WATSON SCHOOL OF EDUCATION  
DEPARTMENT OF CURRICULAR STUDIES  
EDUCATION 322-002  
THE TEACHING OF MATHEMATICS (K-6)  
Spring 2004

Dr. Grace M. Burton  
King Hall, 211A  
Phones: (o) 962-3363, (h) 799-3220  
Office Hours: Mon, Wed 10:00 - 4:00  
Class Meeting: Mon, Wen 11:00 - 12:15  
email: Burtong@uncw.edu

Course Description:  
Prerequisites: EDN 301 and six semester hours of appropriate mathematics. Co-requisite:  
EDNL 322. Focus on the curriculum, materials, and methods appropriate for the teaching  
of mathematics for the kindergarten through sixth grade level. A field-based activity is  
required.

Objectives: Upon successfully completing this course, the student should be able to:

1. demonstrate an understanding of the mathematical content which underlies the  
   mathematics taught at the K-6 level
2. compare the NCTM Standards with math curricula and instruction at the K-6 level
3. relate selected concepts in learning and development to mathematics instruction
4. use informal diagnostic techniques in planning instruction
5. identify commercial, environmental, and technology-based materials useful in the  
   teaching of mathematics
6. integrate mathematics with other elementary subjects
7. generate instructional sequences on topics such as:
   - classification
   - numeral formation
   - whole number algorithms
   - seriation
   - place value
   - basic fact mastery
   - patterning
   - basic operations
   - money and time
   - concept of number
   - fractions
   - graphing
   - rote counting
   - intuitive geometry
   - probability and statistics
   - rational counting
   - estimation
   - measurement
8. design activities to help children learn facts, acquire skills, develop concepts in  
   mathematics and apply these learnings to problem solving
9. modify mathematics curriculum and instruction to meet individual needs, and
10. demonstrate a knowledge of the criteria of a good K-6 mathematics program  
    according to the North Carolina Department of Public Instruction and the  
    National Council of Teachers of Mathematics

Conceptual Framework:
The Watson School of Education strives to educate teachers who are proficient as decision-makers and reflective practitioners. EDN 322 supports this framework through discussions, class activities, readings, a field experience, projects and assignments which require students to take an active role in decision-making.

Texts:
♦ Reys, Robert; Lindquist, Mary M.; Lambdin, Diana; Smith, Nancy; and Suydam, Marilyn. Helping Children Learn Mathematics, 7th ed.
♦ Copley, Juanita V. The Young Child and Mathematics. National Association for the Education of Young Children (NAEYC) and the National Council of Teachers of Mathematics (NCTM).
♦ Materials Packet

**EXPECTATIONS and INFORMATION**

**Attendance:**
Because the instructor will model various practices advocated for classroom use, and because peer interaction is an important component of learning in this course, promptness and active participation is expected at every class. Your class folder serves as your attendance record. Please check its accuracy at the start of each class and signal any discrepancies as soon as possible. Students having more than three absences will have 10 points deducted from their final grade. Three tardies and/or early departures are equivalent to one absence. Missing more than 8 classes will result in a failing grade.

If you are absent, materials distributed during class will be placed in your folder. Please plan to confer with a classmate concerning material you missed.

**Effort:**
Successful completion of EDN 322 requires active class participation, thoughtful completion of assignments, and careful consideration of all assigned reading. Tests will cover all assigned readings and projects as well as material discussed in class. Plan to spend 6 hours a week on out-of-class preparation for this course.

**Instructor Availability:**
My office hours are listed on page one of this syllabus and are posted on my door. You are also free to call my office any time, and my home before 9:00 pm. You may also send email to me at any time at the address on page one.

**Disability Services:**
If you have a disability and anticipate needing accommodations in order to participate in this class, please contact Disability Services (962-3746). The staff there will ask you to provide documentation of your disability, work with you to determine appropriate accommodations, and inform me of the approved accommodations.
Field Experience:

Successful completion of the field experience requires attendance at EDNL 322 class meetings and completion of the tasks outlined in the EDNL 322 syllabus. In EDNL 322, you will tutor one child for 10 hours using a hands-on approach. An integral part of the tutoring experience is your analysis and reflection on the outcomes of each session and the use of these to plan future lessons. Lesson plans must be approved by the Ed Lab staff before each session and must include the use of developmentally appropriate manipulatives. To assure that all your hours will be completed, I recommend that you begin tutoring sessions as soon as possible.

