

**EMAT 3410: Teaching Mathematics K-5  
Cluster C: Spring 2008**

Description: Content and materials appropriate for preK through 5th grade. Mathematics curriculum is integrated with an analysis of mathematics teaching, including the use of manipulative materials and technology. Includes a field component.

Instructor: Dr. Dorothy Y. White  
Teaching Asst. Sharren Thomas  
Office: 110E Aderhold Hall  
Hours: M & W: 11:00 - 1:00 or by appointment  
Phone: (706) 542-4096  
Email: dywhite@uga.edu  
Class Time: Monday & Wednesday: 10:10 – 12:05 pm  
Textbook: Reyes, R. E., Lindquist M. M., Lambdin, D. V., & Smith, N. L. (2007). *Helping Children Learn Mathematics, 8th Edition*. Hoboken, NJ: John Wiley & Sons, Inc.

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**COURSE OBJECTIVES:**

This course is designed to:

1. Help you become aware of children’s mathematical thinking, how it differs from adult thinking, and how it might impact your teaching.
2. Expose you to the content, methods, and materials appropriate for preK-5 mathematics instruction. Become familiar with the ideas espoused by the NCTM (e.g., PSSMs and Focal Points) and the Georgia Performance Standards (GPS).
3. Help you become aware of students’ and teachers’ responsibilities in the mathematics classroom and how this affects planning for and teaching mathematics.
4. Cause you to examine your beliefs about the goals and content of preK mathematics instruction.
5. Provide you with alternative methods of assessment and ways of planning instruction based on assessment.
6. Examine and develop ways to teach diverse student populations, with attention to factors such as race, gender, socioeconomic status, language and ethnicity.

## **COURSE REQUIREMENTS/PROJECTS**

1. **Attendance to all classes.** Attendance will be taken on a daily basis. It is important that you arrive on time (especially when we are at Elementary Schools). Absences and tardiness will affect your final grade in the following manner: **Two unexcused absences will result in your final grade dropping by one letter grade. Two tardies count as one absence.**
2. Active class participation
3. Demonstrate understanding of principles of mathematics instruction and use of manipulative materials through final examination.
4. Conduct a mathematics teaching survey.
5. Plan and teach at least one mathematics lesson focusing on children's literature.
6. Conduct a focused observation on "Motivating students for learning"
7. Prepare a report of your field activities
8. Design a mathematics center.
9. Present your mathematics center to the class.
10. Complete and submit a teaching for diversity report
11. Read all assigned readings **before** class and be prepared to discuss them.

### **ASSIGNMENT DESCRIPTIONS:**

Guidelines for each assignment along with the grading rubric are provided in this syllabus. All assignments will be discussed in detail in class. If you have any questions about an assignment, feel free to ask questions in class, during my office hours, or via email. Assignments are due on or before the due date, and must be typed and edited before submission. Late papers will not be accepted.

### **Mathematics Teaching Survey**

During your visits to the schools, you are required to survey your elementary classroom and school to determine the extent materials, computers, and opportunities exist for **you** to teach mathematics in that environment. Surveys are due **February 13, 2008**.

## **In-school Teaching Assignments**

- **Children's Literature Lesson:** Working with either the whole class or a small group, you will teach at least one mathematics lesson using children's literature. Detailed guidelines and a scoring rubric are found at the end of this syllabus. Papers are due **April 2, 2008**.
- **Focused Observation:** Observe at least 2 weeks of mathematics lessons to examine the classroom culture and how students are motivated to learn mathematics. Papers are due **April 7, 2008**
- **Menu of Activities:** During your weeks in the field, you should avail yourself of every opportunity to become involved in the teaching and learning of mathematics. You will report of two of your activities. Papers are due **April 7, 2008**

### **Teaching Mathematics to Diversity;**

The purpose of this assignment is for you to research the available literature for an article that specifically addresses the teaching and/or learning of mathematics to students that are culturally different than yourself. Your report 3-5 page report should answer the following questions:

- Why did you select this article? What culture(s) were discussed in the article?
- In what ways is the culture discussed in the article different than your culture?
- What strategies were used to teach and/or understand how students learn?
- What is the value of using this strategy in a mathematics class?

Your report should be 3-5 double-spaced pages in length, and submitted no later than **January 30, 2008**. A copy of the article must be attached to your report.

### **Design a Mathematics Center**

Working in groups, you and your partners will select a mathematics topic and design a mathematics center. The center will include at least five (5) different activities that children can work on to explore your given mathematical topic. During our course and based on your experiences in the schools, you will select activities for your center. On **April 23, 2008** you and your partner will share your center with the class. Each group will have 10 minutes to present their center.

### **Honor Code and Academic Honesty Policy**

All academic work must meet the standards contained in "A Culture of Honesty." Students are responsible for informing themselves about those standards before performing any academic work.

