Mathematics 67-490 (3 credits)
Senior Seminar for Elementary and Middle School Programs
Spring 2014

Instructor: Dr. Amy Parrott

Office: 223 Swart;   **Phone:** 424-2305;   **E-mail:** parrotta@uwosh.edu

Prerequisite: You must have completed 110 (Number Systems), 211 (Geometry and Measurement), and 217 (Data Exploration), each with a grade of C or better, and you must have completed at least two of the four electives in the math minor.

Textbooks and Materials: You will need a notebook (not spiral bound) or folder (with fasteners for 3-hole punched paper) for your journal reflections. We will read several research journal articles which will be made available on D2L as well as the following books:

- Carpenter, T, Loef Franke, M, and Levi, L. (2003) *Thinking Mathematically: Integrating Arithmetic and Algebra in Elementary School* Heinemann, Portsmouth, NH.

- Boaler, J, and Humphreys, C. (2005) *Connecting Mathematical Ideas: Middle School Video Cases to Support Teaching and Learning* Heinemann, Portsmouth, NH.

Office Hours: Monday, Wednesday and Friday 11:30-12:30. I will also be available after class until approximately 5:40. If these times do not work for you, please contact me to arrange an appointment.

Course Objectives: The first half of this course is centered on understanding and exploring four big questions:

- What is mathematical behavior?

- How do humans learn mathematics?

- What is the mathematical thinking and misconceptions of elementary and middle grades children?

- How should mathematics be taught?

Based on our reading and discussion of work on these questions, you will better understand the nature of mathematics; you will explore the constructivist theory of learning; and you will gain a background in the research literature on the learning and teaching of elementary and middle grades mathematics. In the second half of the course, we will explore elementary and middle school mathematics curriculum materials, and you will have the opportunity to plan and present mathematics lessons based on those materials to children and to our class. The mathematical content of this course will include topics from Number Systems, Geometry, and Data Exploration and Analysis. We will use the curriculum materials to draw connections among those topics and to discuss the learning and teaching of mathematics.

Format: In this seminar course, we will often discuss a prepared reading. You are expected to read the assignment carefully prior to coming to class and to participate fully in the discussion. You will be responsible for leading two 45-minute lessons from the curriculum materials to our class, and you will prepare and lead a content-rich, hands-on lesson for third through fifth grade students through the Lighted Schoolhouse Program.

Grading: Your grade in this course will be based on:

- Journal and Participation (25%): Your careful reading of assigned chapters and papers, and your daily preparation for and contribution to these class discussions is very important. It is your obligation to demonstrate to me that you have both completed and thought about the readings and assignments (otherwise I will assume you have not). You will do this in two ways: first, you will contribute knowledgeably to the class conversation; second, you will keep a journal (with dated entries) that I will collect periodically. In your journal, you will write ideas, questions, comments, and other things relevant to the class content.

- Lighted School House Lesson and Reflection (25%): In small groups, you will prepare and lead a lesson for the students and will then write a reflection on the lesson.

- Curriculum Lessons (25% Each): In small groups, you will lead two 45-minute lessons from the curriculum materials. You will write a reflection on the lesson and will also be responsible for writing a careful critique of two of your peers lessons.

The grading scale will be no stricter than:

A: 93 - 100 %	A-: 90 - 92 %	B+: 88 - 89 %
B: 83 - 87 %	B-: 80 - 82 %	C+: 78 - 79 %
C: 73 - 77 %	C-: 70 - 72 %	D+: 68 - 69 %
D: 63 - 67 %	D-: 60 - 62 %	F: 0 - 60 %

Academic Honesty Policy: Cheating on an exam, plagiarizing or any other form of academic dishonesty will be dealt in accordance with the current UWO Student Discipline Code. The instructor reserves the right to assign a grade of "F" for the course should circumstances warrant.