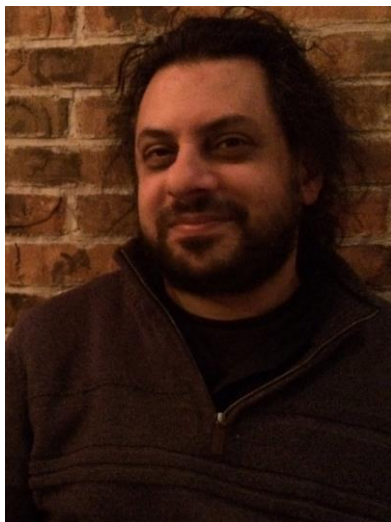


Maximizing Student Achievement in Mathematics with Funded Research Projects

Nader Goubran, Reem Jaafar, and Shenglan Yuan, LaGuardia Community College

Abstract

The Mathematical Association of America's Tensor-SUMMA Grants aim to boost underrepresented students' accomplishments in mathematics with funded projects that encourage students to more deeply explore mathematics. (The "SUMMA" of Tensor-SUMMA stands for Strengthening Underrepresented Minority Mathematics Achievement.) In this paper we describe how Tensor-SUMMA grants have allowed us to engage and mentor undergraduate students at LaGuardia Community College through carefully designed research projects. Over several years, we expanded project activities to include STEM talks, mathematics events, and career advisement. We also share a student success story and detail students' responses to a survey taken near the completion of their projects.



Nader Goubran is an assistant professor of mathematics at LaGuardia Community College. He earned an undergraduate degree from Virginia Polytechnic Institute and State University and his doctoral degree from the University of Illinois at Urbana Champaign. His thesis advisor was Joe Rosenblatt and his research area is ergodic theory. Some of his other interests include chess and classical guitar.

Reem Jaafar holds a PhD in theoretical physics from the CUNY Graduate School and is currently an associate professor in the Mathematics, Engineering, and Computer Science Department at LaGuardia Community College. During her tenure at LaGuardia, she was the recipient of four grants, co-founded the Math Society, trained LaGuardia students to compete in regional and national mathematics competitions, organized interdisciplinary STEM talks, and supervised undergraduate student researchers. She is the co-director for Maximizing Mathematics Achievement (MaxiMA) Project—an MAA Tensor-SUMMA grant from 2013 to 2016. She conducts in-depth pedagogical research about effective classroom practices in mathematics education across all college level courses. She has co-authored 15 papers in peer-reviewed journals and has presented her work in theoretical physics and Mathematics pedagogy at over 13 conferences. Reem Jaafar's current areas of research are nanomagnetism and mathematics pedagogy.





Shenglan Yuan is an associate professor of mathematics at LaGuardia Community College. She received her PhD from the Graduate Center of the City University of New York. In addition to her field of specialty, complex dynamics, she pursues her passion for recreational mathematics, developmental math, and undergraduate mathematical research. To foster interest in math, she co-founded the Math Society at LaGuardia. She received the President's Award for Excellence in Teaching and Outstanding Service from LaGuardia Community College, CUNY in the academic year 2012 to 2013. She is the director for Maximizing Mathematics Achievement (MaxiMA) Project—an MAA Tensor-SUMMA grant from 2013 to 2016.