SYLLABUS

Mathematics Methods and Materials
EDU 409

Fall 2004

Wayne State College
Physical Sciences and Mathematics
EDU 409 Mathematics Methods and Materials  

Instructor: Jeffrey O. Bauer  
Office: Carhart Science 103  
Office Hours:  
Telephone: 402.375.7334  
Email: jebauer1@wsc.edu  
Website: http://academic.wsc.edu/faculty/jebauer1/  

Description: This course examines the content, methods, techniques and materials, including bibliography, in mathematics. The course also addresses the relationship of mathematics to the total curriculum. Taken concurrently with EDU 323 Content Area Practicum. Since background in objective writing, teaching methodology, lesson and unit design, and assessment is important; it is recommended that students take EDU 400 before enrolling in this course.  

Prerequisite: Admission to teacher education.  

Class Meeting Time/Place: 2:00 to 2:50 MTWR, 8/23 – 10/14 in CS 101  

COURSE COMPETENCIES: The course will work toward all students reaching the following outcomes:  

- Students inquire and reflect to facilitate learning and foster student development.  
- Students create, organize, maintain, and evaluate caring communities to facilitate learning and foster student development.  
- Students demonstrate knowledge of mathematics and the attitudes and skills required for disciplined study in mathematics.  
- Students communicate effectively to facilitate learning and foster student development.  
- Students possess and demonstrate the values, demeanor, and reflective decision-making of professionals.  

COURSE GOALS: It is the course’s intent:  

- To have students examine and reflect on principles underlying the development of the 5-12 mathematics curriculum.  
- To have students examine and evaluate different learning theories and how these theories tie to the mathematics curriculum.  
- To have students examine and evaluate several different curricular models.  
- To present the role that assessment and outside groups (national, state, and local) play in curriculum development and teaching.  
- To expose students to mathematics teaching.
INSTRUCTIONAL MATERIALS:


**References:**

*Curriculum Update,* ASCD publication.
*Educational Leadership,* ASCD publication.
*Teaching Children Mathematics,* NCTM publication.
*Mathematics Teacher,* NCTM publication.
*Journal of Research in Mathematics Education,* NCTM publication.


COURSE OUTLINE:

I  Introduction to Mathematics Education
   A  History
   B  Standards-Based Curriculum
   C  Cooperative Learning
   D  Logic

II  Learning and Motivation
   A  Learning Theories
   B  Ways of Viewing Learning
   C  Motivation

III  Bruner
   A  Enactive Stage
   B  Ionic (Pictorial) Stage
   C  Abstract Stage

IV  Standards-Based Curricula
   A  Secondary
   B  Middle-School
   C  NCTM
   D  Nebraska

V  Planning
   A  Long-Range Planning
      a  Semester
      b  Unit
   B  Daily Lessons

VI  Assessment
   A  Purpose of Assessment
   B  Formative
   C  Summative
   D  Performance
   E  High-Stakes
      a  International
      b  National
      c  S.T.A.R.S.

COURSE REQUIREMENTS: Students are expected to participate in class discussions. Students are expected to read the text and additional resources. Students will keep a journal of reflections and answers to assigned questions. Students will also take a midterm examination and final examination.
**EVALUATION:** Students’ grades will be based on:

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class Participation</td>
<td>5</td>
</tr>
<tr>
<td><strong>Journal</strong></td>
<td>10</td>
</tr>
<tr>
<td>- Eight Problems</td>
<td></td>
</tr>
<tr>
<td>- Daily Reflections</td>
<td></td>
</tr>
<tr>
<td>- Reflection on Readings</td>
<td></td>
</tr>
<tr>
<td>Unit Plan</td>
<td>10</td>
</tr>
<tr>
<td>- Lesson Plans</td>
<td></td>
</tr>
<tr>
<td>- Unit Examination</td>
<td></td>
</tr>
<tr>
<td>- Alternative Assessment</td>
<td></td>
</tr>
<tr>
<td>Micro Teaching</td>
<td>15</td>
</tr>
<tr>
<td>- First Session (10 Minutes)</td>
<td></td>
</tr>
<tr>
<td>- Second Session (10 Minutes)</td>
<td></td>
</tr>
<tr>
<td>College Lesson</td>
<td>10</td>
</tr>
<tr>
<td>- MAT 110, MAT 116, MAT 210, ...</td>
<td></td>
</tr>
<tr>
<td>- Lesson Plan</td>
<td></td>
</tr>
<tr>
<td>Midterm</td>
<td>25</td>
</tr>
<tr>
<td>Final</td>
<td>25</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
</tr>
</tbody>
</table>
WSC STATEMENT OF STUDENT RESPONSIBILITIES:

Wayne State College strives to develop students of a wide range of academic abilities through quality teaching and support. It is our desire to prepare students to accept the privileges, duties, and responsibilities of global citizens; to develop moral and ethical values; to encourage creative ability and develop aesthetic judgments, to encourage the ability to think critically about their world and work; and promote competence in and understanding of fields of knowledge which are required of educated people.

To this end we, the faculty and staff of WSC, have established a standard of student responsibilities in the following statement:

All students will:

Take responsibility for their education. This will include:

- Being knowledgeable of academic requirements and college policies concerning registration, academic standing, payment of tuition and fees, withdrawal and graduation.
- Initiating communication with faculty, advisors and administration regarding questions, concerns and intellectual dialogue.

Cultivate an attitude of integrity both in and out of the class. Integrity is demonstrated by:

- Showing courtesy, dependability, honesty, and respect for instructor expectations concerning attendance, assignments, deadlines and appointments.
- Showing courtesy and respect toward others with diverse points of view in and out of class.
- Displaying a positive work ethic and a genuine interest in welfare of others.