

Rev. May 2007

**Ashland University  
Dwight Schar College of Education  
Department of Early Childhood  
Course Syllabus**

**Grad: Undergrad: X  
Credit Hours: 3  
Field/Clinical Hours: 0/0**

**Course Number:** EDEC 413

**Course title for the catalog:** Curriculum and Methods of Early Childhood Science

**Catalog Description:**

A study of the science curriculum content recommended for pre-kindergarten through grade three, along with the instructional methodology appropriate for teaching that content. Emphasis will be placed upon content, processes, environment materials, and developmentally and individually appropriate practices for all learners.

**The prerequisite (s) for this course is (are):**

Concurrent enrollment in EDEC 369, 403, 413, 414, and 417.

**The enrollment restriction (s) for this course is (are):** None.

**Course and field/clinical experience objectives (including knowledge, skills, dispositions):**

**Knowledge:**

The teacher education student will have knowledge of:

1. Science curricula and programs in early childhood (preK-grade 3) classrooms and environments.
2. Various methodologies used by early childhood teachers when teaching science.
3. Current science research and theory.
4. Those instructional and/or environmental adaptations and accommodations needed within a preK-grade 3 environment so that all children, regardless of learning diversities and disabilities, can learn science content.
5. Developmentally appropriate science instruction, integrating the use of constructivist approaches.
6. The history of science and its contribution to other content areas.
7. An interdisciplinary approach to teaching science; integrating its disciplines (earth and space sciences, life sciences, and physical science) with other subject areas, including the language arts.
8. Approaches for adapting science materials to best meet students' needs.
9. The *Ohio Academic Content Standards: K-12 Science* and how to use them in classrooms.

10. The influence of the *National Science Education Standards* on science curricula.
11. Appropriate assessment of students' learning of science concepts.
12. Science resources, including those from the Internet.
13. The processes needed to develop, implement, monitor, and assess science-based learning centers within the early childhood learning environment.
14. The goals of science education which include individual inquiry, exploration of social issues, knowledge of science, and career education.
15. Safety procedures required when teaching science within an exploratory learning environment.
16. Effective management of the classroom environment when teaching science concepts, including those activities, time management skills, materials, and student behaviors necessary for successful constructivist learning experiences.
17. The role of the family and/or caregivers in young children's understanding of science concepts and activities that can support that learning.

**Skills:**

The teacher education student will be able to:

1. Effectively teach science disciplines to all children within an developmentally appropriate environment using best practices.
2. Create developmentally appropriate science lessons based on the *Ohio Academic Content Standards: K-12 Science*.
3. Demonstrate appropriate assessment of children's learning of science concepts.
4. Locate and critically evaluate science resources appropriate for a preK-grade 3 environment, including those from textbook publishers, software companies, and the Internet.
5. Demonstrate that he or she can create an interdisciplinary preK-grade 3 unit of instruction emphasizing the integration of science into the other content areas, including language arts.
6. Develop interactive and meaningful learning environments based on science concepts.

**Dispositions:**

The teacher education student will:

1. Value the dignity and unique contributions of each child and his or her caregiver within the early childhood learning environment.
2. Value the role of science content in young children's lives and appreciate that the investigations of science are an integral part of the constructivist environment.
3. Have a commitment to life-long learning, valuing the importance of conveying current and accurate science content to children.
4. Value the use of technology for concept exploration, understanding, and problem solving.
5. Recognize the value of assessment and the role it plays in student learning.
6. Value the role of reflection in the teaching-learning process and its impact on professional growth, goal setting, and instructional improvement.

**Suggested texts and/or references:**

Ohio Department of Education. (2002). *Academic content standards: K-12 science*. Columbus, OH: Author. Retrieved March 22, 2007 from <http://www.ode.state.oh.us/>

**Suggested instructional strategies:**

Experimentation, demonstration, simulation, lecture, discussion, individual and group activities.

**Description of field/clinical experiences:**

**Field Experience:** Provided through concurrent enrollment in EDEC 417.

**Clinical Experiences:**

**Evaluation of students:**

1. Products emerging from tests, projects, group work, and related field experience will evaluate students' understandings of early childhood science instruction and content.
2. An integrated unit that includes science-based lesson plans and other requirements as determined by the instructor will be used to assess students' abilities to design a unit that effectively integrates science with other content areas.
3. Science-based lesson plans that demonstrate students' abilities to develop lessons with appropriate content, instructional strategies, and management strategies.

**Faculty who frequently teach the course:**

Faith Wesolik  
Jan Rinehart

**Licensure programs in which course is required:**

Early Childhood Education and Early Childhood Intervention Specialist

**If the course is offered for either undergraduate or graduate credit, identify the respective difference in expectations:** Not applicable.

**Bibliography (Learned Societies, etc.):**

Barba, R.H., (1998). *Science in the multicultural classroom*. Boston: Allyn and Bacon.

Friedl, A. E., Koontz, T. Y., (2004). *Teaching science to children: An inquiry approach* (6<sup>th</sup> ed.). New York: McGraw Hill.

Harlan, J.D., Rivkin, M.S. & Schultz, R. S. (2003). *Science experiences for the early childhood years: An integrated approach*. (8<sup>th</sup> ed.) Upper Saddle River, NJ.: Merrill, an imprint of Prentice-Hall, Inc.

Martin, R., Sexton, C., & Gerlovich, J., (2004). *Teaching science for all children* (4<sup>th</sup> ed.). Boston: Allyn and Bacon.

Wood, K. D., (2001) *Literacy strategies across the subject areas*. Boston: Allyn and Bacon.