

SOUTHEAST MISSOURI STATE UNIVERSITY COURSE SYLLABUS

Department of Science Education

Course No. ST 610

Title of Course: Integrated Science

New: Fall 2002

I. Catalog Description and Credit Hours of the Course

An emphasis on the integrated nature of science in the natural environment and the design, development and study of teaching units integrating various topics from the fields of biology, chemistry, geosciences, and physics that are appropriate for science classes in a variety of settings, including the public schools. (3 credits)

II. Prerequisites

Consent of Instructor

III. Purposes or Objectives of the Course

1. Provide students with a greater appreciation of the integrated nature of science in the natural environment.
2. Explore the educational ramifications of employing an integrated science approach at the K-12 level.
3. Acquaint students with methods and strategies for generating, incorporating, and teaching integrated science in K-12 schools.
4. Impart discipline content as needed in the understanding of addressed integrated science topics.
5. Provide experience in the actual design, development, and delivery of an integrated unit.
6. Acquaint students with integrated science experiences and activities appropriate for inclusion in integrated science units.

IV. Expectations of Students

1. Participate in active learning and discussion in the classroom.
2. Prepare a science unit integrating at least 2 different science disciplines and another non-science discipline of their choice.
3. Present/teach their unit to the class. The presentation will:
 - provide science content
 - include evaluation tools
 - include classroom applications appropriate for a chosen grade level
4. Review assigned articles relating to the topics, posting their analysis and comments on the Web Board in preparation for class discussion.
5. Demonstrate and critique at least one software program suitable for an integration unit.

6. Use the Web Board to share reactions to topics, assignments, ideas for classroom applications, and other commentary.
7. Attend class regularly.
8. Perform satisfactorily on exams and quizzes.

V. Course Content or Outline

<u>Week</u>	<u>Topic</u>	<u>Hours</u>
1	<u>Introduction</u> An overview of the course, requirements, and required project. Computer time will be provided to introduce students to the Web Board.	3
2	<u>Examination of Computer Software</u> Introduction to several programs and web sites appropriate for Integrating science topics into the classroom.	3
3-10	<u>Integrated Unit(s)</u> Students will be introduced to the sequential presentation of an integrated unit or units dealing with topics such as global warming, alternate energy sources, pollution and acid rain, genetic engineering, herbicides and pesticides, food sources, etc. Content exams and quizzes will be administered during this section.	24
11	<u>Student Presentations of Software</u>	3
12-15	<u>Student Presentations of Integrated Units</u> Students will teach their integrated unit designed specifically for their educational settings.	12

VI. Textbook and/or Other Materials or Equipment Required

Mintzes, J. J., J. H. Wandersee and J. D. Novak (eds.). Teaching Science for Understanding. NY: Academic Press, 1998.

Articles and other readings will be supplied and/or assigned on-line.

VII. Basis of Student Evaluation

Communications on Web Board	5%
Written integrated unit	25%
Final presentation of unit	25 %
Class participation	10%
Homework assignments	10%
Exams and quizzes	25%

VIII. Programs Served by this Course

Required core course of the MNS in Science Education degree option.
MNS in Biology, Chemistry, or Geoscience for students with an interest in education.
MA in Elem. or Secondary Education for students with an interest in science education.