Course Title: Teaching Mathematics in the Middle School

Catalog Description: Organization and methods of teaching mathematics in the middle school, including a 10-hour field experience. Prerequisite: MATH 160 or MTED 125.

Number of Credits: 3

Text:
- Articles from Teaching Mathematics in the Middle School a journal published by National Council of Teachers of Mathematics.

Course Outline:

I. Current trends and issues as specified by the National Council for Teachers of Mathematics (NCTM),
   a. Emphasis on new curricular directions for 5-8 mathematics in terms of content, organization and priorities.
   b. Foundations of Student-Centered Instruction
   c. Flexible Strategies for Teaching Mathematical Content

II. Classroom instruction of mathematics
   a. Modes of instruction
   b. Incorporation of manipulatives and models
   c. Individual differences of students
   d. Enriching mathematics through the selection and utilization of a variety of instructional media
   e. Cooperative learning in teaching mathematics.

III. Classroom assessment
   a. Questioning techniques
   b. Evaluation of student performance
   c. Techniques of motivation and problem solving.

IV. Teaching Strategies for Middle School Mathematics Content
   a. Fraction Concepts and Computation
   b. Geometric Thinking and Geometric Concepts
   c. Algebraic Reasoning
   d. Exploring Data Analysis and Probability
   e. Developing Measurement Concepts

Instructional delivery methods utilized: (Please check all that apply).

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<tr>
<th>Lecture: Auditorium</th>
<th>ITV</th>
<th>Online</th>
<th>Web Enhanced</th>
<th>Web Supplemented</th>
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<tr>
<td>Lecture: Classroom X</td>
<td>Service Learning</td>
<td>Travel Study</td>
<td>Laboratory X</td>
<td>Internship/Practicum</td>
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Other: (Please indicate)

Course requirements (papers, lab work, projects, etc.) and means of evaluation:
- Requirements: 15 hours of field experience, attendance, participation in class activities
- Evaluations: field experience, assignments, quizzes, exams, and a final exam.
List of references:


Rationale:

1. Statement of the major focus and objectives of the course.

   This course will focus on middle school mathematics pedagogy including the foundations of student-centered teaching and teaching strategies for middle school mathematics content specifically to algebra and algebraic thinking, fraction concepts and computation, geometric thinking and geometric concepts, probability, developing measurement concepts and data analysis.

2. Specify how this new course contributes to the departmental curriculum.

   This course will be part of a new Middle School Mathematics Minor. The minor will be part of the Department of Mathematics and Statistics.

The Core Belief Statement:

We exist to prepare professionals to continuously improve Birth-to-Grade 12 (B-12) student learning in twenty-first century schools. Through a continuum of clinical experiences and relevant and appropriate instructional methods, WSU graduates are prepared in a community of learners with developmentally appropriate content and pedagogical expertise, and professional dispositions to improve students' learning by: (1) actively engaging in a culture of reflective practice and continuous improvement (2) demonstrating awareness of and an ability to respond to broader psychosocial and global contexts; and (3) advocating for students and their learning through leadership, collaboration, innovation, flexibility, and critical thinking.

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<th>I. A teacher of mathematics must demonstrate an understanding of the teaching of mathematics that integrates understanding of mathematics with the understanding of pedagogy, students, learning, classroom management, and professional development. The teacher of mathematics to preadolescent and adolescent students shall:</th>
<th>MTED 222 From MTED 222 Syllabus:</th>
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<td>(1) understand and apply educational principles relevant to the physical, social, emotional, moral, and cognitive development of preadolescents and adolescents;</td>
<td>Week #1- Reading-NCTM Principles and Standards for School Mathematics (2000) (pp. 10-24) and writing assignment. Assessment: Issues Regarding Equity in the Classroom</td>
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<td>(5) understand the need for and how to connect students' schooling experiences with everyday</td>
<td>MTED 222 From MTED 222 Syllabus:</td>
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| Life, the workplace, and further educational opportunities; | Week #4: Reading “Representation in Realistic Mathematics Education” (Meyer, 2001).  
Week #6 Reading-NCTM Principals and Standards for School Mathematics (2000):  
- Data Analysis and Probability Standard for Grades 6-8 (pp. 248-255)  
- Connections Standard for Grades 6-8 (pp. 274-279).  
Assessment: Statistics and Connections, Algebra in the Middle School |
| (9) apply the standards of effective practice in teaching students through a variety of early and ongoing clinical experiences with middle level and high school students within a range of educational programming models. | MTED 222 From MTED 222 Syllabus:  
Week #1- Field experience component and writing assignment.  
Assessment: MTED 222 Field Experience, Reflection on MTED 222 Field Experience |