The link to more detailed information about academic honesty can be found at:  
<http://www.uga.edu/ovpi/honesty/acadhon.htm>

## **GRADING**

Mathematics Teaching Survey	10
Focused Observation	15
Children's Literature lesson	15
Menu of Activities	10
Mathematics Center & Presentation	10
Diversity Project	10
Final Examination	<u>30</u>
<b>TOTAL:</b>	<b>100</b>

Grades are computed based on the following UGA Grading scale:

A+ = 95 – 100

A = 90-94

B+ = 87 – 89

B = 84 - 86

B- = 80 - 83

C+ = 77 – 79

C = 74 - 76

C- = 70 - 73

D = 65 – 69

F = 0 – 64

**EMAT 3410 – Spring 2008  
TENTATIVE COURSE OUTLINE**

<b>Monday</b>	<b>Wednesday</b>
<b>January 7, 2008</b> Course Overview; NCTM Focal Points Overview	<b>January 9, 2008</b> Partner Interviews; Reform in Mathematics Education
<b>January 14, 2008</b> Traditional vs. Inquiry based Instruction	<b>January 16, 2008</b> Review: Developing Number Sense
<b>January 21, 2008</b> <i>MLK Holiday – No Classes</i>	<b>January 23, 2008</b> Review: Teaching Place Value Concepts
<b>January 28, 2008</b> Review: Teaching Addition and Subtraction	<b>January 30, 2008</b> Review: Teaching Multiplication and Division <b><i>Diversity Paper Due</i></b>
<b>February 4, 2008</b> Diversity in Math Education	<b>February 6, 2008</b> Review: Teaching Fractions, Decimals & Percents
<b>February 11, 2008</b> Teaching Measurement: Length and Width	<b>February 13, 2008</b> Teaching Measurement: Time and Money <b><i>Teaching Survey Due</i></b>
<b>February 18, 2008</b> Teaching Geometry	<b>February 20, 2008</b> Teaching Geometry
<b>Field Placements: February 25, 2008 – March 7, 2008</b>	
<b>UGA Spring Break: 10-14 March 2008</b>	
<b>Field Placements – 17-28 March 2008</b>	
<b>March 31, 2008</b> Tales from the Field	<b>April 2, 2008</b> Exploring Classroom Cultures <b><i>Children’s Literature Lesson Due</i></b>
<b>April 7, 2008</b> Center Planning <b><i>Focused Observation &amp; Menu Due</i></b>	<b>April 9, 2008</b> Teaching Statistics and Probability
<b>April 14, 2008</b> Algebraic Reasoning in Elementary School	<b>April 16, 2008</b> Algebraic Reasoning in Elementary School
<b>April 21, 2008</b> <b><i>Center Presentations</i></b>	<b>April 23, 2008</b> Last Day of Class – <b><i>Center Presentations</i></b>
	<b>April 30, 2008:</b> <b><i>Final Examination</i></b> 8:00am – 11:00 am

*The course syllabus is a general plan for the course; deviations announced to the class by the instructor may be necessary.*

**Mathematics Teaching/Resource Survey:**

During your field experience, you are to survey your elementary classroom and school to determine the extent materials; technology and opportunities exist for **you** to teach mathematics. The survey should include your observations and informal interviews with personnel at the school.

You are survey must include the following information:

- 1) A daily classroom schedule
- 2) A map of the classroom setting
- 3) A list of children's names and their background (e.g., ethnicity, socioeconomic class, native languages, etc.)
- 4) A list of mathematics resources in the your classroom and school, including the textbook and content areas covered in your assigned classroom (If no textbook is assigned, then list the content areas being covered)
- 5) Your thoughts on:
  - (a) the factors you perceive as supportive of **your** teaching mathematics
  - (b) the factors you perceive as constraints of **your** teaching mathematics
  - (c) your ideas to promote the teaching of mathematics in that environment.

Surveys must be typed, edited, and submitted on or before **WEDNESDAY, February 13, 2008**. Late papers will not be accepted.

Teaching Resources/Survey Rubric  
EMAT 3410 – D. Y. White

Name:

<b>Description</b>		<b>Point Value</b>	<b>Total Points</b>
<b>1) Daily classroom schedule</b>			
	Included	1	
	Not Included	0	
<b>2) Map of the classroom setting</b>			
	Included	1	
	Not Included	0	
<b>3) List of children's names and their background</b>			
	Listed and includes ethnicity, SES, and native language	1	
	Listed but missing 2 background items	.5	
	Not included	0	
<b>4) Textbook and Math Resources</b>			
	Clearly stated and includes textbook, topics, and resources	2	
	Clearly stated but missing 1 item	1	
	Not included	0	
<b>5) Your Thoughts</b>			
Supportive Factors	Clearly stated and includes sufficient details	1.5	
	Stated with minimum details	1	
	Mentioned but not explained	.5	
	Not mentioned	0	
Constraining Factors	Clearly stated and includes sufficient details	1.5	
	Stated with minimum details	1	
	Mentioned but not explained	.5	
	Not mentioned	0	
Recommendations	Clearly stated and explained	2	
	Mentioned but not explained	1	
	Not mentioned	0	
<b>Total Points</b>		<b>10</b>	

