**PI Name:** Laura Muñoz

**Project Title:** Mathematical Sciences Peer-to-Peer Mentoring Group on Advising Student Researchers

1. **Executive Summary**

We propose to create a peer-to-peer mentoring group which will allow us to develop our skills in advising graduate and undergraduate student researchers. Our main activity will be to hold a biweekly series of discussion sessions, in which a select group of mathematical sciences faculty will discuss experiences with mentoring student researchers and the impact of student research on our work plans and careers. In addition, we will read and discuss articles on best practices in student advising and gender-specific issues that arise in advising. These discussions will be led by Dr. Manuela Campanelli and Dr. Nathan Cahill, who have expertise in mentoring student researchers. The discussion group will include pre-tenured faculty of both genders, along with tenured women faculty. In addition, we will invite outside speakers to visit us and give presentations and workshops on mentorship of student researchers. The proposed activities will improve group members’ abilities to advise student researchers, which will help us to be more effective in reaching our research and career objectives, and with balancing our personal and professional lives. The discussion sessions will enhance cohesion among participating faculty members, and will increase our awareness of challenges that are specific to women faculty and advisees.

2. **Detailed Project Description**

Within RIT, women faculty have expressed a need for mentoring to help “fill in the gaps” in areas where they are less skilled, and to improve their work/life balance ("Faculty Mentoring @ RIT, Program Assessment: Year 3," 2014). While a number of faculty mentoring programs exist within the School of Mathematical Sciences (SMS), at present there are no internal programs dedicated to helping us foster successful and productive working relationships with our student researchers. A lack of skills in this area can prevent us from reaching our full potential, and inefficient management of student projects can also negatively affect our work/life balance. To aid in filling this gap, members of the Women in Mathematical Sciences Committee (PI: Laura Muñoz, co-PIs: Wanda Szpunar-Lojasiewicz, Baasansuren Jadamba, Kara Maki, Mihail Barbosu) propose to form a faculty peer-to-peer mentoring group within SMS. WIMS was created three years ago to promote the advancement of women in mathematics. The main focus of the proposed mentoring group will be to improve our abilities and efficiency in the area of advising student researchers. This proposal is especially timely due the increasing involvement of SMS faculty with student research, along with this year’s approval, by the state of New York, of the School’s plan to initiate a PhD program. The main activities of the proposed mentoring group are listed below.

**Activities:**

1) Our primary activity would be group discussion sessions, held every other week, in which a select group of SMS faculty will discuss our experiences with mentoring student researchers and the impact of student research on our work plans and careers. Group reading assignments, which will be provided in advance of meetings, will include studies on best practices in mentoring undergraduate and graduate researchers, with a recurring focus on special issues faced by women advisers and advisees. The meetings will also provide a forum for asking our peers for advice on any challenges we are facing with advising our own students. The expected discussion group size is 10-15 faculty, consisting of pre-tenured faculty of both genders, in addition to post-tenured women faculty. Our discussions will be guided by two experienced mentors, Dr. Manuela Campanelli and Dr. Nathan Cahill.

2) As a supplementary activity, we will invite 4 to 6 experts to give presentations and workshops on the topic of advising of student researchers. These presentations could take place during our regular group discussion times. Alternatively, if our invitees’ schedules permit, and an appropriately-sized venue can be found, the presentations will be opened to all SMS faculty; in this case we would also invite our visitors to sit in on one of our group discussion sessions, to promote sharing of advice and perspectives in a less formal setting.
Goals: Our main goals are

1) To improve group members’ abilities to mentor student researchers, which will help us to be more effective in reaching our research and career objectives, and with balancing our personal and professional lives.
2) To improve cohesion among discussion group members, which include women and pre-tenured faculty, as a result of meeting regularly to share advice and exchange ideas on mentoring student researchers.
3) To raise awareness among group members and of gender-specific challenges that can arise when mentoring students.
4) To raise awareness among group members of best practices in mentoring student researchers.

The organization of our proposed project is based on that of an ongoing SMS pedagogical mentoring project, headed by Dr. Carl Lutzer. Dr. Lutzer’s project also includes a mix of regular group discussions and presentations from outside experts, and has provided an invaluable forum for pre-tenured faculty to confer with a group of peers, albeit on a different topic (teaching strategies) than the one proposed here.

3. Implementation Plan

Mentors: Dr. Manuela Campanelli (Professor of Mathematics, AST Program Faculty, Director of the Center for Computational Relativity and Gravitation), has agreed to serve as the primary project mentor. Dr. Nathan Cahill (Associate Professor, SMS Associate Head for Faculty Affairs) has agreed to serve as a co-mentor. Dr. Campanelli and Dr. Cahill both have extensive experience with advising student researchers, and will help us to carry out our plan by providing guidance and advice during our bi-weekly discussions.

