Graduates of this program will:

- Develop mathematics curricula for students in need of greater challenge and those in need of greater assistance.
- Lead in-service professional development programs for teachers.
- Recognize connections and be able to integrate mathematical ideas across the curriculum.
- Personally experience the student learning process.
- Be lifetime learners who enjoy mathematics with students and colleagues.

"The Master of Mathematics for Teaching program has given me the opportunity to get math credits at the graduate level, which I need for my licensure. Since I was not a math major as an undergraduate, I would never have been accepted into a traditional math graduate program. In the MMT program, I am able to study mathematics deeply and work with other teachers who are doing the same."

KATHY FOULSER
CSR Math Specialist, grades 6–8
Clark Avenue School
Chelsea, Massachusetts

HISTORY

The design of the MMT program is deeply influenced by the experience we have gained through our work in the *PROMYS for Teachers* program *(http://www.promys.org/pft/)*. *PROMYS for Teachers* has evolved over the past fifteen years, and along with this evolution has emerged a set of design principles for mathematics courses and seminars for practicing and prospective secondary (5–12) mathematics teachers. In addition, we have seen the importance of the pedagogy and leadership skills that so many teachers possess in abundance. Faculty in the School of Education have taken the lead in the development of these teacher skills by designing MMT courses to prepare teachers to lead professional development programs in their schools.

PRINCIPLES

Specifically, the MMT is founded on our belief that mathematical leaders in the schools need to **know mathematics as:**

- **Scholars:** A solid grounding in classical mathematics includes the study of its major results, its history of ideas, and its connections to pre-college mathematics.
- **Educators:** An understanding of the habits of mind that underlie major branches of mathematics and how they develop in learners is built upon a knowledge of algebra, geometry, and analysis.
- **Mathematicians:** Mathematical research experience provides a foundation in grappling with problems, building abstractions, and developing theories.
- **Teachers:** Expertise in the uses of mathematics that are specific to the profession include the ability "to think deeply about simple things," the creation of classroom activities that uncover central ideas, the craft of task design, the ability to see underlying themes and connections, and the "mining" of student ideas.

These core concepts are most relevant to the mathematical part of the MMT program. The curriculum development and teacher training aspects of the program also address other specific areas of need, including adult learning, curriculum design for professional development programs, and the mathematical needs of practicing teachers.

Who should apply? Experienced teachers who have a strong commitment to teaching, leadership, and a love of mathematics.

How to apply? There are no official deadlines for applying to the MMT or the CAGS. Admissions are on a rolling basis. The application form is included in the SED Graduate Recruitment brochure or available online, at *http://math.bu.edu/study/mmt.html*.

To request an application or for more information, please contact:

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Boston University
111 Cummington Street, Room 142
Boston, MA 02215
Ava@FocusOnMath.org

To contact faculty for more information:

Professor Carol Findell (Education):
cfindell@bu.edu or 617-353-4226

Professor Glenn Stevens (Mathematics):
ghs@math.bu.edu or 617-358-2388

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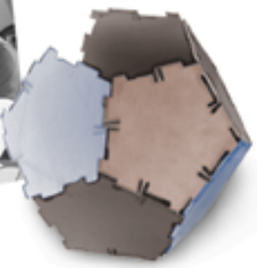

ACKNOWLEDGMENTS

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Boston University, Department of Mathematics and Statistics and the School of Education

Education Development Center, Inc.

University of Massachusetts at Lowell, Department of Mathematical Sciences

Worcester Polytechnic Institute, Center for Industrial Mathematics and Statistics

Lesley University, Program Evaluation Research Group

Math faculty and administration from five Greater Boston school districts:

Arlington Public Schools
Chelsea Public Schools
Lawrence Public Schools
Waltham Public Schools
Watertown Public Schools

We are particularly grateful to the teachers in each of the five school districts who continue to inspire their colleagues, their students, and the mathematicians with whom they work.

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Mathematics for Teaching

MATHEMATICS FOR TEACHING

The Master of Mathematics for Teaching (MMT) degree prepares teachers to be experts in mathematics and professional development. Teachers already holding a master's degree may earn a Certificate of Advanced Graduate Study (CAGS) in Mathematics Education with a specialization in Mathematics for Teaching. These programs are jointly offered by the College of Arts and Sciences (CAS) and the School of Education (SED) at Boston University.

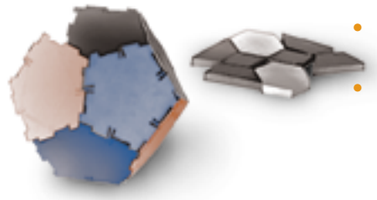
Focus of Programs: These Mathematics for Teaching programs are designed for teachers who seek to become leaders in mathematics education. They are based on an immersion experience in mathematics, related coursework, and preparation for assuming leadership roles.

Need for Math Programs: Student achievement in mathematics lags behind achievement in other disciplines. Research in math education has consistently proven that the most important variable in the classroom is the teachers' depth of understanding of the mathematics they teach. Boston University's Mathematics for Teaching programs are designed to support teachers as mathematicians for leadership roles in their schools in order to cultivate and enhance student success in mathematics.

Deepening Teachers' Math Understanding: Increasing achievement for all students requires challenging mathematics programs taught by teachers who are themselves expert in and excited by mathematics.

"The MMT (and PROMYS) have changed the focus of my classroom from teacher-centered to student-centered. As a result, students have control over their learning and are more invested in it. The end result is a much more efficient classroom."

MATT CHEDISTER
Grades 9–11 (Algebra 1, Geometry, and Algebra 2)
Waltham High School
Waltham, Massachusetts



"The MMT program has expanded my knowledge of mathematics and deepened my understanding of how children learn mathematics, but—more importantly—I am now connected to people who are as passionate about children learning and doing mathematics as I am."

ELLEN MURRAY
Math Coach, grades 6–8
Arlington School
Lawrence, Massachusetts

KEY FEATURES

The MMT stresses **depth over breadth,** is designed around **mathematics for teaching,** and offers a **field study experience in mathematics education.**

- The MMT program is two academic years of part-time study and three summers of immersion.
- The core of the program is the six-week summer intensive study of mathematics and professional development:

  Summer I focuses on an **immersion experience** in mathematics.

  Summer II broadens the immersion through a **research experience** in mathematics.

  Summer III centers on a **field study in mathematics education.**

- During Academic Years I and II (following the first and second summers), graduate courses in mathematics and education complete the course requirements. Special care is taken to make connections between mathematical content and pedagogy, show the relationship of mathematics to the school curriculum, and "unpack" the immersion experience.
- Academic year courses are offered in the late afternoon to accommodate teachers' schedules.
- The CAGS option is available for teachers who have a master's degree and wish to deepen their knowledge of mathematics for teaching.