I. **TITLE:** Integrating Science across the Curriculum

II. **COURSE DESCRIPTION:** A laboratory-centered course planned for the development of skills in the design and evolution of experiences for teaching science in the elementary school. Experiences dealing with new elementary science curricula and current research are provided.

III. **PURPOSES:** The purposes of this course are to:
   A. renew students’ awareness, interest, and confidence in science teaching.
   B. review important science methods and teaching concepts.
   C. provide students with a solid foundation for implementing inquiry-based elementary science teaching.

IV. **COURSE OBJECTIVES:**
   The behaviors indicated below are understood to be reflective of, but not limited to those teacher behaviors advocated by the Kentucky Education Reform Act guidelines. Curriculum connections will be made with KERA Initiatives: Kentucky Learner Goals and Academic Expectations, Program of Studies, and Core Content. Following each objective, and enclosed in parentheses, are numbers that reference the Kentucky Experienced Teacher Standards (KTS). At the end of this course, students will be able to:
   A. Describe the role of the National Science Education Standards in current science teaching. (KTS 2,4,5,7)
   B. Demonstrate the ability to design effective science experiences for elementary children. (KTS 3,4,8)
   C. Explain how to create a learning environment that supports inquiry-based science teaching. (KTS 5)
   D. Demonstrate effective questioning techniques for science lessons. (KTS 3, 8)
   E. Identify science program materials and commercial products used in elementary science teaching. (KTS 3,4,5)
   F. Describe and show how other subject areas can be integrated with the teaching of science. (KTS 4,7)
   G. Demonstrate proficiency with a computer in science related activities. (KTS 4,5)
   H. Demonstrate the ability to reflect on one’s teaching, analyze its effectiveness, and make appropriate changes. (KTS 2,6,9)
   I. Demonstrate an understanding of the role of collaboration, the importance of the rights of individuals, and accepted professional behavior. (KTS 1,2,6)

The COE Theme of Educator as Reflective Decision-Maker is addressed in this course by requiring students to reflect upon best practices in science teaching based upon Kentucky documents and national science standards.
The EPSB Themes of Assessment and Closing the Achievement Gap are major themes explored in the course through various laboratory-centered activities and reflections upon best practices in science teaching.

V. CONTENT OUTLINE:
   A. Scientific and technological literacy
   B. Science learning
   C. Teacher as facilitator
   D. Role of questions and listening
   E. Assessment
   F. Effective planning
   G. Selecting materials
   H. Integrating with other subject areas
   I. Adapting science teaching for all
   J. Using technology

VI. INSTRUCTIONAL ACTIVITIES:
   A. Group discussions
   B. Question generation
   C. Group hands-on investigations
   D. Lectures and guest speaker
   E. Instructional planning
   F. Individual projects
   G. Inservice teaching
   H. Textbook reading
   I. Computer activities
   J. Portfolio design and compilation
   K. Reflections and assessments

VII. FIELD, CLINICAL AND/OR LABORATORY EXPERIENCES: NONE

VIII. RESOURCES:
   A. Waterfield Library - MSU main campus
   B. NASA Educational Resource Center
   C. Center for Environmental Education
   D. Computer laboratory

IX. GRADING PROCEDURES:
Students’ work will be evaluated based upon their ability to successfully complete instructional activities such as group investigations, individual projects, reflections, and assessments. Grades will be awarded using the following scale:

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Grade</th>
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<tbody>
<tr>
<td>90-100%</td>
<td>A</td>
</tr>
<tr>
<td>80-89 %</td>
<td>B</td>
</tr>
<tr>
<td>70-79 %</td>
<td>C</td>
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X. **ATTENDANCE POLICY:** This course adheres to the policy published in the current *MSU Graduate Bulletin.*

XI. **ACADEMIC HONESTY POLICY:** This course adheres to the policy published in the current *MSU Graduate Bulletin.*

XII. **PREREQUISITES:** NONE

XIII. **TEXT AND REFERENCES:** Text to be determined.

XIV. **STATEMENT OF AFFIRMATIVE ACTION AND EQUAL OPPORTUNITY:**
Murray State University does not discriminate on grounds of race, color, gender, sexual orientation, religion, national origin, age, disability, or veteran's status in providing any educational or other benefits services of Murray State University to students or those applying for admission at Murray State University. Murray State University attempts to provide equal opportunity in all areas of student admissions, financial aid, employment, and placement and provides upon request, reasonable accommodation including auxiliary aids and services necessary to afford individuals with disabilities an equal opportunity to participate in all programs and activities.