I. TITLE: Laboratory in Teaching Mathematics

II. COURSE DESCRIPTION: A concentrated laboratory experience for upper division students seeking middle school certification with a teaching field in mathematics. Includes directed and supervised teaching experience with middle school students in area schools. Prerequisites: EDU 303, MID 270, Admission to Teacher Ed

III. COURSE PURPOSE: This course will provide directed and supervised teaching experience in partial fulfillment of the requirements for the Murray State University middle school math teacher preparation program. This course is designed to enable students to understand and facilitate the teaching of mathematics, both in process and content. It will enable students to increase and apply skills in planning, development, and implementation of instruction in the middle school grades, and assist students in preparing for student teaching.

IV. COURSE OBJECTIVES: The behaviors indicated below are understood to be reflective of, but not limited to those behaviors advocated by the Kentucky Teacher Internship Program and/or Kentucky Educational Reform Act guidelines. Following each objective, and enclosed in parentheses, are numbers that reference the Kentucky Teacher Standards for Preparation and Certification (KTS).

Through active participation in this course and its related projects and activities, the student will be able to
A. Demonstrate awareness of the National Council of Teachers of Mathematics Principles and Standards (NCTM), the KERA Goals, and the associated academic expectations and core content statements in the instructional planning process for middle school mathematics teaching. (KTS #1, 2, 9)
B. Develop instructional goals, learning objectives, and lesson plans for middle school mathematics students. (KTS #2, 4)
C. Demonstrate several approaches to teaching middle school mathematics, with emphasis on problem solving, deductive reasoning, and inductive reasoning. (KTS #2, 3, 4, 6)
D. Identify, assess, and interpret middle school student progress in the learning of mathematics content and process skills. (KTS #1, 5)
E. Plan and carry out appropriate interventions designed to help middle school students having difficulty with mathematics content or process skills, including those with special needs. (KTS #4, 5, 7)
F. Demonstrate awareness of issues and teaching strategies related to ensuring the continued involvement of equity and diversity in mathematical studies. (KTS #2, 3, 5, 7)
G. Carry out planned mathematics instruction in a middle school classroom under direct supervision. (KTS #4, 6, 8)

H. Review computer-based and traditional instructional materials for suitability in middle school mathematics teaching. (KTS #2, 3, 4, 6)

I. Demonstrate acceptable professional behavior and knowledge of the rights of individuals in a middle school setting. (KTS #7, 9)

The COE Theme of Educator as Reflective Decision-Maker is addressed in this course by requiring students to reflect on lessons taught, Working Portfolio Entries, and Professional Growth Plan.

The EPSB Themes of Diversity, Assessment, Literacy/Reading, and Closing the Achievement Gap are explored in the course through various chapters within the text and more specifically in topics chosen for the research paper.

V. CONTENT OUTLINE:
   A. Developmentally appropriate teaching and curriculum
   B. KERA Goals and Mathematics Academic Expectations
   C. KERA Mathematics Core Content for Middle Grades
      1. Number/Computation
      2. Geometry/Measurement
      3. Probability/Statistics
      4. Algebraic Ideas
   D. National Council of Teachers of Mathematics Principles and Standards
   E. Approaches to teaching KERA Mathematics Core Content
   F. Mathematics thinking process skills
   G. Assessing and assisting student progress
   H. Encouraging continued involvement of diversity and equity in mathematics
   I. Use of technology in teaching/learning mathematics
   J. Clinical and field experiences and requirements

VI. INSTRUCTIONAL ACTIVITIES:
   A. Active and positive participation in large and small group discussions
   B. Participation in cooperating schools
   C. Reading of assigned materials
   D. Completion of papers and assignments:
      1. Reports from field experiences
      2. Lesson plans from field and course experiences
      3. Portfolio development project
      4. Reflective journaling
   E. Lectures
   F. Computer based projects
   G. In-Class assignments

VII. FIELD, CLINICAL, AND/OR LABORATORY EXPERIENCES:
Students will collaborate with university professors, public school teachers, middle school students, and class peers for a minimum of 12 clock hours of field experience.
NOTE: You must reschedule any missed practicum experience in consultation with the cooperating public school teacher and the course instructor. A key component of the clinical experience is the completion of a variety of projects and assembly of this work into a field experience portfolio.

