

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 problem solving.
6. Plan and teach at least one mathematics lesson focusing on children's literature.
7. Design a mathematics center.
8. Present your mathematics center to the class.
9. Complete and submit a teaching for diversity report
10. 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 **September 18, 2006**.

In-school Teaching Assignments

- **Problem Solving Lesson:** Working with a small group of 4-6 children, you will teach at least one mathematics lesson focusing on problem solving. For this lesson, a lesson plan is required. Drafts of lesson plans are due **October 23, 2006**. Final papers are due **November 13, 2006**.
- **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 **November 20, 2006**.

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 **October 9, 2006**. 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 **November 27, 2006** 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 |
| Problem-solving lesson | 20 |
| Children's Literature lesson | 15 |
| Mathematics Center & Presentation | 10 |
| Diversity Project | 15 |
| Final Examination | <u>30</u> |
| TOTAL: | 100 |

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 – Fall 2006
TENTATIVE COURSE OUTLINE**

| Monday | <i>Due</i> |
|--|---|
| August 21, 2006 Overview of Course, Field Requirements, Planning for Instruction | |
| August 28, 2006 Assessment | |
| September 5, 2006 <i>LABOR DAY HOLIDAY – NO CLASSES</i> | |
| September 11, 2006 Developing Fraction Concepts | |
| September 18, 2006 Fraction Computation | <i>Teaching Survey Due</i> |
| September 25, 2006 Developing Decimal Concepts | |
| October 2, 2006 Developing Percent Concepts | |
| October 9, 2006 Equity in Mathematics Education | <i>Diversity Article Due</i> |
| October 16, 2006 Teaching Measurement | |
| October 23, 2006 Teaching Measurement | <i>Problem Solving Lesson Plan Due</i> |
| October 30, 2006 Culture, Diversity and the Teaching of Mathematics | |
| November 6, 2006: Teaching Geometry | |
| November 13, 2006 Teaching Probability | <i>Problem Solving Reflection Due</i> |
| November 20, 2006 <i>Teaching Data Analysis and Statistics</i> Teaching Algebra in Elementary | <i>Children's Literature Lesson Due</i> |
| November 27, 2006 Center Presentations | <i>Center's Due</i> |
| December 4, 2006 Final Exam Review | |

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 **MONDAY, September 18, 2006**. Late papers will not be accepted.

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

Name:

| Description | | Point Value | Total Points |
|---|---|-------------|--------------|
| 1) Daily classroom schedule | | | |
| | Included | 1 | |
| | Not Included | 0 | |
| 2) Map of the classroom setting | | | |
| | Included | 1 | |
| | Not Included | 0 | |
| 3) List of children's names and their background | | | |
| | Listed and includes ethnicity, SES, and native language | 1 | |
| | Listed but missing 2 background items | .5 | |
| | Not included | 0 | |
| 4) Textbook and Math Resources | | | |
| | Clearly stated and includes textbook, topics, and resources | 2 | |
| | Clearly stated but missing 1 item | 1 | |
| | Not included | 0 | |
| 5) Your Thoughts | | | |
| 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 | |
| Total Possible Points | | 10 | |

FIELD ASSIGNMENT #1
Lesson Plan and Self-evaluation

This assignment requires that you plan, teach and evaluate a mathematics lesson. Your lesson should be taught to a small group of children (4-6) as opposed to the whole class. It should be based on a mathematical concept that your cooperating teacher has suggested or that will be covered during the time of instruction.

This assignment should be documented as follows:

1. Present a lesson plan that incorporates the spirit or intent of the standard on problem solving. That is, while the major emphasis is on problem solving, the lesson should also include communication (including writing and speaking about mathematics), reasoning (including both inductive and/or deductive reasoning), and possibly make connections to other mathematics.

Your lesson plan should follow the format given in class and include the following:

- A. Grade level, your school and the date you plan to teach the lesson.
- B. Content objective(s)
- C. Behavioral Indicators
- D. Materials
- E. Procedures - Spell this out, it must be more than an outline
- F. Evaluation of student learning -- Describe how you will evaluate. Keep in mind that a worksheet may not be appropriate.

