

**MURRAY STATE UNIVERSITY**

**DEPARTMENT: Early Childhood and Elementary Education**

**COURSE PREFIX: ELE      COURSE NUMBER: 400      CREDIT HOURS: 3**

**I. TITLE:** Strategies and Assessment for Teaching Mathematics in the Elementary School

**II. COURSE DESCRIPTION AND PREREQUISITE(S):** A practicum that involves field and classroom learning experiences in implementing methods and materials of teaching and assessing mathematics in a public school classroom.

**Prerequisite(s):** admission to Teacher Education, ELE 304, MAT 115, and MAT 215,

**III. COURSE OBJECTIVES:**

Class activities will be centered on the attainment of the course objectives listed below. Kentucky Core Academic Standards (KCAS) and Assessment Literacy. Following each objective, and enclosed in parentheses, are numbers that reference the Kentucky Teacher Standards for Preparation and Certification (KTS) and the National Council of Teachers of Mathematics (NCTM), Interstate Teacher Assessment and Support Consortium (InTASC), and the Council for the Accreditation of Education Preparation (CAEP) standards addressed by that objective. Upon successful completion of this class, students will be able to

- A.** design, plan, and implement instruction that addresses KCAS (KTS 1, 2, 4, 6/ NCTM 1, 2, 5, 6/InTASC 4, 7, 8/CAEP 1,2);
- B.** discuss the nature of the mathematical thinking process of students in grades P-5 (KTS 1, 7/ NCTM: 1, 2, 3, 4, 5, 6/ InTASC 2/CAEP 3);
- C.** apply theories associated with mathematics and concept development (KTS 1, 2,3,4,7// NCTM 1, 2, 3/ InTASC 4, 5, 7,8/CAEP 1);
- D.** demonstrate competency in designing, scoring, and interpreting performance-based assessment tasks (KTS 5,6,7/ NCTM 6/ InTASC 6/CAEP 1);
- E.** develop short-term and long-term plans for the teaching of mathematics (KTS 2,3,4,5,6,7/ NCTM 1, 5, 6/ InTASC 7/ CAEP 1);
- F.** select, create, and use various materials for the teaching of mathematics (KTS 2,4/ NCTM 4/ InTASC 4, 5,7, 8/ CAEP 2);
- G.** collaborate with supervising teachers and peers to provide the optimal mathematics environment for students (KTS 3,8,10/ NCTM 5,6/ InTASC 3,10 CAEP 1,2);
- H.** develop and implement a professional development plan with a focus on the teaching and learning of mathematics (KTS 9/ NCTM 2/ InTASC 9/ CAEP 2);
- I.** reflect upon their teaching and upon their growth and development as reflective decision-makers (KTS 7/ NCTM 1, 2/ InTASC 9/ CAEP 2); and
- J.** utilize a variety of instructional technologies and mathematics interventions (KTS 4,6/ NCTM 4/ InTASC 7, 8/ CAEP 1, 2).

The COE Theme of Educator as Reflective Decision-Maker is addressed in this course by requiring students to reflect on practicum experiences by responding to discussion board prompts, creating working portfolio entries, and creating professional

development plans. The COE emphasis on constructivism is addressed when discussing mathematics development through active involvement in authentic learning experiences. The COE student dispositions are formally assessed during evaluation of students' Professional Development Plans and practicum experiences.

The CAEP/EPBSB themes of Diversity, Reading/Literacy, Assessment, and Closing the Achievement Gap are addressed throughout the course. Diversity will be addressed through lesson plans, readings, and discussions. Furthermore, students will complete an inquiry project investigating how diversity impacts the public school setting, especially in mathematics. Reading and literacy will be addressed and assessed on an assignment, Literacy and Mathematics Connections. The themes of Assessment and Closing the Achievement Gap will be addressed in dynamic assessment projects, unit development, open response questions, student error analysis, and lesson plans.

Through class activities, students increase their ability to become highly effective teachers and reflective decision-makers who use classroom assessment for student learning.

#### **IV. CONTENT OUTLINE:**

- A.** Strategies of Teachers in Best Practice for Teaching Mathematics
- B.** Dynamic Assessment
- C.** Open Response and Rubric design
- D.** Student Error Analysis
- E.** Student Error Diagnosis
- F.** Mathematics Instruction for Diverse Learners
- G.** Elements of Mathematical Thinking
- H.** Technology Integration into the Mathematics Classroom
- I.** KERA Mathematics Initiatives (SB1, KCAS, etc.)
- J.** Mathematics Connections to other Disciplines

#### **V. INSTRUCTIONAL ACTIVITIES:**

This course stresses active participation and reflection. Students construct, implement, and reflect upon a variety of lessons and informal assessments.