Invited speakers: The PI, with assistance from the co-PIs, will reach out to experts to give presentations and workshops on the topic of mentoring of student researchers. Areas of emphasis will include effective leadership and time management of research projects that involve students, and aligning student research with faculty career objectives. We will aim to invite 4-6 speakers, both external and internal to RIT (with a maximum of 4 external speakers), over the course of the proposed project. While no commitments have been secured, potential invitees include Dr. Alfreda Brown (Vice President for Diversity, Equity & Inclusion at Kent State University), Michael Dorff (Professor of Mathematics at Brigham Young University and Director and Founder of the NSF-funded Center for Undergraduate Research in Mathematics), Dr. Rachel McLaren (Professor at the University of Iowa, Certified Campus Workshop Facilitator for the National Center for Faculty Development & Diversity), and RIT’s Dean of Graduate Studies (Hector Flores’ successor).

4. Timeline

June 2016: PI and co-PIs will attend project initiation meeting with grant sponsors and Sponsored Programs Accounting. PI will send organizational emails to establish discussion group membership and meeting times. PI and co-PIs will develop pre- and post-program surveys.
August 2016: PI will distribute pre-program survey to discussion group members. PI and Co-PIs will begin inviting visiting speakers.
August 2016 - May 2017: Discussion group will meet bi-weekly during the academic year. Talks and workshops given by invited speakers will be distributed throughout the funding period.
May 2017: PI will issue post-program survey and collect results. PI and co-PIs will process results and begin composing final report summarizing project activities and impacts.
June 2016: PI will submit final report.

5. Evaluation Plan

In addition to tracking attendance at meetings, presentations, and workshops, assessment will include pre- and post-program surveys, which will be designed to assess the impact of the proposed activities on mentoring attitudes and abilities. In these surveys, faculty will be asked to rate their experiences and skill levels in areas related to mentoring student research. During the program and in the post-program survey, participants will be asked for feedback on what they found helpful about the program, along with suggestions for improving the program.

6. Roles of Project Participants

**PI:** The PI will be responsible for organizing the group and establishing discussion group meeting times. She will take the lead in selecting reading assignments, inviting speakers and arranging their visits, designing and disseminating pre- and post-program surveys, and reporting results.

**Co-PIs:** The co-PIs will assist the PI in the aforementioned duties.

**Mentors:** Dr. Campanelli and Dr. Cahill will serve as role models, will guide discussions during group meetings, and share their experiences and advice on mentorship of student researchers.

**Discussion group members:** A group of 10-15 faculty, including tenured women faculty and pre-tenured faculty of both genders, will attend meetings and seminars and will participate in discussions.

7. Relevance to Faculty Members’ Plans of Work and Scope of Work

The proposed work will support group members’ plans of work by helping us to manage our students’ research projects more effectively, which will aid us in achieving our research and career goals. In addition to providing opportunities to learn about best practices, the discussion group will serve as a forum for soliciting advice on any student advising challenges that we encounter throughout the year.

<table>
<thead>
<tr>
<th>Dollar Amount</th>
<th>Budget Item</th>
<th>Notes/Description</th>
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<tbody>
<tr>
<td>$</td>
<td>Domestic Travel</td>
<td>Includes round-trip flights and hotel accommodations for four visiting speakers.</td>
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<tr>
<td></td>
<td>Other</td>
<td></td>
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<tr>
<td></td>
<td>Total Costs</td>
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8. Budget Justification

Funds will be used to support visiting speakers. Speakers will be chosen for their expertise in mentoring graduate and undergraduate student researchers.

Travel for invited speakers: $\text{for four round-trip flights to Rochester, }$\text{ for four nights of hotel accommodations.}$

Food costs cannot be covered by NSF, but will be supported by SMS. These costs are not included in the budget table since they will be supported separately.
- $20 per meeting x 14 meetings = $280 (will cover snacks for 10-15 people at each meeting)
- $_____ per outside speaker x 4 speakers = $_____

9. Relevance to Goals of AdvanceRIT

The proposed activities will support many of the goals of AdvanceRIT. Our discussions and seminars on the topic of best practices in mentoring will support career advancement for women faculty, by helping us to foster successful and productive working relationships with students. The discussion sessions will enhance the quality of our professional lives by strengthening ties among the participating faculty members. Our activities will support the representation of women faculty, by ensuring that our concerns and perspectives are part of an ongoing discussion about effective management of student projects.

10. Broader Impacts

Our proposed activities will help us to become more effective as research mentors, increase our awareness of gender-specific challenges in student mentoring, and will strengthen ties among discussion group participants. These achievements will have broader impacts, such as allowing us to build a stronger and more inclusive work environment within SMS. More efficient management of our research projects will improve our work/life balance and enable us to benefit society by becoming more active participants in our communities outside of work.

11. Intellectual Merit

The proposed activities will increase our knowledge of current approaches to student mentoring that occur both within SMS and in the broader mathematics community. Our discussions and visiting speakers will also open opportunities for improving our cross-disciplinary knowledge and collaborations, since some of our reading selections and invited speakers will be drawn from fields outside mathematics.

12. References

Faculty Mentoring @ RIT, Program Assessment: Year 3. (2014, October). Retrieved March 18, 2016, from https://www.rit.edu/academicaffairs/facultydevelopment/fcds-reports