Northeastern University
College of Professional Studies

A Program of Study in Elementary Mathematics
Grades preK - 5

Program Description

The purpose of this graduate level mathematics program is to strengthen the mathematics content knowledge and pedagogy of elementary teachers. The overall objective of this program is to offer a full curriculum designed to provide elementary teachers what they need to become *highly qualified teachers of mathematics*.

Important Information

This program is designed for elementary classroom teachers, teacher leaders, mathematics coaches and others in grades preK – 5 who wish to enhance their understanding of mathematics as it uniquely applies to elementary school curriculum. Teams of two or three teachers from a school or district is preferred though not required. This is not a teacher licensing program. These courses meet the Rhode Island standards for the teaching of elementary mathematics.

Offered in a hybrid model the first course will be held on three Saturdays beginning on November 1 with the rest of the course on-line using Northeastern's Black Board as a platform. This model accommodates participants' busy schedule allowing you to complete requirements without coming to class every week. An on-line tutorial is available. Each course offers 4 quarter hours of graduate credit (equivalent of 3 semester credits).

Course Offerings 08-09

Two courses will be offered during the 2008-2009 school year.

MTH 3660 Creating the Ideal Learning Environment for Elementary Mathematics
Dates/Time: Saturdays, November 1, 15 and December 6, 2008
8:30 – 4:00 P.M.
Location: Bishop Feehan High School, Attleboro, MA

MTH 3661 Count Ability: Number and Place Value
Dates/Times: This course will begin during the week of February 9 and end the week of May 11. Specific dates To Be Determined
Location: Bishop Feehan High School, Attleboro, MA

The cost of this program is supported by a grant administered through the Northern Rhode Island Collaborative.

****These courses are a part of the Masters in Education with a Specialization in Elementary Mathematics. Applying for the Degree is not required. Interested teachers may take one or both courses without applying for the degree or they may transfer these courses into the degree at anytime. Additional courses will be offered during the 2009-2010 year.***

Course Content

Each of the courses is designed to contain common elements that will be woven into the fabric of the content being introduced. The common elements of each module include the following:

- Teach to the standards
- Create a culture of inquiry.
- Explore how children learn
- Evaluate and use available hands-on equipment, tools, technology and internet resources
- Integrate literacy skills (both reading and writing)
- Present real-world applications of mathematics
- Integrate the use of standard and metric measurement tools and skills
- Integrate engineering and technology tools and skills

Course Descriptions

MTH 3660 Creating the Ideal Learning Environment for Elementary Mathematics 4 QH

The purpose of this course is to assist participants in becoming confident and effective inquiry-based mathematics teachers. Participants will *experience* the ideal learning environment that is most conducive for teaching and learning elementary mathematics. Participants will have the opportunity to explore how children develop foundational mathematical understanding at the very early ages, provide an introductory, hands-on, experience in number sense, the operations, geometry, measurement, and algebra. Participants will delve into the mathematical concepts behind the experiences to gain an understanding of how these skills are scaffolded at the upper grade levels. Making sense of student thinking, investigating alternative solution strategies, refining lesson planning, sharing instructional strategies, and creating a community of learners will be explored.

MTH 3661 Count Ability: Number and Place Value 4 QH

This course is designed to develop a comprehensive understanding of number systems and how its structure is related to computation and problem solving. It will begin with a look at historical perspective of numbers and number systems and continue with the study of place value and the base ten structure of the number system. Emphasis will be placed on understanding the concept of place value since it forms the foundation for understanding other major mathematical concepts (i.e. decimal fractions, scientific notation, standard algorithms, mental math, estimation, and rounding). Decimals, fractions, percent and mixed numbers and the connections among them will be explored. The number line will be used as a tool for “depicting” positive and negative numbers and fractions.

Master of Education with a Specialization in Elementary Mathematics

Curriculum

Required Courses……...4 qh

(choose one)

ED 3651	Race and Ethnicity	4 qh
ED 3655	Socio-Cultural Context of Education	4 qh

Foundational Course (required)……...4 qh

MTH 3660	Creating the Ideal Learning Environment for Elementary Mathematics	4qh

Content Courses……24 qh

MTH 3661	Count Ability: Number and Place Value	4 qh
MTH 3662	Puzzling Problems: Arithmetic Operation	4 qh
MTH 3663	Getting Into Shapes: Geometry and Measurement	4 qh
MTH 3664	Measure Up: Standard and Metric Measurement	4 qh
MTH 3665	Awesome Algebra: Functions and Algebra	4 qh
MTH 3666	What Are The Chances: Data Analysis and Probability	4 qh

Electives……8 qh

(Choose two)

MTH 3675	Assessment in the Elementary Mathematics Classroom	4qh
MTH 3676	Creating a Student-Centered Mathematics Classroom: Meeting the Needs of All Students	4qh
MTH 3677	Integrating Technology into the Mathematics Classroom	4qh

Total……..……40 qh

For more information about the Masters Degree contact Carol Doherty at c.doherty@neu.edu or 617-373-2283