

Murray State University
COMMON SYLLABUS

DEPARTMENT: EARLY CHILDHOOD AND ELEMENTARY EDUCATION

COURSE PREFIX: ELE

COURSE NUMBER: 308

CREDIT HOURS: 3

Revised 2015

I. TITLE: Teaching Mathematics and Science in Early Childhood

II. COURSE DESCRIPTION AND PREREQUISITE(S): This course is a study of mathematics and science curriculum and research-based teaching practices for early childhood. Field experience required.

Prerequisites: None

III. COURSE OBJECTIVES:

Class activities will be centered on the attainment of the course objectives listed below. Following each objective, and enclosed in parentheses, are numbers which reference the Kentucky IECE New Teacher Standards for Preparation and Certification (IECE), the National Council for Teachers of Mathematics Standards (NCTM), the National Science Education Standards (NSES), the National Association for the Education of Young Children Standards (NAEYC), and the Interstate Teacher Assessment and Support Consortium Standards (InTASC) addressed by that objective. Upon successful completion of this class, students will be able to

- A. demonstrate appropriate use of psycho-motor and perceptual aids to teach mathematics and science concepts and skills. (IECE I, II,III, V; NCTM 1-13; NSES A-F; NAEYC 3, 5; InTASC 4, 5, 6, 7, 8);
- B. demonstrate the ability to sequence learning from real experiences to concrete experiences. (IECE I, II,III,V,VIII; NCTM 1-13; NSES A-F; NAEYC 3, 5; InTASC 4, 5, 7, 8);
- C. demonstrate a variety of ways of reinforcing learning for mastery. (IECE I,II, III; NCTM 1-13; NSES A-F; InTASC 8);
- D. demonstrate knowledge of affective concerns in learning mathematics and science. (IECE I, II, III; NCTM 4; NSES A-F; NAEYC 1, 4; InTASC 1)
- E. demonstrate knowledge of the scope and sequence of concepts and skills of mathematics and science in early childhood. (IECE I, III; NCTM 1-13; NSES A-F; NAEYC 5; InTASC 4);
- F. demonstrate models consistent with the Principles and Standards of the NCTM and NSTA (NCTM 1-13; NSES A-F);
- G. demonstrate ability to integrate mathematics and science into other content area instruction. (IECE I, III, IV; NCTM 1-13; NSES A-F; NAEYC 5; InTASC 4, 5, 7);
- H. prepare mathematics and science materials to teach lessons to young children. (IECE I, II; NCTM 1; NSES A-F; NAEYC 4; InTASC 7); and
- I. demonstrates effective questioning techniques with peers and children during mathematics and science lessons. (IECE III, IV; NCTM5-6; NSES A-F; NAEYC 3, 4; InTASC5, 8).

The College of Education Theme of Educator as a Reflective Decision-Maker is addressed in this course by requiring students to reflect on lesson plans and through the student reflective journals.

The EPSB Themes of Diversity, Assessment, Literacy/Reading and Closing the Achievement Gap are explored in the course through various chapters in the text and other assigned readings, lesson plans, and student reflective journals.

IV. CONTENT OUTLINE:

- A. Concept development in mathematics and science
- B. Fundamental skills and concepts in mathematics and science
- C. Applying skills and concepts in mathematics and science
- D. Developing mathematics and science concepts and operations in early childhood
- E. The mathematics and science environment
- F. Project Approach development and implementation
- G. Use of computers and other technology
- H. Adapting mathematics and science teaching for all children
- I. Utilizing family involvement to reinforce mathematics and science concepts
- J. Mathematics and science connections to other subjects

V. INSTRUCTIONAL ACTIVITIES:

- A. Group discussions (small and large)
- B. Hands-on Activities
- C. Lectures and guest speakers
- D. Instructional Planning
- E. Field Experiences
- F. Computer Activities
- G. Reflections and Assessments
- H. Textbooks
- I. Group Demonstrations

