

Establishment of a Bylaw 55 Unit in Applied Mathematics at UC Merced

Several of the faculty of the School of Natural Sciences have planned the formation of a Bylaw 55 unit in Applied Mathematics. The case for this Bylaw 55 unit is presented below, in the format given in the Senate guidelines.

1 Justification of the unit in terms of campus and University-wide academic needs, and potential contribution of the unit to campus and University-wide goals

The Applied Mathematical Sciences Program at UC Merced consists of a major and a minor in Applied Mathematical Sciences. The Applied Mathematical Sciences major has approximately 75 students enrolled currently. Along with that major and minor, it is in charge of the lower division mathematics courses that serve nearly the entire undergraduate population. In addition, the majority of the faculty in the Applied Mathematics Graduate Group is affiliated with the Applied Mathematical Sciences Program. This graduate group offers Ph.D. and M.S. degrees in Applied Mathematics and has 17 students enrolled.

The distinctive experience of students taking any of the lower division, upper division or graduate courses is that they learn the rigorous principles of applied and computational mathematics along with a broad understanding of how to apply those principles for understanding real-world problems. This academic program is one of the few throughout the country that emphasizes state-of-the-art applied and computational mathematics courses offered. The emphasis on applied mathematics enables the program to foster the intellectual growth of individuals who are trained to use their analytical and computational skills to solve society's most challenging problems of today and beyond.

The Applied Mathematical Sciences Program contributes directly to the mission of the School of Natural Sciences and the entire UC Merced campus. For the School of Natural Sciences, the Applied Mathematical Sciences Program provides the theoretical and computational components needed to achieve its multidisciplinary and interdisciplinary research and education goals. For the UC Merced campus, the Applied Mathematical Sciences major and minor contribute directly to the Scientific Literacy, Decision Making, Communication and Self & Society campus guiding principles for general education.

The members of the Natural Sciences faculty who make up the Applied Mathematical Sciences Program have self-organized already and established maturity in taking on administrative responsibilities. With regards to the responsibilities of managing the curriculum, this group of faculty is effective in working autonomously. An indication of this efficacy is the fact that this academic program was the very first to undergo a formal program review. In addition, this group of faculty has begun to establish independence in managing resources and handling its academic personnel matters.

2 A description of the relationship of the academic unit to existing or planned degree programs

The unit will provide the Applied Mathematical Sciences major and minor. In addition to a core set of courses in analytical and computational methods in applied mathematics, the major has emphasis tracks in Physics, Computational Biology, Economics, Computer Science & Engineering, Environmental Sciences and Engineering Mechanics. There are immediate plans to develop new emphasis tracks, especially in Computational Statistics and Data Analysis. In addition, the unit provides the lower division mathematics courses that serve the campus.

All of the Applied Mathematics faculty are affiliated with the Applied Mathematics Graduate Group. That group is working currently on a proposal to submit to CCGA for a Ph.D. and M.S. tentatively called Applied and Computational Mathematics. Many of the faculty in this proposed unit participate in other graduate groups, as well.

3 A statement of the unit's objectives

The Applied Mathematics Bylaw 55 Unit has the following objectives.

- To foster the intellectual growth of individuals who will develop analytical and computational frameworks to solve society's most challenging and important problems.
- To develop a truly unique learning environment for undergraduate and graduate students focused on a deep knowledge of the principles of applied and computational mathematics, along with a broad understanding of how to apply those principles for understanding our world.
- To develop, support and maintain a modern applied and computational mathematics curriculum that engages directly with a variety of engineering and scientific disciplines.
- To provide students in lower division mathematics courses opportunities to learn the fundamental problem-solving skills needed to succeed in their own academic goals and objectives.

4 A statement describing the impact of the new unit on other campus units and/or programs

The Applied Mathematics faculty has been providing lower division mathematics courses since the opening of this campus in Fall 2005. Both the Applied Mathematical Sciences major and the Applied Mathematics Graduate Group have been available to students since Fall 2006. Therefore, the academic programs contained in this proposed unit are established already. These programs have graduated students at all levels from the B.S. to Ph.D. level. Moreover, contributions of these academic programs to others on campus, e.g., Physics, Mechanical Engineering and Applied Mechanics, etc, have been already well established. As a result. the impact of the new unit on other campus units and/or programs is minimal.

5 A statement regarding possible administrative overlap with other existing campus units

The Applied Mathematics Faculty members have no administrative overlap with other units in the context of undergraduate academic programs. Members of this Bylaw 55 unit may participate in other existing or future units, especially those associated with graduate groups.

6 A statement of the unit's governance, including

A Unit bylaws

The proposed unit bylaws are as follows.

Applied Mathematics Bylaws

These Bylaws contain the core principles by which the Applied Mathematics Bylaw 55 Unit (henceforth referred to as the "Unit") has chosen to govern itself.

I. Membership

Members of the Academic Senate as defined in Regents Standing Orders 105.1, holding the titles Professor, Associate Professor, Assistant Professor, full-time Senior Lecturer with Security of Employment, full-time Lecturer with Security of Employment, full-time Senior Lecturer with Potential for Security of Employment, full-time Lecturer with Potential for Security of Employment (LPSOE) or in the Professor in Residence series have the right to attend Unit meetings and participate in Unit discussions.