### Mathematics and Children's Literature

One issue that confronts all of us as teachers is how to connect mathematics with other content areas. Children's literature is one area that is frequently used by elementary school teachers to explore mathematics in the context of reading. This assignment requires that you teach a mathematics lesson focusing on children's literature. Your lesson can either be taught to a small group of children or the whole class. There are several books available that can assist you with this project (see me for a list, or look in your school's library).

The assignment should be documented as follows:

1. Demographic information about the students (generally describe who you taught: how many, sex, and grade level)
2. The title, author, and illustrator of the book(s)
3. Describe the mathematics content you focused on in the lesson and why. Be specific as to how you covered the content. Include the questions and comments that arose during the lesson to focus the students' attention on the mathematics.
4. Your personal evaluation of the lesson. Reflect on the responses and reactions of the students during the lesson. What did the children learn or did not learn, relative to the lesson? How did your teaching style help the children understand the mathematics content in the book(s)?
5. Describe one other subject area that you can connect with mathematics. What would you do and what mathematics content would you cover?

All completed assignments must be typed and submitted on or before **WEDNESDAY, April 2, 2008**. Late papers will not be accepted, however, early papers are welcome.

Mathematics and Children's Literature Lesson  
Scoring Rubric  
15 points

Name:

<i>Item</i>	<i>Point Value</i>	<i>Total Points</i>
<b>1. Demographics (1)</b>		
# of students, gender, grade level	1	
<b>2. Book Information (2)</b>		
Title and Author	1	
Illustrator (or note if none listed)	1	
<b>3. Content Focus and Why (6)</b>		
Listed Content Focus	1	
Why content was chosen	1	
How covered: Questions posed		
Clearly stated with examples	2	
Stated with no evidence	1	
Not mentioned	0	
Student responses		
Clearly stated with examples	2	
Stated with no evidence	1	
Not mentioned	0	
<b>4. Personal Evaluation (4)</b>		
What did children learn/not learn?		
Clearly stated with examples	2	
Stated with no evidence	1	
Not mentioned	0	
How did teaching style help?		
Clearly stated with examples	2	
Stated with no evidence	1	
Not mentioned	0	
<b>5. Connection to other subject area (2)</b>		
Listed subject area	1	
Stated how to make connection	1	
Total Score:	15	

EMAT 3410 - Mathematics Methods for Early Childhood Education  
FOCUSED OBSERVATION: Motivating Students for Learning

Dr. Dorothy Y. White  
dywhite@uga.edu  
Office: 542-4096

The purpose of this assignment is to examine the classroom culture and how students are motivated to learn mathematics. Begin by observing your cooperating teacher over a period of no less than two weeks. Once the observations are completed, answer the following questions:

1. Describe the classroom culture during mathematics instruction. What are the ways that people interact and succeed in the class?
1. Describe the types of assignments and activities that students are involved in that serve to engage and motivate them. How well do these activities/assignments work in motivating students? Explain. Is there a particular activity that is highly motivating?
2. What types of assessments are used to motivate students for learning? Do the assessments motivate all learners? Explain.
3. How does the teacher use grouping, instructional materials, and resources to engage and motivate learners? Explain not only what types of grouping, instructional materials, and resources are present, but how effectively does the teacher use them to motivate the students and engage them in learning.

Assignments must be typed, edited, and submitted no later than **MONDAY, APRIL 7, 2008**. Late papers will not be accepted.

EMAT 3410 – Teaching Mathematics K-5  
 FOCUSED OBSERVATION: Scoring Rubric

Description		Point Value	Total Points
<b><i>1) Classroom culture and Types of Assignments &amp; Activities</i></b>			
	Clearly stated and includes sufficient details about the activities or relevant content	4	
	Clearly stated and includes some but not all descriptions about activities or relevant content	3	
	Mentioned but does not include descriptions about the activities or relevant content (i.e., I don't know what they did and/or the topic)	2	
	Mentioned but without any specific reference to the activities (i.e. they played morning games)	1	
	Not mentioned	0	
<b><i>1A) How well do the activities motivate students?</i></b>			
	Clearly stated and explained	2	
	Mentioned but not explained	1	
	Not mentioned	0	
<b><i>2) How does the teacher use x to engage and motivate students?</i></b>			
Grouping:	Clearly stated and includes sufficient details	3	
	Clearly stated but minimum details	2	
	Mentioned but not explained	1	
	Not mentioned	0	
Materials & Resources	Clearly stated and includes sufficient details	3	
	Clearly stated but minimum details	2	
	Mentioned but not explained	1	
	Not mentioned	0	
<b><i>3) Recommendations to develop and extend students' knowledge</i></b>			
	Clearly stated and explained	2	
	Mentioned but not explained	1	
	Not mentioned	0	
<b><i>Overall presentation of ideas</i></b>		<b>1</b>	
<b>Total Possible Points</b>		<b>15</b>	