VI. FIELD, CLINICAL AND/OR LABORATORY EXPERIENCES:

Students will complete 12 hours of field experiences (6 hours in Prechool setting and 6 hours in kindergarten setting). Students are required to teach lessons during visits to classrooms. All students are to show extensive planning for each practicum class, provide hands-on experiential learning, and engage students. MSU students are expected to dress professionally for each school visit. **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.**

- A. Students will use the Kentucky Teacher Internship Plan (KTIP-TPA) lesson plan format.
- B. Each person is required to submit lesson plans to the instructor and cooperating teacher.
- C. Each student will maintain a reflective journal recording his/her daily thoughts about his/her

experiences working with children.

- D. During the class period following each teaching experience, each student should submit an impact/refinement paper reflecting upon the effectiveness of the previous lesson. The reflection should include an analysis of positive outcomes and areas where improvement is still needed. The how's, where's, when's, and why's must be addressed to demonstrate the role of the teacher as a "reflective decision maker." Each student will use the standards established by the Educational Professional Standards Board (EPSB) when writing the reflection paper.
- E. Each student will create a field experience portfolio containing all lesson plans, reflective statements, and personal reflective journal entries.
- F. Each student will identify one field experience lesson plan to include in his/her Murray State University working e-portfolio. An extensive reflective statement which identifies how the lesson plan addresses one IECE New Teacher Standard will be included in the working e-portfolio.
- G. Unexcused absences for field experiences will not be tolerated. The school, the teacher and the children expect us to fulfill our commitment to them. Students will receive a flag for an unexcused absence for field experiences and will be encouraged to drop the course.

VII. TEXT AND REFERENCES:

Required:

Gelman, R., Brenneman, K., MacDonald, G., & Roman, M. (2010). *Preschool pathways to science*. Baltimore, MA: Brookes Publishing.

National Head Start Family Literacy Center. (2011). *High five mathematize : an early head start and head start math resource guide*. Camarillo, CA: National Head Start Family Literacy Center.

Dombro , A. L., Jablon, J., & Stetson, C. (2011). *Powerful interactions: How to connect with children to extend their learning*. Washington, D.C.: National Association for the Education of Young Children.

College LiveText-EDU Solutions Student Membership

Other required readings given by the instructor

VIII. GRADING PROCEDURES:

Grades will be awarded for performance in accordance with the scale below. Attendance will be considered when calculating the final grade.

Assignment	Points Possible
Chapter Outlines	50 points
Quizzes	10 points each
Standards Based Unit of Study	75 points
Practicum Experience Notebook	20 points
Resource/Project Notebook	500 points
Teacher Toolbox of Teaching Strategies	25 points

Discussion Board entries of assigned readings	50 points
Midterm	75 points
Math and Science Centers	25 points each
MicroTeaching	50 points
Final	100 points
	Total: 1,000 points

Percentage	Grade
93-100	A
80-92	B
70-79	C
60-69	D
0-59	E

IX. ATTENDANCE POLICY:

This course adheres to the attendance policy published in the current MSU *Bulletin*.

Note: Students are expected to attend all class meetings and field experiences. It is expected that students missing class for any reason shall notify the professor in advance. If not by e-mail then a phone call would be acceptable (I have an answering machine). Students assume responsibility for informing the professor of a tardy arrival and absences. Greater than two absence (including illness, family emergencies, medical, etc.) may result in any of the following consequences: the final grade may be lowered by one or more letter grades and a negative flag will be placed on materials submitted to Teacher Education Services, and a professional growth plan developed. Further, three(3) unexcused tardies shall mean one absence. The instructor reserves the right to ask for documentation for the reason of an absence. The student is responsible for making up any absence (at the discretion of the instructor). Please note that an absence during the field experience will not be tolerated (absence during the field experience will warrant consultation to drop the course).

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 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 GROUNDS FOR DENIAL OF ADMISSION TO TEACHER EDUCATION AND/OR STUDENT TEACHING.

NOTE: The instructor reserves the right to make changes to course activities and assignments as deemed necessary.