

Course Syllabus
**MAE 4310 – Content and Methods of Teaching Elementary
Mathematics**

Florida International University
Spring 2013

Instructor: Jennifer Hoyte
Office: ZEB 350A **Phone:** 954-254-7286
Office Hours: By appointment **Email:** jhoyte@fiu.edu

Readings and Resources

Required Text

Van de Walle, J. A., Karp, K.S., and Bay-Williams, J.M. (2013). *Elementary and Middle School Mathematics: Teaching Developmentally. Eighth Edition.* New Jersey: Pearson Education Inc.
ISBN-10: 0132612267
ISBN-13: 9780132612265

Additional readings (available in Blackboard)

Behrend, J. L. (2003). Learning-Disabled Students Make Sense of Mathematics. *Teaching Children Mathematics*, 9(5), 269-73.
Behrend, J. L. (2001). Are Rules Interfering with Children's Mathematical Understanding? *Teaching Children Mathematics*, 8(1), 36-40
Fuson, K. C. (2003). Toward Computational Fluency in Multidigit Multiplication and Division. *Teaching Children Mathematics*, 9(6), 300-05.
Empson, S. B. (2001). Equal Sharing and the Roots of Fraction Equivalence. *Teaching Children Mathematics*, 7(7), 421-25.

Resources

- TaskStream Account: <https://www.taskstream.com/pub/>
- *Pre-professional Florida Educator Accomplished Practices* from <http://www.fldoe.org/dpe/>
- *Next Generation Sunshine State Standards for Florida's Teachers* from <http://www.fldoe.org/bii/curriculum/sss/>
- *Common Core State Standards for Mathematics for Florida's Teachers* from <http://www.fldoe.org/schools/ccs.asp>
- *Competency Based Curriculum for K-5 Grades* from <http://www.dadeschools.net/students/cbc/math.asp>
- *Curriculum Standards and Focal Points* from <http://www.nctm.org/>

Prerequisites

3 mathematics courses Intermediate Algebra or above.

Course Description

MAE 4310 is designed for the development of knowledge, skills, and dispositions necessary to prepare undergraduate students to become effective teachers of elementary mathematics. This course provides the student with an up-to-date perspective of being a professional within the field of mathematics education. It is designed to involve the learner in an exploratory, hands-on/minds-on problem solving classroom atmosphere that employs manipulative materials regularly.

This course encourages the prospective teachers to problem solve, communicate with others about mathematics, and make mathematical connections while working individually and within groups to complete activities and assignments.

These goals are encompassed and advocated in the documents:

- *Principles and Standards of School Mathematics* (2000),
- the Florida Department of Education in *the Next Generation Sunshine State Mathematics Standards* (2010), and
- the *Common Core Standards* (2012).

The skills and disposition necessary to deliver instruction to *all* students, including those with Limited English Proficiency and Exceptionalities and Challenges, are developed through a variety of classroom activities and assigned tasks.

This course is required in the bachelor's degree program for Elementary Education and Special Education majors and meets the State of Florida requirements for certification in Elementary Education (1-6).

Course Objectives and Outcomes

Upon completion of the course students will have the following understandings, skills, and dispositions. These objectives are in line with the specific performance standards for teachers of English for Speakers of Other Languages (ESOL).

Understandings

- Understand the content, scope and sequence of mathematics curriculum appropriate for elementary children.
- Understand the developmental and cognitive processes of children's learning of mathematics including those with Limited English Proficiency (LEP), and exceptional challenges, with special attention to constructivism.
- Recognize and understand the change process currently underway which model the guidelines set forth in the *NCTM Principles and Standard of School Mathematics and Teaching Standards*, and the *Next Generation Sunshine State Standards*.
- Understand the relationship between the study of mathematics and other elementary education disciplines; including science, language arts and social science.

Skills

- Develop an awareness of how to use manipulative devices/mathematical models effectively in the elementary classroom as well with LEP as with non-LEP students.
- Demonstrate ability to develop effective instructional settings for all students within which to teach mathematics compatible to the *NCTM Standards* and *Next Generation Sunshine State Standards*.
- Demonstrate ability to use available calculators, computers, internet system and other forms of technology within the elementary mathematics curriculum.
- Enable all students to become proficient in the use of mathematics as a tool for decision making and as a mode of communication.

