

## **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/AME) 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 five times thereafter.

This SIAG has 460 members, including 268 student members, as of December 31, 2023.

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

It is the purpose of the SIAM Activity Group on Applied Mathematics Education to advance the development and practice of educational programs, courses and resources in applied mathematics interpreted as broadly as possible. 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. 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; this includes 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.

The SIAG on Applied Mathematics Education will organize activities in Educational Innovation, Practice, Improvement 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 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.
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. SIAG meetings, workshops, and conferences may be organized only with the approval of the SIAM president and the SIAM vice president for programs.

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: Shelley B. Rohde Poole

Vice Chair: Mario Banuelos

Program Director: Roummel Marcia

Secretary: Allison Lewis

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 has been growing, due in large part to increased faculty awareness and devotion to engaging in best practices and learning about innovative pedagogical practices. In addition to focusing on applied math education, our group is also emphasizing issues of diversity, inclusion, and equity in the classroom, a topic now supported by the new SIAG on Equity, Diversity, and Inclusion. However, our field is also “drowning” in the wake of COVID-19 due to new hurdles after the period of online learning. We are facing new challenges resulting from students taking time off or struggling to learn content online that is impacting their understanding in later coursework. We are also facing new challenges with the available AI technology, which—while offering new opportunities for innovative teaching—has also led to increased concerns over student plagiarism and engagement.

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 numbers have decreased in the wake of COVID-19; more recently, we are stable but not increasing. We are co-locating our meeting with the SIAM Annual Meeting in 2024 in order to engage more faculty and students in our group. We are also working to engage our members in conversations through our newsletters and the introduction of an online talk series which was designed based on feedback from our members. The inaugural talk this fall was delivered by SIAG member Haley Yapple of Carthage College, and focused on “Integrating Social Justice Content into Math Courses”, a theme that drew a healthy participation.

We are keeping up with the changes in the field through our engagement in the use of best practices, informed pedagogy, and engagement with DEI in the classroom. The themes for our 2024 conference reflect this: Training graduate students in pedagogy, Modeling inside and outside the classroom, Data science: ethics and practice, Increasing access and inclusivity through technology, and Collaborative undergraduate research project training. Given our large base of student members (mostly graduate students) we’ve intentionally included them in our themes to attract and support our graduate student

members. Modeling continues to be an important part of our field that we continue to support. The availability of AI and its impact on education is addressed through the Data Science and Technology themes. Data science itself is a growing field that education has come together to support, creating new courses and new approaches to prepare students for the field. Undergraduate research is an important area for faculty in education and as such we are supporting faculty and graduate students in the preparation of mentoring undergraduate students. All of these are in line with the mission of SIAM to build the cooperation between mathematics and the worlds of science and technology.

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 held our 2022 SIAM ED conference co-located with the SIAM Annual Meeting. We allowed for a hybrid presentation of the talks in the wake of COVID-19, which added technical difficulties but enhanced participation.

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?  
*\*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.\**

Our conference was co-located with the Annual Meeting in 2022. We will also be co-located with the Annual Meeting in 2024. Due to this co-location, we have not offered minisymposia at the Annual Meeting itself, but are able to draw many attendees from the Annual Meeting into our own conference (and vice versa).

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?

Our Engage community is active and successful. We publish newsletters on Engage 2-4 times a year, and also utilize this platform to share announcements from our SIAG members. In the newsletter, we also share relevant articles and news in the community, as well as upcoming events and deadlines.

Starting last fall, we began a “brown bag educational workshop” series, with the first talk given by SIAG member Haley Yaple of Carthage College. The format of the workshop series was designed based upon enthusiastic feedback from SIAG members in a survey administered in 2022. Attendance at the first talk was excellent, and we plan to offer further talks on a regular basis (e.g. roughly once per semester).

We also finalized and submitted a prize in 2023 with a focus on rewarding transformative teaching efforts in applied mathematics. The prize is still being processed; however, we are hopeful that we will see this prize awarded for the first time at our conference in 2026.

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

We plan to continue our brown bag workshop series to address current topics in applied mathematics education and engage our members. We submitted a prize for our SIAG in 2023, so we plan to advertise it in 2025 and award the first prize in 2026.

We also would like to continue building connections with other communities. Previously, we organized minisymposia at ICIAM and planned our ED20 meeting to be co-located with Mathfest. While this conference was unfortunately canceled due to COVID-19, we think that this co-location would have greatly benefited our community, and will consider it again in the future. We would like to focus on rebuilding our connections with these communities that are external to SIAM.

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

The main area of support our activity group could use is to identify and implement additional strategies for outreach to and retention of a diverse membership, including more students, women, and people of color. We would greatly benefit from support in collaboration with other educational communities (MAA, NCTM, etc.)

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

We can help promote applied mathematics education through connections with other educational communities. For instance, we will continue to organize minisymposia at various conferences in order to build awareness of our community and its mission in other venues.

This SIAG requests that the SIAM Council and Board of Trustees renew its charter for a two-year operating period beginning January 1, 2025.

Signed,

A handwritten signature in blue ink, appearing to read "Shelley B. Rohde Poole". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Shelley B. Rohde Poole, SIAG/AME Chair

5/3/24