- A.** Professional Growth Plan: Students create a professional growth plan.
- B.** Presentations: Students present demonstrations of instructional methods from the text
- C.** Lesson and assessment requirement: Students will design several types of mathematics lessons and assessments which include a Kentucky Core Content Test assessment project, Diagnostic/Remediation Project, evaluation report, and student error patterns.
- D.** Unit and Lesson Plans: Students create a unit and lesson plans that address KERA Initiatives to use in their practicum experience and reflect on each of the lesson plans.

**VI. FIELD, CLINICAL, AND/OR LABORATORY EXPERIENCES:**

A minimum of 20 hours of field experiences are required in this course. Students will teach mathematics to elementary school students. **To earn a grade in this course, students must successfully complete the required field experiences and record the hours and related components on the *LiveText FEM* site. Students are also expected to record field experiences in KFETS.**

**VII. TEXT(S) AND RESOURCES:**

Sherman, H. J., Richardson, L. I., & Yard, G. J. (2009). *Teaching learners who struggle with mathematics, systematic intervention and remediation*. Prentice Hall.

**VIII. EVALUATION AND GRADING PROCEDURES:**

Students will be graded based upon their successful completion of course assignments including but not limited to field experience evaluations, professional growth plan, assessment presentations, TPA unit and lesson plans, examinations, teacher resource file, case report, chapter outlines, math and literacy assignment, and diversity report. The lesson plan will serve as the common course artifact for this course.

**Assignments:**

Chapter Assignments	100 pts.
MidTerm	100 pts.
Final	100 pts.
Field Experience Requirements	100 pts.
Math Content	100 pts.
Microteaching	50 pts.
STEM presentation	50 pts.
Numeracy Project	50 pts.

**Grading Scale:**

A: 100-90  
 B: 89-80  
 C: 79-70  
 D: 69-60  
 E: 59 and below

**IX. ATTENDANCE POLICY:**

Students are expected to adhere to the MSU Attendance Policy outlined in the current *MSU Bulletin*.

**X. ACADEMIC HONESTY POLICY:**

Murray State University takes seriously its moral and educational obligation to maintain high standards of academic honesty and ethical behavior. Instructors are expected to evaluate students' academic achievements accurately, as well as ascertain that work submitted by students is authentic and the result of their own efforts, and consistent with established academic standards. Students are obligated to respect and abide by the basic standards of personal and professional integrity.

**Violations of Academic Honesty include:**

**Cheating** - Intentionally using or attempting to use unauthorized information such as books, notes, study aids, or other electronic, online, or digital devices in any academic exercise; as well as unauthorized communication of information by any means to or from others during any academic exercise.

**Fabrication and Falsification** - Intentional alteration or invention of any information or citation in an academic exercise. Falsification involves changing information whereas fabrication involves inventing or counterfeiting information.

**Multiple Submission** - The submission of substantial portions of the same academic work, including oral reports, for credit more than once without authorization from the instructor.

**Plagiarism** - Intentionally or knowingly representing the words, ideas, creative work, or data of someone else as one's own in any academic exercise, without due and proper acknowledgement.

Instructors should outline their expectations that may go beyond the scope of this policy at the beginning of each course and identify such expectations and restrictions in the course syllabus. When an instructor receives evidence, either directly or indirectly, of academic dishonesty, he or she should investigate the instance. The faculty member should then take appropriate disciplinary action.

Disciplinary action may include, but is not limited to the following:

- 1) Requiring the student(s) to repeat the exercise or do additional related exercise(s).
- 2) Lowering the grade or failing the student(s) on the particular exercise(s) involved.
- 3) Lowering the grade or failing the student(s) in the course.

**If the disciplinary action results in the awarding of a grade of E in the course, the student(s) may not drop the course.**

Faculty reserve the right to invalidate any exercise or other evaluative measures if substantial evidence exists that the integrity of the exercise has been compromised. Faculty also reserve the right to document in the course syllabi further academic honesty policy elements related to the individual disciplines.

A student may appeal the decision of the faculty member with the department chair in writing within five working days. Note: If, at any point in this process, the student alleges that actions have taken place that may be in violation of the Murray State University Non-Discrimination Statement, this process must be suspended and the matter be directed to the Office of Equal Opportunity. Any appeal will be forwarded to the appropriate university committee as determined by the Provost.

**XI. NON-DISCRIMINATION POLICY AND STUDENTS WITH DISABILITIES:**

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 the 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 the Executive Director of Institutional Diversity, Equity and Access, 103 Wells Hall, (270) 809-3155 (voice), (270) 809-3361 (TDD).

Students with Disabilities

Students requiring special assistance due to a disability should visit the Office of Student Disability Services immediately for assistance with accommodations. For more information, students should contact the Office of Student Disability Services, 423 Wells Hall, Murray, KY 42071. 270-809-2018 (voice) 270-809-5889(TDD).

**XII. FLAG SYSTEM/CONTINUOUS ASSESSMENT:**

Student progress is continuously assessed throughout the teacher preparation program. Appropriate professional characteristics and dispositions, 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 GROUNDS FOR DENIAL OF ADMISSION TO TEACHER EDUCATION AND/OR STUDENT TEACHING.**