Dispositions

- View learning and teaching of mathematics as processes for constructing mathematical modes of thought.
- Develop a positive attitude toward the teaching and learning of mathematics.
- Value the mathematics background and abilities of all children and colleagues.

University Policies

Academic Misconduct – Academic misconduct by students includes all acts of dishonesty in any academically related matter and any knowing or intentional help or attempt to help, or conspiracy to help another student commit an act of academic dishonesty. The Academic Misconduct Disciplinary Policy will be followed in the event of academic misconduct.

Accommodations: If you are registered with the Office of Disability Services, please make an appointment with the instructor as soon as possible to discuss any course accommodations that may be necessary. If you have a disability but have not contacted the Office of Disability Services, please call 348-3532 or go to GC190 to register for services.

Plagiarism - Plagiarism is the act of representing words, data, works, ideas, computer program or output, or anything not generated by the student as his or her own. Plagiarism may be inadvertent or purposeful; however, plagiarism is not a question of intent. Plagiarism is considered a serious act of academic misconduct and may result in a student receiving an “F” in the course and being suspended from the University. Please note that your paper may be examined by turnitin.com to detect possible cases of plagiarism. For more information, see <http://education.fiu.edu/plagiarism/>

Grading Policy

A	100%-94%	A-	94%-90%		
B+	90%-88%	B	88%-84%	B-	84%-80%
C+	80%-78%	C	78%-74%	C-	74%-70%
D+	70%-68%	D	68%-64%	D-	64%-60%
F	Below 60%				

Course Requirements

Assignment	Weight
Classroom Participation	15 %
Reading and Reflections	15 %
Field Experience Journal (including reflection of small group teaching experience)	20 %
Microteaching Lesson Study (including Reflective Paper)	20 %
Exams	30 %

Classroom Participation

Attendance and class participation are crucial to the learning goals for this course. Consequently, students are expected to interact in a positive manner with others in small group and whole class settings – listening, sharing ideas, and helping one another develop further as teachers of mathematics. Attention should be given to whoever has the speaking floor, be it professor or fellow student. It is important that you respect the speaker and class discussion by giving it your attention.

Participation credit is awarded for the thoughtful completion of in-class activities. In-class activities cannot be made up if a student is absent.

Reading and Reflection Activities

For each class you will be expected to complete a reading assignment, as well as a writing assignment based on what you have read. The written assignment should be submitted on Blackboard by **10:00 AM** on the day the assignment is due. Late assignments will be accepted but there will be a 10% deduction in the grade for each class period or portion of a class period it is late.

Each assignment will be graded on a scale between 0 – 3 as shown below.

Score	Criteria
3	Assignment is completed fully with obvious depth of thought, demonstrating critical thinking and connections between individual experiences, course readings and discussions.
2	Assignment is not fully completed, but the parts that are complete show obvious depth of thought or the assignment is completed without a solid demonstration of in-depth thinking
1	Assignment is either incomplete or shows very little depth of thought
0	Non-completion (or unacceptable completion) of the assignment

Field Experiences Journal

During the ten hour field experience for this course you will be asked to keep a journal focused on your experiences observing the classroom and working with students. The field experience journal will have three parts:

- (1) reflections on various aspects of your classroom observations,
- (2) one-on-one teaching experiences where you design a series of word problems and work individually with a student, and,
- (3) a teaching experience with a small group of students.

For the small group teaching experience you will also be asked to write a reflective paper that will eventually be uploaded to *Taskstream* as part of your electronic portfolio.

There will be three journal collections throughout the semester. More information on the specific requirements for each journal submission will be provided as the semester progresses.

You need to report to the office of clinical experiences (ZEB 230) to set up your field placement.