COURSE OUTLINE

<table>
<thead>
<tr>
<th>Week</th>
<th>Dates</th>
<th>Topic</th>
<th>Copley</th>
<th>Reys, et al</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>Jan. 7</td>
<td>The NCTM Standards/NCSCOS</td>
<td>1, 2, A</td>
<td>1, 2, 3, 4</td>
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<tr>
<td>2</td>
<td>Jan. 12-14</td>
<td>Assessment and Planning</td>
<td></td>
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<tr>
<td>3</td>
<td>Jan. 19-21</td>
<td>Meeting Individual Needs</td>
<td>p.176,preface,9</td>
<td>preface</td>
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<td>4</td>
<td>Jan. 26-28</td>
<td>PreNumber Concepts</td>
<td>3, B</td>
<td>13</td>
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<tr>
<td>5</td>
<td>Feb. 2-4</td>
<td>Patterns, Relationships and Algebra</td>
<td>5</td>
<td>5</td>
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<tr>
<td>6</td>
<td>Feb. 9-11</td>
<td>Number Sense and Numeration</td>
<td>4</td>
<td>6</td>
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<tr>
<td>7</td>
<td>Feb. 16-18</td>
<td>Whole Number Operations</td>
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<td>7,8</td>
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<td>8</td>
<td>Feb. 23-25</td>
<td>Computation and Estimation/ Test I</td>
<td>9,10</td>
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<td>9</td>
<td>Mar. 1-3</td>
<td>Fraction Concepts</td>
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<td>10</td>
<td>Mar. 15-17</td>
<td>Fraction Algorithms</td>
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<td>12</td>
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<td>11</td>
<td>Mar. 22-24</td>
<td>Measurement</td>
<td>7</td>
<td>15</td>
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<tr>
<td>12</td>
<td>Mar. 29-31</td>
<td>Geometry and Spatial Sense</td>
<td>6</td>
<td>14</td>
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<tr>
<td>13</td>
<td>Apr. 5-7</td>
<td>Data Analysis</td>
<td>8</td>
<td>16</td>
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<tr>
<td>14</td>
<td>Apr. 12-14</td>
<td>Probability and Statistics/Test II</td>
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<tr>
<td>15</td>
<td>Apr. 19-21</td>
<td>The Process Standards Revisited</td>
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<tr>
<td>16</td>
<td>April 26</td>
<td>Reaching Closure/ Final exam</td>
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ASSESSMENT PLAN

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<thead>
<tr>
<th>Course Objective</th>
<th>Assessment</th>
<th>Course Objective</th>
<th>Assessment</th>
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<tbody>
<tr>
<td>1</td>
<td>Projects 3, 5 and 7</td>
<td>6</td>
<td>Project 8</td>
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<tr>
<td>2</td>
<td>Projects 2 and 3</td>
<td>7</td>
<td>Projects 3 and FE</td>
</tr>
<tr>
<td>3</td>
<td>Projects 1 and Tests</td>
<td>8</td>
<td>Projects 3, 6, 8 and FE</td>
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<tr>
<td>4</td>
<td>Projects 2, 4 and FE</td>
<td>9</td>
<td>Projects 6 and FE</td>
</tr>
<tr>
<td>5</td>
<td>Projects 3 and 8</td>
<td>10</td>
<td>Tests I and II, Final Exam</td>
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PROJECTS

All assignments submitted for grading (except if completed on forms provided by the instructor) must be word-processed. Assignments submitted on a form must be neatly
written. Please edit your work carefully. Projects which do not meet these standards will be returned ungraded. Grades on late projects may be decreased by 1 point per day. If you expect to be unable to meet the listed due date, please let me know as soon as possible.

Possible Points Attained

Points

1. **Math Autobiography**
   Due: January 12 5 points (On Test I)
   In about 2 single-spaced typed pages, describe your previous experiences as a mathematics student in elementary school, secondary school and college. Discuss what material was covered, how it was taught, and how you felt about it. Then discuss how you feel about taking this course and about teaching mathematics. This paper will be completely confidential and will not be returned. Put your name on a cover sheet only. The 5 points will be added to your Test I score for the completion of this project.

2. **Textbook Review**
   Due: January 21 20 points

3. **Software or Web Resource Review**
   Due: January 28 20 points

4. **Facts Assessment or Piagetian Task**
   Due: January 26 20 points

5. **Algorithm Demonstration**
   Due: March 4 20 points

6. **Unit Plan**
   Due: Part I 2/4 5 points
   Due: Part II 3/22 40 points

7. **Activity Construction**
   Due: February 2 20 points (in unit)

8. **Connections Project**
   Due: April 26 20 points (in unit)

(Connections projects will be presented during the time scheduled for the final examination. Those not attending the entire session will receive no credit for this project.)

**Tests**

Test I 
Date: February 23 95 points
Test II     Date: April 14   100 points

The first test will focus on the foundations of K-6 mathematics as covered up to the date of the test. Test II will focus on topics covered after Test I, but may include material from any part of the course. All class discussions, handouts, and assigned readings may be included. Because it is an unsuccessful strategy, cramming is not recommended.

Final Examination     Date: April 26   35 points

In this cumulative take home examination, you will respond to situations related to the teaching of mathematics in grades K-6.

**Grading:**

During this course, you can earn a total of 400 points. All tests and projects are listed below. No extra projects will be accepted. Please keep a running total of the points you have earned on this syllabus. Grades will be determined as follows:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Points Range</th>
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<tbody>
<tr>
<td>A</td>
<td>371 - 400</td>
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<tr>
<td>A-</td>
<td>360 - 370</td>
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<tr>
<td>B+</td>
<td>350 - 359</td>
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<tr>
<td>B</td>
<td>331 - 349</td>
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<tr>
<td>B-</td>
<td>320 - 330</td>
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<tr>
<td>C+</td>
<td>310 - 319</td>
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<tr>
<td>C</td>
<td>291 - 309</td>
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<tr>
<td>C-</td>
<td>280 - 290</td>
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<tr>
<td>D</td>
<td>240 - 279</td>
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<tr>
<td>F</td>
<td>below 240</td>
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**HELPFUL RESOURCES**


For information on specific topics, you might also consult the NCTM yearbooks. They can be found in Randall Library at QA 1.N3.

For general information on teaching mathematics, you may wish to browse in the QA 135.5 section of Randall Library.

A journal which will be of special help to you is *Teaching Children Mathematics*.