II. Administration

The Chair is appointed by the Dean of the School of Natural Sciences in consultation with the faculty in the Unit. The Chair shall exercise duties specified in APM-245 as are delegated to the Chair by the Dean.

III. Committees

The Unit faculty may constitute ad hoc committees as needed to accomplish the work of the Unit. However, the Unit faculty may not delegate to committee any work specifically prohibited from delegation by governing bylaws (e.g. UC's Bylaw 55) or the Academic Personnel Manual.

IV. Meetings

Meetings will be held at least once per semester. Notice of meetings must be distributed to all faculty prior to the meeting, and agenda items must be solicited. Minutes of meetings shall be distributed to all Unit Faculty within ten days of the date of the meeting.

V. Quorum and Voting

Issues that require a vote of the Unit Faculty must have a 50% quorum present (or in the case of email votes, 50% responding). Unit decisions will be determined by simple majority of those voting. Voting procedures shall follow the approved voting procedures of the Unit, and must be consistent with UC Bylaw 55. Such procedures will be reviewed annually in accordance with policies of the UC Merced Academic Personnel Office.

VI. Amendments

Amendments to the Bylaws require approval by two-thirds of the eligible voting members of the group. Written notice of the proposed amendment shall be sent to each member at least three days prior to the meeting at which the amendment is to be discussed. Unit Faculty may choose to waive the three-day requirement by unanimous vote.

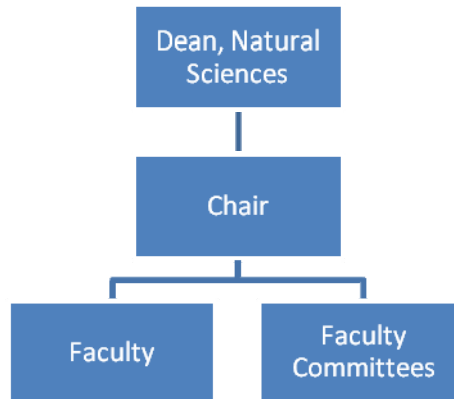
B Policies and procedures for academic appointments and promotions

The Applied Mathematics Bylaw 55 Unit follows all pertinent UC bylaws and regulations regarding hiring and promotion, including Bylaw 55 and all pertinent sections of the Academic Personnel Manual. Procedures for appointments and promotions are done in conjunction with the UC Merced Academic Personnel Office (APO) so that all such requirements are met.

Bylaw 55 allows some discretion in the voting rules and procedures that apply to academic appointments and hiring, if approved by the eligible tenured faculty in that unit. The Applied Mathematics Bylaw 55 Unit will adhere to the following voting procedures.

1. All Senate Faculty in the Applied Mathematics Unit vote on appointments.
2. All Senate Faculty in the Applied Mathematics Unit vote on promotions, merit increases and tenure decisions.
3. All votes at faculty meetings are by secret ballot if requested by at least one eligible faculty member. If not requested, all votes are by show of hand. If a secret ballot is requested, eligible faculty members will send their ballots to the school director of academic personnel staff by electronic mail, with a deadline of the end of the second working day after the faculty meeting.
4. Eligible faculty members who are absent from a meeting and who wish to vote will send their votes by electronic mail to the academic personnel director. If the vote at the faculty meeting was by secret ballot, eligible absent faculty members will send their vote to the academic personnel director using email. The deadline for such votes remains the end of the second working day after the faculty meeting.
5. Emeritus Faculty do not retain voting privileges on the date they assume Emeritus status.
6. Emeritus faculty who are recalled to service to the school after having retired from the school faculty do not vote on personnel actions.

C Organizational chart showing delegation of authority and responsibilities



The Chair shall have such authority and responsibilities specified in APM-245 as are delegated to the Chair by the Chancellor or Chancellor-Designate. The Faculty shall have such authority and responsibilities as are delegated to them in pertinent governing documents, including but not limited to the Bylaws and Regulations of the UC Academic Senate, the UC Academic Personnel Manual, the UC Merced Divisional Bylaws and Regulations, and the UC Merced Personnel Policies and Procedures Manual.

D A description of the unit’s administrative structure

The Applied Mathematics Bylaw 55 Unit will have an administrative Chair who will be vested with such duties described in APM-245 as are delegated to the Chair in an appointment letter. The Unit will generally function as a committee of the whole. The Faculty may appoint such committees as it deems necessary to conduct its business, and may delegate to those committees such duties and responsibilities as it deems necessary, except for any duties and responsibilities that governing legislation and documents prohibit from delegation.

7 A statement regarding the method of consultation with students and faculty and their appended comments

This document was first distributed to all current ladder rank faculty in the Applied Mathematics group in the School of Natural sciences. Then, this document was distributed to the graduate students in the Applied Mathematics Graduate group. Comments from faculty and students included the following:

Comments from Applied Mathematics Faculty:

“xxx.” Professor’s name.

Comments from Applied Mathematics Graduate Students

“xxx.” Student’s name.

Comments from xxx, xxx and xxx

In addition, we distributed this proposal to the three other units proposing to form Bylaw 55 units in the School of Natural Sciences: xxx, xxx and xxx.