UNIVERSITY OF NORTH CAROLINA School of Education
AT GREENSBORO Curriculum & Instruction

COURSE SYLLABUS - Fall 2006

1. **Course Prefix and Number:** CUI 380

2. **Course Title:** Elementary Mathematics Education

3. **Credits:** 3

4. **Course Prerequisites/Corequisites:** Admission to Elementary Grades Education.

5. **For Whom Planned:** Preservice elementary school teachers.

6. **Instructor Information:** Kerri Richardson, Ph. D., 311-A Curry Building, 334-4669, kerri_richardson@uncg.edu, office hours: Mondays Noon-5:00 & Fridays 9:00-Noon

7. **Course Purpose/Catalog Description:** Provides for the development of knowledge and skills necessary to prepare students to teach mathematics in elementary school classrooms.

8. **Teachers Academy Conceptual Framework Mission Statement:** *The mission of professional education at UNCG is to prepare and support the professional development of caring, collaborative, and competent educators who work in diverse settings. This mission is carried out in an environment that nurtures the active engagement of all participants, values individual as well as cultural diversity and recognizes the importance of reflection and integration of theory and practice. UNCG's professional education programs are guided by shared commitments to: (a) equity and excellence in teaching, research, and service; (b) professional integrity and ethical deliberation in dealing with students and colleagues (university-based, school-based, and community-based); (c) the construction of a professional knowledge base through collaboration and collegiality; and (d) the dissemination of professional knowledge, skills and dispositions through the preparation and continuing professional development of teachers, principals and other school personnel.*

9. **Course Goals and/or Objectives/Student Learning Outcomes:** This course aims to develop sensitivity to the needs of children as learners of Mathematics. Rather than attempting to "teach" every topic of the primary mathematics curriculum, this course is designed to develop the decision-making processes required for providing appropriate mathematical experiences for young children. By engaging in and analyzing activities which emphasize problem-centered learning as the basis for learning and teaching mathematics students will develop an understanding of the essential approaches vital to the establishment of mathematical thinking. A requirement of all assignments is to list both the process and content standards provided by the National Council of Teachers of Mathematics (NCTM).

   OBJECTIVES:

   1. To develop an understanding of how research, theory and practice combine to facilitate young children's learning of mathematical concepts.
   2. To continue to develop a coherent philosophy of teaching and learning mathematics.
   3. To gain insight into the relationship between teaching and learning as it applies to primary mathematics education.
   4. To explore ways of planning, facilitating and evaluating mathematics lessons.
   5. To develop a problem-centered approach to stimulate pupil inquiry for learning of mathematics.
   6. To be able to describe and implement a variety of appropriate instructional strategies to assist primary children in constructing mathematical ideas.
   7. To be able to use appropriate materials and technology which facilitate learning of mathematics in the primary grades.
   8. To use a range of evaluation practices which result in valid measures of pupil achievement.

   MAJOR THEMES:

   I. Mathematics as an activity of constructing patterns and relationships.
   II. Imagery as an underlying aspect of meaningful mathematics learning.
   III. Learning environments

A. Problem centered learning
B. The rationale for collaborative learning
C. Games
D. Literature and writing in mathematics

IV. Generating mathematics procedures in a meaningful setting
V. The role of beliefs in the learning of mathematics.
A. Student beliefs
B. Teacher beliefs
VI. The role of technology in mathematics learning
VII. Assessment and alternative evaluation procedures.

10. Teaching Strategies: Students will sit in cooperative groups of 4 to 5 students and work on various activities during each class period. Some activities will require solving specific mathematical tasks posed to them by the instructor while others will include assignments given which may require collaboration with a group member.

11. Evaluation Methods and Guidelines for Assignments:

Grades will be determined in the following manner:

1.	Weekly Blackboard Postings	15%
2.	Attendance	10%
3.	Child Interactions	25%
4.	Mathematics Lesson	25%
5.	Newsletter	25%

ASSIGNMENTS:

All written items should include a professional standard of spelling, grammar and punctuation. Cohesion of thought, clarity of expression, depth of reading, analysis of issues and relevance of discussion will need to be evident. Use of appropriate referencing style, use of headings and subtitles if necessary and reference list will be standard requirements for each assignment.

Each week you are expected to post comments on ***Blackboard*** about the reading I have assigned. These comments are graded on a 3-point rubric as follows:

3 – Response addresses the prompt with references to the readings for the week, and when appropriate, earlier readings. Opinions, observations, and/or past experiences are thoughtfully related to the readings throughout the response.

2 -- Response addresses the prompt with references to the readings for the week. Connections between the readings and opinions, observations, and/or past experiences are present.

1 – Response submitted either does not address the prompt or does not refer to the readings.

0 – No response is submitted.

