Administrative Unit: Education Department

Course Prefix and Number: EDUC 365

Course Title: Teaching Science

Number of: Credit Hours: 3 Lecture Hours: 3 Laboratory Hours: 0

Catalog Description: The study of methods, materials, practices and curriculum in secondary science classes. The course culminates with students demonstrating the abilities to plan, present and evaluate instructional experiences. Field experience is 15 hours. Offered Spring.

Prerequisite(s)/Corequisite(s): EDUC 300, admission to the Teacher Certification Program and instructor’s permission (must be obtained at least one semester prior to taking this course).

Text(s): Most current editions of the following:


Schwab. The Teaching of Science.

Teaching About the History and Nature of Science and Technology: A Curriculum Framework. Biological Sciences Curriculum Study and Social Science Education Consortium.

Course Objectives:

- To trace the background of science, including history and nature of scientific observation and study; MoSTEP: 1.1, 1.2, 1.3, 1.4, and 1.5.
- To identify the content areas applicable to science education, including those which complement the content area such as mathematics. MoSTEP: 10.1, 10.2.
- To identify and discuss the major concepts covered in the science areas of biology, chemistry, earth science, physics and astronomy, and meteorology as recommended by the professional societies. MoSTEP: 1.1, 1.2, 1.3, 1.4, 1.5
- To identify the techniques for insuring laboratory safety. MoSTEP: 1.1, 1.2.
- To identify the role of science technology in instruction, in society, and in the curriculum. MoSTEP: 11.1, 11.2, 11.3.

Measurable Learning Outcomes:

- Explain the importance of professional development and the role of learned societies MoSTEP 9.1, 9.2, 9.3, 10.1, 10.2, 10.3.
• Specify the curriculum goals and content identified in the Grade Level Expectations from the Department of Elementary and Secondary Education. MoSTEP: 4.1, 4.2, 4.3, 5.1, 7.1.

• Develop units of instruction which provide for goals and objectives, content outline, teaching strategies, materials, and evaluations. MoSTEP 5.0, 5.1, 5.2, 8.1, 8.2, 8.3.

• Use the alternative strategies appropriate in science instructions, including direct teaching, cooperative learning, discussion and questions and answers, independent study and inquiry, problem solving, and laboratory experiences MoSTEP 3.1, 3.2, 3.3, 3.4, 5.0, 5.1, 5.2.

• Apply various methods of evaluation, both formative and summative, in education. MoSTEP 8.1, 8.2, 8.3.

Topical Outline (major areas of coverage):

• Biology, chemistry, physics, earth science, astronomy and meteorology as content areas
• Student, teacher and content as planning variables
• Planning instruction: Goals, objectives, content outlines, teaching strategies and evaluation
• Teaching strategies: Direct instruction and lecture, demonstration, inquiry, laboratory experience, independent study and research, cooperative learning and other discussion techniques, question and answer, recitation, and computer assisted instruction.
• Laboratory experiences and safety requirements
• Materials: sources, gathering, incorporating, developing
• Texts: selecting and evaluating, supplementing
• Reading and writing as a part of the instructional planning
• Evaluation: standardized, objective testing, alternative forms, and outcomes based education and authentic assessment as a part of the science curriculum
• Professional development
• Science projects and science fairs

Recommended maximum class size for this course: 20

Library Resources: Online databases are available at http://www.ccis.edu/offices/library/resources.asp. You may access them from off-campus using your eServices login and password when prompted.

Prepared by: Dr. Becky Widener
Name ________________________________
Signature __________________________

Date: January 5, 2006 __________________
NOTE: The intention of the master syllabus is to provide an outline of the contents of this course, as specified by the faculty of Columbia College, regardless of who teaches the course, when it is taught or where it is taught. Faculty members teaching this course for Columbia College are expected to facilitate learning pursuant to the course objectives and cover the subjects listed in the topical outline. However, instructors are also encouraged to cover additional topics of interest so long as those topics are relevant to the course’s subject. The master syllabus is, therefore, prescriptive in nature but also allows for a diversity of individual approaches to course material.

Office of Academic Affairs
12/04