Murray State University
COMMON SYLLABUS

DEPARTMENT: ECE COURSE NUMBER: 308 CREDIT HOURS: 3

Revised Spring 2013

I. TITLE: Teaching Mathematics and Science in Early Childhood

II. COURSE DESCRIPTION: This course is a study of mathematics and science curriculum and research-based teaching practices for early childhood. Field experience required. Prerequisites: **FCS 210 and FCS 211.**

III. COURSE OBJECTIVES:

Class activities will be centered on the attainment of the course objectives listed below. These objectives are understood to be reflective of, but not limited to, those behaviors advocated by the Kentucky Education Reform Act guidelines. Following each objective, and enclosed in parentheses, are numbers which reference the Kentucky IECE New Teacher Standards for Preparation and Certification (IECE KTS), the National Council for Teachers of Mathematics Standards (NCTM) and the National Science Education Standards (NSES) addressed by that objective. As a result of participation in this course, students will be able to:

A. Demonstrate appropriate use of psycho-motor and perceptual aids to teach mathematics and science concepts and skills. (IECE KTS #1,2,3,5) (NCTM 1-13) (NSES A-F)
B. Demonstrate the ability to sequence learning from real experiences to concrete experiences. (IECE KTS #1,2,3,5,8) (NCTM 1-13) (NSES A-F)
C. Demonstrate a variety of ways of reinforcing learning for mastery. (IECE KTS #1,2,3) (NCTM 1-13) (NSES A-F)
D. Demonstrate knowledge of affective concerns in learning mathematics and science. (IECE KTS #1,2,3) (NCTM 4) (NSES A-F)
E. Demonstrate knowledge of the scope and sequence of concepts and skills of mathematics and science in early childhood. (IECE KTS #1,3,4) (NCTM 1-13)(NSES A-F)
F. Demonstrate models consistent with the Principles and Standards of the NCTM and NSTA (IECE KTS #1-9) (NCTM 1-13)(NSES A-F)
G. Demonstrate ability to integrate mathematics and science into other content area instruction. (IECE KTS # 1,3,4) (NCTM 1-13)(NSES A-F)
H. Prepare mathematics and science materials to teach lessons to young children. (IECE KTS# 5) (NCTM 1) (NSES A-F)
I. Demonstrate effective questioning techniques with peers and children during mathematics and science lessons. (IECE KTS#2, 3, 4) (NCTM5-6) (NSES A-F)

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.

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
MicroTeaaching	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 *Undergraduate 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:

This class adheres to the academic honesty policy found in the current MSU *Undergraduate Bulletin.*

Note: All assignments shall be submitted electronically and in hard copy form. Also, copying word for word from the source is not permitted and it is considered plagiarism.

XI. STATEMENT OF AFFIRMATIVE ACTION AND EQUAL OPPORTUNITY:

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 information regarding nondiscrimination policies contact the Office of Equal Opportunity, 270-809-3155.

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 expects cell phones, pagers, and any other electronic paging devices will be turned off (unless an emergency dictates otherwise) and stored away (not visible or used during class). This includes text messaging.

Note: Students are expected to dress professionally for all field experiences and class presentations.

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

Murray State University - College of Education

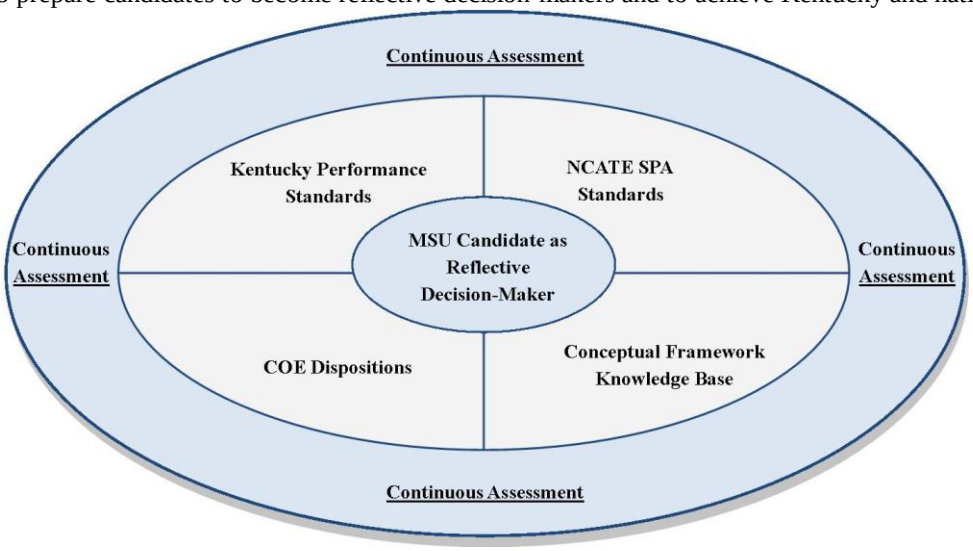
Conceptual Framework

The goal of Murray State University's preparation program is to produce candidates who demonstrate the characteristics of a Murray State graduate, the proficiencies delineated by **Kentucky Standards** and the by the knowledge required by learned societies; thereby practicing as **Reflective Decision-Makers**, the theme of our College. The following student **Dispositions** arise from the theme and are the values, commitments, and professional ethics that MSU engenders in its candidates. The Murray State University undergraduate candidate will become an educator who is:

1. **Inclusive** – Is an advocate for an inclusive community of people with varied characteristics, ideas, and worldviews.
2. **Responsible** – Considers consequences and makes decisions in a rational and thoughtful manner for the welfare of others; acts with integrity to pursue an objective with thoroughness and consistency.
3. **Enthusiastic** – Is eager and passionately interested in tasks that relate to beliefs about education.
4. **Caring** – Demonstrates regard for the learning and wellbeing of every student.
5. **Confident** – Exhibits certainty about possessing the ability, judgment, and internal resources needed to succeed as a teacher.
6. **Ethical** – Conforms to accepted professional standards of conduct by making decisions based on standards and principles established by the education profession.

The Murray State University **graduate candidate** sustains the undergraduate dispositions, but with a maturing expertise also embraces the disposition of **leadership** defined as ethical change agent who acts to inspire classrooms, schools, districts, and communities.

The **Knowledge Base** including research, theory, philosophy, and practice is the foundation that informs faculty and guides program goals. The success of the program is determined by program outcomes, **Kentucky Teacher Standards, Kentucky Interdisciplinary Early Childhood Education Teacher Standards, Interstate School Leaders Licensure Consortium Standards, National Association of School Psychologists Standards, Council for Accreditation of Counseling and Related Educational Programs** and NCATE SPA standards for all certified programs so that the contributions of learned societies inform College program goals. **Continuous Assessment** connects all elements of the conceptual framework where each program is responsible for utilizing student assessment data as a basis for program improvement. The focus of the conceptual framework is to prepare candidates to become reflective decision-makers and to achieve Kentucky and national standards:



Note: A more extensive version of the Conceptual Framework that includes the Knowledge Base is available to students and other interested individuals at: http://coekate.murraystate.edu/ncate/st/cf/conceptual_framework.htm, or may be obtained through any College of Education department.

Revised Fall 2011