Attendance

2 points for attending class the entire time
1 point for leaving class early and/or arriving late
0 points for not attending class

2 absences = final grade in the course will be lowered by one full letter grade

3 absences = final grade in the course will be lowered by two full letter grades

4 absences = F in the course

3 tardies = 1 absence, this means arriving to class late *and/or* leaving class early

Child Interaction Assignment (10 points)

	1	**2**	**3**
What did you learn about your child's mathematical thinking? (3 pts.)	Reflection discusses what happened during the interactions, but does not make connections to the child's mathematical thinking.	Reflection discusses the child's mathematical thinking in general without references to specific examples from the interactions with a child.	Reflection discusses what was learned about the child's mathematical thinking with references to specific examples from the interactions with a child.
How did your child's actions extend and modify your ideas about how a child learns mathematics? (3 pts.)	Reflection discusses what happened during the interactions, but does not generalize to include extension of modification of ideas about how a child learns mathematics.	Reflection discusses extension and modification of ideas about how a child learns mathematics in general without references to specific examples from the interactions with a child.	Reflection discusses extension and modification of ideas about how a child learns mathematics with references to specific examples from the interactions with a child.
What did you learn about yourself as a teacher and about teaching mathematics? (2 pts.)	Reflection discusses general beliefs about being a teacher and teaching mathematics, but does not address what has been learned from the child interactions in this particular assignment.	Reflection discusses what was learned about being a teacher and teaching mathematics from the child interactions in this particular assignment.	
Evidence (2 pts.)	Some student work and notes attached.	All student work and notes attached.	

Mathematics Lesson

Total Points Possible: 20

Breakdown of points:

Points possible for layout of lesson plan = 11
Name = 1, Grade Level = 1, Objective = 1, NCTM/NCSCS = 1, Materials = 1, Prep = 1, Procedures = 1, Sample problems or examples = 1, Questions for discussion = 1, Assessment = 1, Extension = 1

Points possible for reflection = 9
discussed student participation = 3, discussed student learning = 3, discussed what you learned or would do differently = 2

Newsletter (25 points)

Description of your mathematics curriculum (3)

Activities you will be using in the classroom with your students (2)

Activities that you want to encourage parents to do with their child (1)

Validation behind a problem centered learning environment (2)

Support (theory) for cooperative groups, not ability grouping (2)

Supporting research validating how children learn (1)

Classroom management techniques (2)

Classroom rules and how they were derived (1)

Cross curriculum integration (at least two content areas; can include music and art) (3)

Goals for the class including NCTM standards being met (2)

What parents can expect to see with their child (2)

Assessments used – include a modified report card that more adequately depicts a problem centered learning environment; i.e., number sense, problem solving and strategies, etc. (1)

Call for supplies or special needs for your class (1)

Welcome to parents coming to the classroom and best times to contact you (2)

12. Required Text(s)/Readings/References:

Wheatley, G. H. & Reynolds, A. (1999). "Coming to Know Number"
ISBN: 1-893779-04-2 (www.mathlearning.w1.com)

Wheatley, G.H. (1999). "Quick Draw: Developing Spatial Sense in Mathematics"
ISBN: 1-893799-01-8 (www.mathlearning.w1.com)

13. Topical Outline:

Due Aug 25 - First Reading Assignment

Due Sept 8 - Second Reading Assignment

Due Sept 15 - Third Reading Assignment & First Child Interaction Completed

Due Sept 22 - Fourth Reading Assignment

Due Sept 29 - Fifth Reading Assignment & Second Child Interaction Completed

Due Oct 20 - Sixth Reading Assignment & Third Child Interaction Completed

Due Oct 27 - Seventh Reading Assignment & Teaching of Mathematics Lesson During Class Time

Due Nov 3 - Eighth Reading Assignment & Fourth Child Interaction Completed

Due Nov 10 - Ninth Reading Assignment & Mathematics Lesson Report Due

Due Nov 17 - Tenth Reading Assignment & Fifth Child Interaction Completed

Due Nov 17- Eleventh Reading Assignment & Child Interaction Report

Due Dec 1 - Final Project: Newsletters

14. Other Information:

University's Reasonable Access Policy
"Any student in this course who has a disability that may prevent him or her from fully demonstrating his or her abilities should contact me personally as soon as possible so we can discuss accommodations necessary to ensure full participation and facilitate your educational opportunities."

PREPARATION, PARTICIPATION, AND ATTENDANCE FOR CLASS:
To be effectively engaged in this class you will need to:

Be prepared by reading and reflecting on assigned material each week.
Show involvement in class through participation in class discussion.
Demonstrate purposeful engagement with activities during class time.

Inclement Weather:
If the university is closed, class will be cancelled. In case you are unsure, check your e-mail and blackboard – I will e-mail everyone to confirm class cancellations by 8:30 the morning of scheduled class time.

15. Recommended Text(s) and/or Readings:

Please Note: "Teaching Children Mathematics" will be a useful reference for this course. This journal series from NCTM is located in the library.

16. Alignment with State and National Standards: See #9 – Course goals/objectives