VIII. RESOURCES:
A. Selected printed material
B. Waterfield Library
C. Computer Center
D. Internet
E. Math Materials in Math Lab
F. Area middle schools
G. Curriculum Materials Center
H. National Council Teacher’s of Mathematics
I. Kentucky Department of Education

IX. GRADING PROCEDURES:
Grades will be earned for participation and performance in individual, group, and whole-class instructional activities. Articulation, professionalism, standard English, and neatness are extremely important in presentations and written assignments. Grades will be earned based upon completion of the classroom activities and participation in a field experience.

Grading Scale (by average) (letter)

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<thead>
<tr>
<th>Average</th>
<th>Letter</th>
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<tbody>
<tr>
<td>100-90</td>
<td>A</td>
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<tr>
<td>89-80</td>
<td>B</td>
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<td>79-70</td>
<td>C</td>
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<tr>
<td>69-60</td>
<td>D</td>
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<tr>
<td>59 and below</td>
<td>E</td>
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Course Assignments

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<tr>
<th>Assignment</th>
<th>Points Possible</th>
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<tbody>
<tr>
<td>*Field Experience Portfolio</td>
<td>pass/fail</td>
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<tr>
<td>Mathematics Concept Papers (3)</td>
<td>75 points</td>
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<tr>
<td>Mathematics Instructional Strategies Project</td>
<td>25 points</td>
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<tr>
<td>Concept Based Unit of Study</td>
<td>50 points</td>
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<tr>
<td>AIMS Lesson Concept Presentation</td>
<td>25 points</td>
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<tr>
<td>Chapter Outlines</td>
<td>10 points per chapter</td>
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<tr>
<td>*Mathematics Resource/Project Notebook</td>
<td>500 points</td>
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<tr>
<td>Math Trail</td>
<td>25 points</td>
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<tr>
<td>Final</td>
<td>100 points</td>
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*Several components are evaluated to arrive at the points possible.
X. ATTENDANCE POLICY:
This course adheres to the attendance policy published in the current MSU Undergraduate Bulletin.
Note: Your attendance at the required class meetings and practicum field experiences is expected and essential for the successful completion of this course. If you must miss a commitment for unavoidable reasons, contact the instructor in advance. This class is highly participatory and process-oriented class, therefore, attendance plays an important part in the student’s success. Students MUST e-mail or telephone the instructor indicating the reason for any absence (preferably before class). Students MUST contact the instructor before the beginning of the scheduled class time. More than one absence will lead to a drop of one letter grade in this course and also a flag will be placed in the students’ file in Teacher Education Services.

XI. ACADEMIC HONESTY POLICY:
This course adheres to the academic honesty policy published in the current MSU Undergraduate Bulletin.

XII. TEXT AND REFERENCES:
College LiveText-EDU Solutions Student Membership/CHAMPs
Three ring binder (three inches recommended) with dividers

XIII. PREREQUISITES: EDU 303, MID 270, AND ADMISSION TO TEACHER EDUCATION

XIV. NON-DISCRIMINATION POLICY STATEMENT:
Murray State University endorses the intent of all federal and state laws created to prohibit discrimination. Murray State University does not discriminate on the basis of race, color, national origin, gender, sexual orientation, religion, age, veteran status, or disability in employment, admissions, or other provision of services and provides, upon request, reasonable accommodation including auxiliary aids and services necessary to afford individuals with disabilities equal access to participate in all programs and activities. For more information, contact Director of Equal Opportunity, Murray State University, 103 Wells Hall, Murray, KY 42071-3318. Telephone: 270-809-3155 (voice), 270-809-3361 (TDD).

XV. FLAG SYSTEM/ CONTINUOUS ASSESSMENT
Student progress is continuously assessed throughout the teacher preparation program. Appropriate professional characteristics and demeanors, in addition to academic achievement, are assessed. Positive and negative flags are submitted by faculty to Teacher Education Services and then presented to admissions committees. Negative flags are carefully reviewed to make a determination as to whether a student should be denied admission OR if a professional development plan will be designed for the student’s progress towards program completion. NEGATIVE FLAGS MAY BE
GROUND FOR DENIAL OF ADMISSION TO TEACHER EDUCATION AND/OR STUDENT TEACHING.

Note: The instructor expects that cell phones, pagers, and other electronic paging devices will be turned off during class time (unless an emergency dictates otherwise). This includes text messaging.

Note: Students are expected to dress professionally for all microteaching sessions, in class presentations, and practicum experiences.