

MORAVIAN COLLEGE
BETHLEHEM, PENNSYLVANIA
EDUCATION 362Z
CURRICULUM AND INSTRUCTION IN MATHEMATICS
FALL 2008

INSTRUCTOR: Catherine J. Meholic
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CLASS HOURS: Wednesday 6:30 – 9:30 PM in room PHACC 233

OFFICE HOUR: Wednesday 5:30 – 6:30 PM in room PHACC 233

OBJECTIVES:

- To practice and develop teaching skills in mathematics in a non-threatening environment
- To develop skills in teaching secondary mathematics that will promote genuine learning to all student populations
- To develop classroom management skills
- To prepare for and share thoughts from the field experience
- To examine current best practices in mathematics
- To examine, discuss and apply NCTM Principles and Standards and Pennsylvania State Standards and Assessment Anchors
- To plan, construct and execute mathematics unit plans, lesson plans and assessments effectively
- To begin preparing a portfolio and practice for the interview process

TEXTBOOK (required)

Teaching Secondary and Middle School Mathematics by: Daniel Brehier
3rd Edition Pearson, Allyn, and Bacon, 2009

OTHER READINGS

Mathematics Teacher
Mathematics Teaching in the Middle School
NCTM Principles and Standards for School Mathematics
NCTM Curriculum and Evaluation Standards for School Mathematics
NCTM Assessment Standards for School Mathematics
Pennsylvania State Standards
Pennsylvania Assessment Anchors and Eligible Content
Other pertinent articles and books

COURSE REQUIREMENTS

- All written work outside of class must be typed. Formal papers must be double spaced and written in APA style.
- All assignments must be completed on time.
- Attendance at all class sessions. (If you have an emergency, notify the instructor as soon as possible.)

EVALUATION

- Academic dishonesty as described in the scholastic integrity policy of Moravian College will result in a grade of zero and the Academic Dean will be notified.
- Work is expected on the due date. Please notify teacher **prior to** the due date if an emergency arises.
- Evaluation is based on the following:

20%	Unit Plan
15%	Written Answers to Discussion Questions
15%	Portfolio & Mock Job Interview (in lieu of Final Exam)
10%	Reflection of Unit Plan
10%	In-class Mini Lessons
10%	In-class Presentations
10%	Lesson Reflections (Field Experience and In-Class)
10%	Field Journal

WEEKLY SCHEDULE OF TOPICS

(This part of the syllabus is subject to slight modifications.)

Unit 1: What does it mean to do, teach, and learn mathematics?

August 27, 2008

- Attend Field Experience Seminar in Prosser Auditorium
- Get acquainted-information exchange
- Mathematical Autobiography/Qualities of a Good Mathematics Teacher
- Course Outline/Assignments/Grading & Attendance Policy
- Examine Textbook Lay-Out
- Mathematics Reform
- Doing Math: Problem Solving/Reasoning/Communications/Connections/Representation
- Assignment: Read Text Chapter 1, pages 3 – 26
Complete Discussion Questions page 26 # 7, 9, 10
Prepare presentation based on question assigned in class

September 3, 2008

- NCTM: Your professional organization
- NCTM Journals and Website
- NCTM Principals and Standards
- PCTM and the Annual Conference
- Assignment: Read Text Chapter 2, pages 27 – 40
Complete Discussion Questions pages 40 – 41 # 2, 8, 9
Explore individually assigned website and prepare presentation

September 10, 2008

- Current Research in Mathematics Education
- Brunner's Stages of Representation
- Van Hiele Model
- Traditional vs. Constructivist Classroom
- Gardner's Seven Styles of Learning
- Assignment: Read Text Chapter 3, pages 43 – 72
Discussion Questions page 72 - 73 # 3, 4, 6
Assigned question for chapter and any

Unit 2: How do national trends influence the local curriculum?

September 17, 2008

- Essential Math Knowledge
- Traditional vs. Integrated Sequences
- The Core Curriculum
- Compare/Contrast Textbooks
- Examine NCTM Standards, PA mathematics Standards, Anchor Assessments, Eligible Content, Focal Points
- Assignment: Read Text Chapter 4, pages 75 – 100
Discussion Questions pages 100 - 101 #2, 3, 7
Question #6 as divided in class

Monday, September 22, 2008 is the start of your field experience.

September 24, 2008

- Writing Goals and Objectives
- Selection and Organization of Resources
- Reflecting on a Lesson
- Assignment: Read Text Chapter 5, pages 103 – 130
Discussion questions # 3, 4, 8
Lesson plan on assigned topic

Unit 3: Are teachers limited to the textbook as a resource for teaching?

October 1, 2008

- Lesson Planning vs. Unit Planning
- Understanding by Design
- Assignment: Read Textbook Chapter 6, pages 135 – 166
Discussion Questions 3, 6
Question 5 for presentation

October 8, 2008

- Teaching Standards and Guiding Principles
- Selecting Activities and Problems
- Use of Manipulatives
- Questioning Strategies
- Learning Environment
- Assignment: Read Text Chapter 7 pages 167 – 203
Discussion Questions 2, 5, 6, 10
Individual Lesson Plan on assigned topic to be presented next week

October 15, 2008

- Graphing Calculators
- Computer Technology and Software
- Internet and WWW
- Lesson Presentation
- Assignment: Read Text Chapter 8 pages 205 – 254
Discussion Question 1, 3, 7
Individual question as assigned
Lesson Reflection

Unit 4: How does assessment become more than just testing?

October 22, 2008

- Guest Speaker
- Introduction to your portfolio
- What is assessment
- Test Construction
- Scoring Student Work
- Open-Ended Questions and Rubrics
- Interviews
- Portfolios
- The art of questioning
- Assignment: Read Text Chapter 9 pages 257 – 293
Discussion Questions # 2, 3, 8, 9 (use student teachers in other disciplines)
Lesson Plan on topic of your choice to be presented next week

October 29, 2008

- Presentation of Lesson
- Equity in Assessment
- Homework as Assessment
- Determining Final Grades
- Assignment: Read Textbook Chapter 10 pages 295 - 322
Discussion Questions # 5, 9, 10
Lesson Reflection

Unit 5: Does being a teacher involve more than imparting content?

November 5, 2008

- Defining and Achieving Equity
- General suggestions for Meeting Diverse Student Needs
- Students with Special Needs
- Gender
- Ethnic and Cultural Issues
- Differentiated Instruction
- Mainstreaming and Inclusion
- The Co-Teaching Model
- Assignment: Read Text Chapter 11 pages 325 – 348
Discussion Questions #1, 4, 8
Lesson Plan for presentation

November 6 or 7, 2008: PCTM Conference at Split Rock Lodge

November 12, 2008

- Working with Parents
- Supervision and Evaluation of Teachers
- Functioning in a Department
- Ongoing Professional Development
- Lesson Presentation
- Assignments: Read Text Chapter 12 pages 352 - 374
Discussion Questions 5, 9, 10
Lesson Reflection

November 19, 2008

- Importance of Reading and Writing in Mathematics
- Techniques for incorporating reading and writing in mathematics
- Assignment: Unit Plan Due Monday

November 24, 2008: Unit Plan is delivered to me in Education Office between 3:30 and 5:00

December 3, 2008

- Presentation of Unit Plans
- Final questions on Portfolios and Interview
- Any unfinished topics
- Assignment: Unit Plan Reflective Critique
Finish Portfolios

December 5, 2008: Field Experience ends

December 8, 2008: Unit Plan Reflective Critique due to me in Ed Office between 3:30 and 5:00

December 10, 2008: Bring completed Portfolio for Formal Interview (Dress appropriately)