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December 16, 2015

Nord Grant Committee
University Center for Innovation in Teaching and Education
Case Western Reserve University
Cleveland, OH 44106

Dear Nord Grant Committee Members:

I thank you for funding my proposal to participate in the MAA mini-course *Implementing Inquiry-Oriented Curricula for Linear Algebra, Differential Equations, and Abstract Algebra* in January 2016. I recently heard about a conference whose topics are aligned with and will support the goals described in my proposal. I would appreciate it if you could consider this addendum to my original grant proposal, and fund my participation at the conference on *Research in Undergraduate Mathematics Education* (RUME). This conference will take place in February 2016 in Pittsburgh, PA, and is a forum for researchers in mathematics education to share results addressing issues related to the learning and teaching of undergraduate mathematics.

The main goal in my original proposal is to enhance students' experience in the abstract algebra course I am teaching at CWRU. The MAA mini-course addresses two components that support my goal: the engagement with research-based, inquiry-oriented instructional material in abstract algebra, and the development of pedagogical instructional strategies necessary to successfully lead an inquiry-based learning classroom. The RUME conference will address a third component that supports my goal: an introduction to contemporary theoretical perspectives and frameworks, and innovative methodologies and analytic approaches, to inform mathematics instruction in my classes. I am excited about the opportunity to participate at this conference for the following reasons:

- Dr. Larsen, one of the plenary speakers at the conference, will talk about his project *Teaching Abstract Algebra for Understanding*. I will benefit from learning about his research on students' understanding of abstract algebra; how he used his results to effectively design two abstract algebra courses; and how he developed valid instruments for measuring students' understanding of abstract algebra. I am particularly interested in the group theory concept inventory he and his team developed; this is a tool I could use to assess students' conceptual understanding of the material in my classes.
- As the abstract algebra course is a proof-based course, I look forward to the research talks about students' difficulties with proofs and to gaining insights on how to teach the concept of proof effectively. I am eager to learn more about the latest research on students' proof constructions and proof frameworks that could help them develop as proof writers, and how to support students in reading, comprehending, producing, and validating mathematical arguments. Knowing these research studies will help me facilitate students' learning of proofs by designing meaningful mathematical tasks and by emphasizing appropriate types of strategic knowledge (for example, the use of examples).
- Furthermore, the conference offers a rich program of research talks on inquiry-based learning, pedagogical strategies, and protocols and observation instruments for assessing classrooms. I look forward to the opportunity to network with researchers in mathematics education, and to discuss with them ways to measure students' academic and personal growth as well as changes in their confidence level and attitudes towards mathematics, as a consequence of participating in an inquiry-based learning environment.

I have included on the next page the proposed budget for attending the conference. Should you have any questions, please do not hesitate to contact me by e-mail at silvia.sacson@case.edu. I thank you for considering this addendum to my original Nord Grant proposal, and I look forward to hearing from you.

Sincerely,

Silvia Saccon

Department of Mathematics, Applied Mathematics, and Statistics
Case Western Reserve University

ADDENDUM TO NORD GRANT PROPOSAL
PROPOSED BUDGET

The expenses to attend the conference on *Research in Undergraduate Mathematics Education* (RUME) in February 2016 in Pittsburgh, PA, are estimated as follows:

Conference registration: \$385

Cost of travel: \$40 (round-trip from Cleveland, OH to Pittsburgh, PA).

Cost of lodging: \$375 (\$125 per night, including taxes; three nights).

Estimated Total Expenses: \$800