. *The definition of service may also apply to service within the mathematics community, and/or service within the community at large. In the first year, it is understood that the new candidate will be acquainting themselves with the climate and culture of the institution and that university-wide service may not be appropriate at that time. However, service within the program is encouraged from the onset of employment and service within the mathematical community and/or the greater community is appropriate at any stage of the candidate's career.* These contributions may require the capacity to work collaboratively with other members of the University community, including activities related to alumni and the University Foundation or other agencies. *Service within the program, school, university and the larger mathematical community includes, but is not limited to:*

*6.3.1.1. Participation in committee work at the program level and active participation in the Math Seminar including giving talks at the seminar will be viewed as successful service. Additionally, participation in Math Mayhem, the Dual Credit Program, working with Partnering Universities Overseas, etc. are considered valuable service.*

6.3.1.2. The development, enrichment or leadership of the Mathematics program. This includes service as program chair, assessment coordinator and organization and implementation of new program tracks and curriculum. Service at the program level that supports the administrative work of the program and its communication with the School and University will be highly valued, as this work creates a particular time burden for faculty and is often done behind the scenes. Examples of this include, authoring



programmatic reviews, authoring letters of support for candidates, and other written and verbal communication with the School and University.

*6.3.1.3. Student directed service will be particularly valued by the Mathematics program. Supervising student research projects, program distinctions, participation and involvement in student related activities including the math club, Stockton Women in Mathematics (SWIM), Pi Mu Epsilon (Mathematics Honor Society), student conference trips, student competitions, student presentations and other student organized events will count as valuable service. (This list is not intended to be exhaustive, but instead to recognize the most active opportunities for service at the writing of this document.)*

*6.3.1.4. Service to the University or School through participation or leadership in committees or other formal or informal university initiatives. Service to programs outside of a faculty's discipline will be considered service to the School of NAMS or service to the University where appropriate.*

*6.3.1.5. Service to the campus and wider community through the development of engagement or enrichment opportunities for our students or future students.*

*6.3.1.6 Service at any level that addresses diversity issues in academia or that is directed at underrepresented or marginalized groups will be particularly valued by the mathematics program. Examples of this may include, work with first-generation college students, tutoring opportunities in low income populations, activities designed to build inclusivity, etc.*

6.3.2 Faculty may also contribute in broader arenas such as state, regional, national or international organizations, and disciplinary/professional associations or their activities. In addition, faculty may contribute to the University's public mission through service to our community, region, State or the Nation. Per the Carnegie definition, community engagement and service-learning that enriches scholarship, research, and creative activity; enhances curriculum, teaching and service-learning; prepares educated, engaged citizens; strengthens democratic values and civic responsibility; addresses critical societal issues; contributes to the public good; and enriches scholarship. Community engagement and service-learning are particularly valued at Stockton.

6.3.3 Normally the University expects probationary faculty to serve the University and community in selected activities, while faculty who are tenured and/or of senior rank would be expected to have more substantial records in this area, as demonstrated by achievements in leadership on campus and to their disciplines and professional organizations. The University expects faculty in their first five years of service to serve the University and community at levels commensurate with their rank. Faculty who are tenured, have multi-year contracts, and/or are of senior rank would be expected to have more substantial records in this area, as demonstrated by achievements in leadership on campus, in the community, to their disciplines, and to professional organizations.

6.3.4 Evaluation of achievements in this area focuses on the significance of participation, the impact of service, the scope of responsibilities, the effectiveness of participation, and contributions to the functioning, administration, and development of the University and other entities. Clear goals, adequate preparation, and appropriate methods of providing service, significant results of the service, and reflection on the contribution and its use to improve the quality of future service are all aspects of documenting achievement in campus and community service. Sustained, significant service is expected to meet the minimum requirement for this responsibility. *The University standards state that compensated service is generally not sufficient to meet the minimum requirements. However, the Mathematics Program (as well as the School of NAMS) values all service irrespective of whether it is compensated or uncompensated, as typically the time and workload for service activities far surpasses University compensation, and the willingness to serve in compensated roles creates a commitment of time and resources for the faculty member that simultaneously eases the workload of other members of the program or university.*

6.3.5 Evidence of effectiveness in University or community service may include such items as:

6.3.5.1 One or more instances when one has used one's professional skills or knowledge for the benefit of the University, or of a non-University group or individual.

6.3.5.2 Contributions to professional organizations that are focused on service or professional responsibility as opposed to scholarship, research, or artistic/creative work. For example, an officership or service on a professional board may be more appropriately listed here, whereas editing a special issue of a journal may be more appropriately listed under the section on scholarship.

6.3.5.3 General civic or community activities to which one has contributed one's professional skills or a significant amount of time, talent, energy, and involvement beyond that which might be expected by the usual citizen or member.