Preparing Doctoral Students for Life in Academia
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Publishing and Collaborative Writing
In the Mathematics Education Leadership Ph.D. Program, students learn firsthand how to conduct educational research by participating in study design, instrument development, data collection, data analysis, manuscript preparation, and publishing. Support is provided by the faculty for doctoral students to write and publish collaboratively and as single authors on their own manuscripts. Students identify mathematics education publication outlets, develop a publishable manuscript in mathematics education that benefits the profession, and submit the manuscripts for publication.

Curriculum Design and Evaluation
Mathematics Education Leadership doctoral students who are interested in the field of curriculum engage in research, analysis, design, and evaluation of school mathematics curricula. During their coursework, Ph.D. students identify standards-based school mathematics curriculum projects, analyze key characteristics of curriculum materials for school mathematics, examine learning theories that have been influential in mathematics education, and identify ways those theories relate to the development of curriculum materials. Students examine research on NSF-funded and commercially developed school mathematics curriculum materials. They also present and lead in-depth discussions on a set of school mathematics curriculum materials. They work as a member of a collaborative team to design school-based mathematics curriculum materials based on key principles of curriculum design.

Grant Activity
The Mathematics Education Leadership Ph.D. Program attracts and provides research opportunities for students interested in advanced degrees in Mathematics Education. Advanced graduate students enrolled in the GMU program participate in the ongoing research of the faculty. With numerous grants funded through the Mathematics Education Center, Ph.D. students participate in grants that support local teacher development and mathematics education initiatives across the country. By investigating results from multiple, large-scale studies, Ph.D. students learn about mathematics grant initiatives that guide future research in the field. Ph.D. students work as Graduate Research Assistants with faculty from many different disciplines, including mathematics, educational psychology, instructional technology, and engineering. This gives students the opportunity to learn about the process of submitting a grant proposal, managing a funded project, and preparing reports for funding agencies.

Teaching and Co-teaching
To prepare for university teaching positions, doctoral students in the Mathematics Education Leadership Ph.D. cohort participate in a yearlong seminar where they study research on mathematics teaching and learning. During their coursework, students develop expertise in designing and delivering mathematics/mathematics education courses for adult learners. They design syllabi, course assignments, and course delivery units. They test theories and techniques of mathematics teacher knowledge development in field experiences with adult learners. First, students in the program co-teach a course with a member of the mathematics education faculty. Then Ph.D. students have an opportunity to teach a course on their own under the direction of a faculty mentor.

Research Presentations
Mathematics Education Leadership Ph.D. students travel to professional conferences with members of the faculty to present their research findings. Some of these conferences include PME, AMTE, PME-NA, AERA, NCTM, and ISTE/NECC. This helps students to make international contacts, and to exchange scientific information in the field of mathematics education. Students prepare and deliver research presentations under the direction of the faculty. Attending these conferences provides students with important opportunities to network and collaborate with mathematics education colleagues all over the world.

Mathematics Education Center
The Mathematics Education Center is located in the College of Education and Human Development at George Mason University, Fairfax, Virginia. The Mathematics Education Center conducts research, provides professional development, and designs instructional materials to support mathematics teaching and learning. While all these initiatives are important to the Center's goals, research has primary importance. Members of the faculty have expertise in K-16 mathematics education, representation theory, instructional technology, and design-based research. Since its inception in 2003, the Mathematics Education Center has had strong research and public service components supported and sustained by external funding sources. The Mathematics Education Center works in collaboration with the Mathematics Education Leadership programs at George Mason University to support the scholarly research and professional development of Ph.D. and Master's level graduate students enrolled in the programs. Dr. Patricia Moyer-Packenham founded the Mathematics Education Center and continues to serve as its director. Dr. Margaret Hjalmarsen joined the faculty as the Center's Assistant Director in 2005. Dr. Jennifer Suh joined the Mathematics Education Center faculty in Fall 2008.