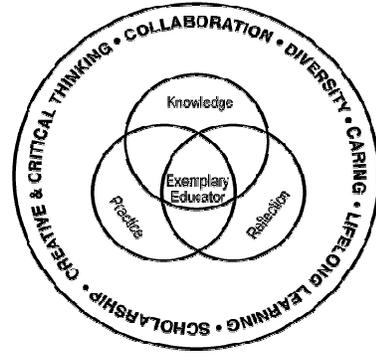


MATH 402
Methods of Instruction in the
Mathematics Curriculum for Grades K-6



Course Objectives

The purpose of this course is for pre-service elementary school teachers to learn about the learning and teaching of mathematics at the elementary school level (grades K-6). You will learn how children learn mathematics and what is meant by deep understanding of mathematics: Both conceptual and procedural. You will learn how to teach elementary school mathematics so that children see relationships and connections within mathematics and between mathematics, other subjects, and the real world. You will learn how to teach elementary school mathematics consistent with both the process and content standards recommended by the NCTM Principles and Standards (2000), and by the Illinois learning Standards for Mathematics Incorporating the Common Core (2010). You will learn how to implement the mathematical practices standards and the mathematics content standards for the elementary school years as recommended by the Common Core States Standards. You also will learn how to help children develop a positive mathematical disposition, use appropriate academic language, and build a foundation of mathematical knowledge to support their future study of mathematics. Specifically, you will

- Develop a knowledge of the content, methods, and materials necessary to teach elementary school mathematics
- Study the different characteristics of diverse students to support their learning of elementary school mathematics
- Participate in and learn how to assess elementary school students' mathematical thinking and plan appropriate instruction
- Learn how to build a positive instructional environment that supports the teaching and learning of elementary school mathematics
- Learn how to make instructional decisions and use appropriate curricular materials, academic language, manipulative materials, technology, and other resources to support student learning and performance

This course embraces the theme of reflective inquiry and collaborative relationships for professional growth consistent with the Elementary Education program at Northern Illinois University.

Course Requirements

- Mathematical Disposition, Disposition For Teaching Mathematics, Attendance, Class Participation
- Curriculum/Lesson Analysis Report
- Professional Resources Report
- Two In-Class Examinations
- Interview/Assessment Report
- Implementing an elementary school problem-solving activity in class at NIU
- Lesson plan for teaching an elementary school lesson during the two full-time weeks of clinicals
- Reflective self-evaluative report on your post-implementation of your lesson in school
- Reflective writing and other assignments
- Math Computation/Basic Skills
- Final Exam

Course Content

- How children learn mathematics with understanding; conceptual and procedural knowledge; what it means to understand mathematics
- NCTM Principles and Standards; Common Core States Standards (CCSS) in Mathematics—Mathematical Practices and Content
- Integrating assessment and instruction
- Children's counting strategies and number sense; developing meanings of the four operations; teaching through problem solving
- Basic facts and developing whole number concepts; lesson planning; teaching mathematics to all children
- Strategies for whole number computation; place value concepts
- Algebraic thinking
- Fraction concepts and fraction computation
- Concepts of decimals and percent
- Proportional reasoning
- Geometric thinking and measurement concepts
- Exploring integers and integer computation
- Probability and statistics; data analysis

Current Textbook

Van de Walle, J., Karp, K., & Bay-Williams, J. (2013). *Elementary and Middle School Mathematics: Teaching Developmentally* (8th ed.). New Jersey: Pearson Education, Inc. ISBN-13 978- 0-13-261226-5

Course Lab Fee

A lab fee charged for enrollment in this course is used to replace and update materials pertaining to instruction of the course and research on instruction of the course.

NIU Students and Conduct

It is expected that all NIU students abide by the NIU student handbook regarding conduct. Academic misconduct will be treated and reported according to the NIU guidelines.

Students with Disabilities

NIU abides by Section 504 of the Rehabilitation act of 1973 which mandates reasonable accommodations be provided for qualified students with disabilities. If you have a disability and may require some type of instructional and/or examination accommodation, please contact me early in the semester so that I can provide or facilitate in providing accommodation you may need. If you have not already done so, you will need to register with the Disability Resource Center (formerly ACCESS Center) on campus. The telephone number of the Disability Resource Center is 815 -753-1303. This center provides services such as administering exams with accommodations for students with disabilities

Changes may be made in the syllabus when judged appropriate by the instructor. Such changes, should they occur, will be announced in class.