Taskstream is the College of Education's mechanism for documenting and tracking student mastery of the Florida Educator Accomplished Practices (FEAPs). Use the College of Education website at <http://education.fiu.edu/taskstream> for more detailed information and to setup your account. Your Taskstream account will be used in many other courses and also offers you storage space and web folio development for your personal use. Uploading your assignment and receiving a satisfactory Taskstream grade are requirements for this course.

Microteaching Lesson Study (MLS)

Microteaching Lesson Study (MLS) is a process in which small groups work collaboratively to create a lesson. As part of the MLS experience, each member of your group will teach a version of the lesson to other students in the class. Students will also be required to participate in their fellow students' lessons. A final reflective paper will be submitted. More information on MLS will be given as the semester progresses.

The final paper from the MLS project will also need to be uploaded to *Taskstream*.

Exams

Three exams will be given during the semester based on chapter readings, in-class activities, and class discussions. For tentative dates for each exam, please see the schedule of class activities.

Schedule of Class Activities

Week	Date	Topic, Focus issues, Exams	Assignments due
1	Jan 7 – M	Introduction and Overview of Course Teaching Mathematics in the 21 st Century (Ch. 1)	
	Jan 9 - W	Knowing vs Doing Mathematics (Ch. 2)	Homework 1
2	Jan 14 – M	Teaching through Problem-Solving (Ch. 3)	Homework 2
	Jan 16 – W	More on Problem Solving	Homework 3
3	Jan 21 – M	Martin Luther King Holiday (University Closed)	
	Jan 23 – W	Developing Early Number Sense (Ch. 8)	Homework 4
4	Jan 28 – M	Developing Meaning for Operations (Ch. 9) - Addition and Subtraction Properties	Homework 5
	Jan 30 – W	Developing Meaning for Operations (Ch. 9) - Multiplication and Division Properties	Confirmation of Field Placement Homework 6
5	Feb 4 – M	Developing Concepts of Data Analysis (Ch. 21) Exam #1	
	Feb 6 – W	Mastering the Basic Facts (Ch. 10) Developing Whole-Number Place-Value Concepts (Ch.11)	Homework 7
6	Feb 11 – M	Developing Strategies for Addition and Subtraction Computation (Ch. 12)	Homework 8
	Feb 13 – W	Developing Strategies for Multiplication and Division (Ch. 13)	Homework 9
7	Feb 18 – M	More on Developing Strategies for Multiplication and Division (Ch. 13)	Journal Part #1
	Feb 20 – W	Developing Fraction Concepts (Ch. 15)	Homework 10
8	Feb 25 – M	Developing Strategies for Fraction Computation (Ch. 16)	Homework 11
	Feb 27 – W	More on Fraction Computation Strategies (Ch. 16)	Homework 12
9	Mar 4 – M	Developing Concepts of Decimals and Percents (Ch. 17)	Homework 13
	Mar 6 – W	Teaching Mathematics Equitably to All Children (Ch. 6)	Journal Part #2

		Error Patterns Preparing for Microteaching Lesson Study	
10	Mar 11 – M	Spring Break (no classes)	Homework 14
	Mar 13 – W	Spring Break (no classes)	
11	Mar 18 – M	Developing Measurement Concepts (Ch. 19) Geometric Thinking and Concepts (Ch. 20)	
	Mar 20 – W	Exam #2 MLS Prep	
12	Mar 25 – M	Algebraic Thinking: Generalizations, Patterns and Functions (Ch. 14) Error Patterns	
	Mar 27 – W	Microteaching Lesson Study – Teach #1	
13	Apr 1 – M	Microteaching Lesson Study – Teach #1 Debrief	
	Apr 3 – W	Microteaching Lesson Study – Teach #2	
14	Apr 8 – M	Microteaching Lesson Study – Teach #2 Debrief	
	Apr 10 - W	Microteaching Lesson Study – Teach #3	Journal Part #3
15	Apr 15 – M	Microteaching Lesson Study – Teach #3 Debrief	MLS Final Paper – Draft #1
	Apr 17 – W	Review for Final exam	
16	Apr 22 - 26	<i>FINAL EXAM</i>	MLS Final Paper