

SIAM Activity Group Applied Mathematics Education Charter Renewal Application

This CHARTER RENEWAL APPLICATION applies to the SIAM Activity Group on Applied Mathematics Education. The SIAM Activity Group (or SIAG/ED) to which this renewal applies was originally formed under the aegis of SIAM in July, 2014 by the SIAM Council and in July, 2014 by the SIAM Board of Trustees with its initial operating period beginning 7/31/14 and ending 12/31/16. Its charter has been renewed by the Council and Board three times.

This SIAG had 575 members as of December 31, 2019; 407 were students and 168 were not students.

According to its Rules of Procedure, the objective(s) of the SIAG are:

- to promote the importance of education in the applied mathematics context;
- to advance the development of courses and resources in applied mathematics education;
- to support educational programs in applied mathematics.

The potential constituencies of the SIAG will include college faculty in fields represented by SIAM's membership:

- faculty with an interest in applied and computational mathematics, including members with primary interest in applications domains;
- mathematics teacher educators, especially for in-service professional development (since SIAM's involvement in pre-service teacher education is not extensive);
- and graduate students in applied mathematical areas with ambitions for careers in academia with a strong education component.

Within the framework of SIAM, the SIAG will conduct activities that implement its purposes. This will include but not be limited to:

- organizing conferences;
- maintaining a curated web-based repository of resources in modeling, computational and applied mathematics and mathematical sciences including the applications domains;
- supporting educational innovation and practice, and faculty development.

The SIAG is expected to:

1. Organize minisymposia at the SIAM Annual Meeting in years where there is no SIAG conference.
2. At least once every five years either organize a track of at least six minisymposia at the SIAM Annual Meeting or have an activity group meeting held jointly with the annual meeting. The VP for Programs and the VP at Large will coordinate the scheduling with the SIAG chair.
3. Organize a biennial SIAM Conference on the development and practice of educational programs, courses and resources in applied mathematics. The SIAG will consider dovetailing specialized workshops and conferences with the SIAM Annual meeting or other SIAG conferences. The chair of the conference organizing committee shall be either the program director or the chairperson of the SIAG or their designee.

The organizing committee must be approved by the VP for Programs at least 16 months before the conference.

4. With the approval of the SIAM Program Committee, the SIAG may organize special sessions at SIAM meetings, and conduct special one- or two-day meetings immediately before or after a regular SIAM meeting. Other SIAG meetings may be organized only with the approval of the SIAM president and vice president for programs.

5. SIAG meetings, workshops, and conferences may be organized only with the approval of the SIAM president and the SIAM vice president for programs.

To which have been added (list prizes, publications, conferences not included in the ROP):

6. The SIAG has complemented SIAM's activities and supported its proposed functions. The answers to the questions below indicate how this was accomplished and what the officers propose as the future directions for the SIAG.

List all current officers of the activity group.

Chair: Rosalie Belanger-Rioux

Vice Chair: Karen Bliss

Program Director: Ron Buckmire

Secretary: Haley Yaple

1. How is the field covered by the activity group doing? Is it growing, is the focus shifting? What have been the significant advances over the last two years?

The field of applied mathematics education is crucial in training the workforce to solve complex interdisciplinary problems. There is still a growth of data analytics programs at the undergraduate and graduate levels, and hence a need to prepare faculty for teaching and advising those students.

2. How is the activity group doing? Is it remaining vibrant? Is the size of the SIAG stable or increasing? How is the SIAG keeping up with the changes in the field? How are the broader interests of SIAM reflected in the activities of the SIAG?

Our student membership is quite strong, and we will continue to offer resources to better prepare graduate students to teach and mentor. Our listserv sees some traffic with members posting announcements, and us sending our newsletter. We will certainly take advantage of the new online community, SIAM Engage, to engage our members in deeper conversations! Our members are involved in a variety of SIAM projects such as the Math Modeling Hub and the MathWorks Math Modeling Challenge, and they publish papers on the topic of pedagogy. Supporting our members and the broader math community on applied mathematics education is not only a way of promoting SIAM and the importance of applied math, but also to make sure we are adequately preparing the next generation of mathematicians, scientists and other practitioners to successfully use math to solve important societal challenges.

3. Please list conferences/workshops the activity group has sponsored or co-sponsored over the past two years and give a brief (one sentence or phrase) indication of the success or problems with each.

We sponsored a series of 12 talks on applied mathematics education at ICIAM 2019 in Valencia, Spain (8 in general applied math and 4 for industrial applied math specifically). The main feedback we got was that the people there really appreciated the opportunity to have discussions about teaching, mentoring and diversity issues, as this does not generally happen in professional conferences but is very valuable to them. SIAM News published at least one article on the presentations in Valencia.

Because of covid19, we are waiting to see if our ED20 conference happens as expected and how (jointly held with the MAA's MathFest, July 2020).

We could encourage members to present on educational topics at other conferences too, such as SIAM's CSE.

4. Please indicate the number of minisymposia directly organized by the activity group at the next planned SIAM annual meeting. When will the SIAG organize a track at an annual meeting or meet jointly with the SIAM Annual Meeting?

We have not made any such plans yet.

Because of the number of Activity Groups, the current guidelines are that an Activity Group should organize a track about every seven (7) Annual Meetings or meet jointly with the Annual Meeting within a seven (7) meeting period.

5. Please indicate other activities sponsored by the activity group, to include newsletters, prizes and web sites. Have each of these been active and successful?

We started a quarterly newsletter to keep our members informed and up to date. We are preparing for the SIAG to offer an early-career prize.

6. What activities are planned and proposed for the next period of the charter? Please describe scheduled and suggested future activities in detail.

Our next conference is ED22 and we currently have no plans for where we want to co-locate it. We wanted to wait and assess the success of MathFest 2020 before deciding conference location. We will look for ways to engage our members in presenting at our major conferences such as JMM, MathFest, the SIAM Annual Meeting, maybe CSE and other SIAM conferences as well. Our new early career prize would be offered at ED22 for the first time. We plan to keep up the newsletters, and to use the new SIAM Engage platform to engage our members and hopefully make it easier for members to know what others are doing in terms of research and teaching.

7. How can SIAM help the activity group achieve its goals?

We'll want to reach out to other organizations related to our SIAG's interests, to encourage them to participate in our conferences.

8. How can the activity group help SIAM in its general role of promoting applied mathematics education?

Supporting our members and the broader math community on applied mathematics education is not only a way of promoting SIAM and applied math's importance, but also to make sure we are adequately preparing the next generation of mathematicians, scientists and other practitioners to successfully use math to solve important societal challenges.

This SIAG requests that the SIAM Council and Board of Trustees renew its charter for a 2-year operating period beginning January 1, 2021.

Signed,

Rosalie Bélanger-Rioux, SIAG/ED Chair

May 19th, 2020