Once the teaching is complete, write:

- II. Your personal evaluation of the lesson -- Say more than “it went well and I enjoyed the activity.” Analyze your teaching and give yourself constructive criticism. Reflect on the responses, behaviors and questions offered by the children. What do the children understand and do not understand, relative to your lesson? What do you think the children learned, or did not learn in your lesson and why? How is teaching a group of students different from teaching one child as in your Barrow experience? Then discuss how you would modify your lesson for future use (i.e. describe and justify). It is not expected that your cooperating teacher will observe your instruction or formally evaluate your instruction.

I will look over your lesson plan before you teach it. As you finish your first draft, email it to me to read and to react to. Do not wait until the last minute to plan this lesson. I will do my best to have your lesson plan back with comments quickly. Lesson Plan drafts are due **October 23, 2006**. The teaching should be taught, lesson plan and self-evaluation completed and turned in to me on or before **Monday, November 13, 2006**.

Lesson Plan and Self-Evaluation
Scoring Rubric
20 points

Part I: Lesson Plan: (8 Points Total)

| Item | Point Value |
|--|-------------|
| A. Grade, School, Date | 1 |
| B. Content Objectives - 2 | |
| Written in math terms | 2 |
| Listed but not defined in math terms | 1 |
| Not a content Objective | 0 |
| C. Behavioral Indicators | |
| Listed and clearly aligned with objectives | 2 |
| Listed but not clearly stated and aligned | 1 |
| Not clearly written and aligned with objectives | 0 |
| D. Materials | |
| E. Procedures | |
| Clearly described with correct words and questions | 2 |
| Describes with limited questions and wording | 1 |
| Not clearly stated | 0 |
| F. Evaluation | |
| Appropriate evaluation | 1 |
| Not appropriate | 0 |

Part II: Self Evaluation (12 points total)

| | |
|--|-----------|
| 1. Reflect on Children (Response) | |
| Clearly Stated and discussed and aligned w/objective | 2 |
| Mentioned but not discussed | 1 |
| Not mentioned | 0 |
| Behaviors (same as response categories) | (2, 1, 0) |
| Questions (same as response categories) | (2, 1, 0) |
| 2. What did student understand during the lesson? | |
| Clearly stated with proof | 2 |
| Stated w/no evidence | 1 |
| Not mentioned | 0 |
| 3. What did students learn and why? (see understand) | (2, 1, 0) |
| 4. Teaching a group instead of one child | 1 |
| 5. Modify lesson? | 1 |

Field Assignment #2
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 **Monday, November 20, 2006**. 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> |
|--|--------------------|
| 1. Demographics (1) | |
| # of students, gender, grade level | 1 |
| 2. Book Information (2) | |
| Title and Author | 1 |
| Illustrator (or note if none listed) | 1 |
| 3. Content Focus and Why (6) | |
| 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 |
| 4. Personal Evaluation (4) | |
| 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 |
| 5. Connection to other subject area (2) | |
| Listed subject area | 1 |
| Stated how to make connection | 1 |

Total Score: _____

Diversity Article Scoring Rubric
EMAT 3410

Name(s):

| Section | Description | Point Value | Points Earned |
|-----------------------------------|--|--------------------|----------------------|
| Article Selection | Reflects teaching/learning of mathematics to racially or ethnically different students | 3 | |
| | Reflects teaching/learning of mathematics but not to racially or ethnically different students | 1 | |
| | Reflects teaching/learning to racially or ethnically different students but not in mathematics | 0 | |
| Strategies used in article | Clearly stated and includes sufficient details about the activities or relevant content | 5 | |
| | Clearly stated and includes some but not all descriptions about activities or relevant content | 4 | |
| | 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) | 3-2 | |
| | Mentioned but without any specific reference to the activities (i.e. taught in a 2 nd grade class with nothing else) | 1 | |
| | Not mentioned | 0 | |
| Value of using strategies | Clearly stated and explained | 3 | |
| | Mentioned but not explained | 2 | |
| | Not mentioned | 0 | |
| Influence on your views | Clearly stated and includes sufficient details | 4 | |
| | Stated with minimum details | 3 | |
| | Mentioned but not explained | 1 | |
| | Not mentioned | 0 | |
| Total Points | | 15 | |

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

Group Names:

| <i>Item</i> | <i>Point Value</i> | | |
|--|--------------------|----|--|
| 1. Mathematics topic focus | | | |
| • Clearly identified mathematics topic focus | 2 | | |
| • Mathematics topic focus not clear | 1 | | |
| • No mathematics topic focus | 0 | | |
| 2. Activities | | | |
| • 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 | | |
| 3. Presentation | | | |
| • 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 | |