

# UNIVERSITY OF DETROIT MERCY

## COURSE SYLLABUS

**Division:** College of Liberal Arts and Education    **Program:** Elementary Education

**Course:** EDU 449 Math Methods Elementary and Middle School  
Term II, 2005

**Location:** TBA

**Course Credit:** 2 credit hours

**Instructor:** Stanley B. Cleveland B. Cleveland Sr.    **Phone:** 1-313-506-4067 (v.m.)  
**Office Hours:** After class

### Required Text:

Van De Walle, J. (2001), Elementary and Middle School Mathematics: Teaching Developmentally, 5<sup>th</sup> Edition, Addison Wesley Longman, Inc.

### Course Description:

This course is designed to focus on elementary and middle school mathematics teaching strategies, instructional materials and evaluations. An inquiry based model for teaching mathematics in K-8 classrooms will be explored. A framework for teachers will be examined to provide students with a model for on-going professional development. Issues related to diverse, multicultural student population in a variety of classroom settings will be discussed. *Please read carefully the attached detailed explanation of topics covered in this course.*

### Course Objectives:

Students will be able to:

- Understand both pragmatic and theoretic framework related to teaching mathematics
- Understand the constructivist approach to teaching key math operations
- Understand the state and national math benchmark/standards in K-8 math classrooms
- Examine various learning styles and special approaches to teaching math
- Create a professional development plan for a 1<sup>st</sup> year teacher
- Examine ways to integrate math across the content areas
- Explore how technology can support math skill development

### Assignments and Grading:

Your grade will be completed from the categories listed below:

Group Bulletin Board	5 pts.
2 Quizzes (15 points each)	30 pts.
Portfolio	5 pts.
Professional Development Log	5 pts.

2 Professional Article Reviews	10 pts.
Internet Assignment	5 pts.
Unit Plan	20 pts.
Oral Presentation	10 pts.
2 Game Activities	5 pts.
Class Participation	5 pts.
Class Attendance/On Time	5 pts.
Classroom Observations (2)	5 pts.
Course Evaluation	2 pts.

Grading Scale:

95-100	A	94-90	A-	89-85	B+	84-80	B	79-75	C+
74-70	C	69-60	D	59 and below	F				

All assignments must be typed with a font size of 12. Academic writing style will be accepted only. References and cover pages for all written assignments will be required.

Attendance is mandatory. A 95% attendance rate is expected. Tardiness to class should be infrequent. A sign-in sheet will be circulated at the beginning of each class. If you have other commitments, please consider taking this class at another time.

The following delivery of instruction will be used:

- Lecture
- Study Groups
- Discussion Groups
- Demonstrations

Student participation in all classroom activities is expected.

Plagiarism

Please review the UDM policy.

Media/library Services

Students will be required to use the internet service to complete and assignment. It will also be necessary to use the library to secure current research article topics related to mathematics education.

**Remember to read carefully the detailed explanation about the class that is attached.**

## Topics Covered and Instructional Methods in EDU 449 Methods and Materials of Instruction for Mathematics in Elementary and Middle Schools

J. Van De Walle's text, *Elementary and Middle School Mathematics: Teaching Developmentally*, is the foundation for the projects and assignments in the course. Please bring it to every class. The text will be invaluable to your preparation for class and assignments, class room discussions and presentations, lectures, working and study groups, and the development of your personal style of teaching. Initially we will concentrate on the first four chapters:

- Chapter 1: Teaching Mathematics in the Context of the Reform Movement.  
(Principles and Standards for School Mathematics)
- Chapter 2: Exploring What It Means to Do Mathematics.  
(An environment for Doing Mathematics)
- Chapter 3: Developing Understanding in Mathematics.  
(Constructivist View of Learning)
- Chapter 4: Teaching Through Problem Solving.  
(Lesson Format and Designing and Selecting Effective Tasks)

The topics of the other chapters will be incorporated into classroom lectures and projects. For example, Chapter 5: Building Assessment into Instruction, will be part of every assignment, lesson, and project you design as will be the concepts and attitudes presented in Chapter 7: Teaching All Children Mathematics. Presentations by you, as well as my demonstrations, will require both formative and summative assessments verbally and in writing. After every classmate's presentation of a math lesson, in addition to immediate oral formative remarks, you will write an assessment that includes a positive detail and a suggestion for different possibilities for teaching the lesson. A problem-based approach to teaching mathematics engages students so there should be fewer discipline problems. Classroom management, however, is another key to creating a positive learning environment. Strategies for effective classroom management will be an integral part of classroom discussions and assessments of presentations and in your planning of lessons and units.

Lessons that you present, individually and in groups, should be informed by the information in the chapters in Section II: Development of Mathematical Concepts and Procedures. Chapters cover topics that you need to be able to teach to your elementary students from number concepts and sense; operations, basic facts, whole number place value, fractions, decimals to concepts of ratio and proportion, measurement concepts, geometric thinking and concepts, data analysis and probability to algebraic reasoning.

You will keep a portfolio of the lessons that you develop. In addition you will maintain a Professional Development Log that includes presentations by

classmates, internet sources reviewed and shared, articles and books critiqued, and observations in my classroom and others' classrooms.

Collaboration and communicating mathematical concepts to students, colleagues, and other adults are critical to effective elementary mathematics teaching. You will, therefore, participate in group projects as well as create materials individually. For example, for the "Group Bulletin Board" assignment, you will be assigned to one of three groups (Grades K-2, 3-5, or 6-8) and design a board that will attract the attention of the age group and present a developmentally appropriate mathematical concept.

I recognize that you are probably feeling pretty overwhelmed by the amount of work required for this course, but it is a realistic view of the complexity of teaching mathematics to young children in a joyful and positive environment. Together we can accomplish it all. Trust me, when we do our final reflection and assessment of our work together, you will be amazed and appreciative of all that we have accomplished together.