EMAT 3410 – Teaching Mathematics PreK - 5  
MENU OF FIELD ACTIVITIES

Dr. Dorothy Y. White  
dywhite@uga.edu  
Office: 542-4096

During your weeks in the field, you should avail yourself of every opportunity to become involved in the learning of mathematics. It is your responsibility to negotiate with your cooperating teacher how you can become involved in the mathematics lesson. This involvement may take a variety of forms:

- assist individual students with seatwork
- work one-on-one with a child who needs extra help or an extra challenge
- work with a small group
- run a math center (one the teacher has developed or one that you develop)
- direct calendar time
- teach a whole class lesson
- other instructional activities agreed upon by you and your teacher

Please note that the above ideas are only suggestions and should be adapted to your individual situation and other field requirements. Do not hesitate to contact me for lesson ideas, suggestions, or to borrow concrete materials. A brief report of two or your activities in the field should be typed, edited, and submitted **MONDAY, APRIL 7, 2008**. Late papers will not be accepted.

EMAT 3410 – Teaching Mathematics PreK - 5

MENU OF FIELD ACTIVITIES: Scoring Rubric

Description		Point Value	Total Points
<b><i>1) Activity #1</i></b>			
	Clearly stated and includes sufficient details about the activity and your role in facilitating the activity	4	
	Clearly stated and includes description of the activity with minimum mention of your role in facilitating the activity	3	
	Mentioned activity but does not include descriptions about the activity and/or your role in facilitating the activity	2	
	Mentioned but without any specific reference to the activity and your role in facilitating the activity	1	
	Not mentioned	0	
<b><i>2) Activity #2</i></b>			
	Clearly stated and includes sufficient details about the activity and your role in facilitating the activity	4	
	Clearly stated and includes description of the activity with minimum mention of your role in facilitating the activity	3	
	Mentioned activity but does not include descriptions about the activity and/or your role in facilitating the activity	2	
	Mentioned but without any specific reference to the activity and your role in facilitating the activity	1	
	Not mentioned	0	
<b><i>3) Overall presentation of ideas</i></b>			
	Clearly written with a logical flow of ideas	2	
	Written poorly but ideas have a logical flow OR Clearly written but ideas are choppy	1	
	Written poorly and ideas are choppy	0	
<b>Total Points</b>		<b>10</b>	

Diversity Article Scoring Rubric  
EMAT 3410

Name(s):

Section	<i>Description</i>	Point Value	Points Earned
<b>Article Selection</b>	Reflects teaching/learning of mathematics to racially or ethnically different students	<b>1</b>	
	Does not reflect teaching/learning to racially or ethnically different students or not in mathematics	0	
<b>Strategies used in article</b>	Clearly stated and includes sufficient details about the activities or relevant content	<b>4</b>	
	Clearly stated and includes some but not all descriptions about activities or relevant content	3	
	Mentioned but does not include descriptions about the activities or relevant content (i.e., I don't know what the article is about unless I read it)	2	
	Mentioned but without any specific reference to the activities (i.e. taught in a 2 <sup>nd</sup> grade class with nothing else)	1	
	Not mentioned	0	
<b>Value of using strategies</b>	Clearly stated and explained	<b>3</b>	
	Mentioned but not explained	1-2	
	Not mentioned	0	
<b>Influence on your views</b>	Clearly stated and includes sufficient details	<b>2</b>	
	Mentioned but not explained	1	
	Not mentioned	0	
<b>Total Points</b>		<b>10</b>	

EMAT 3410 – D. Y. WHITE  
 Mathematics Center Scoring Rubric  
 10 points

Group Names:

<i>Item</i>	<i>Point Value</i>		
<b>1. Mathematics topic focus</b>			
• Clearly identified mathematics topic focus	2		
• Mathematics topic focus not clear	1		
• No mathematics topic focus	0		
<b>2. Activities</b>			
• Center included five activities that were all related to the mathematical topic	4		
• Center included 5 activities with only some related to the mathematical topic	3		
• Center included less than 5 activities that were all related to the mathematical topic	2		
• Center included less than 5 activities where some did not relate to mathematical topic	1		
<b>3. Presentation</b>			
• Well planned and clearly presented	4		
• Well planned but not clearly presented	3		
• Clearly presented but not well planned	2		
• Not well planned or presented	0		
Total Score:		10	