

Rev. May 2007

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

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

**Course Number:** EDEC 363

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

**Catalog Description:**

A study of the mathematics 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):**

Math 211. 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. Mathematics curricula and programs in early childhood (preK-grade 3) classrooms and environments.
2. Various methodologies used by early childhood teachers when teaching mathematics.
3. Current mathematics 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 mathematics content.
5. Developmentally appropriate mathematics instruction, integrating the use of constructivist approaches.
6. The history of mathematics and its contribution to other content areas.
7. An interdisciplinary approach to teaching mathematics; integrating its disciplines (number, number sense, and operations, measurement, geometry, algebra, data analysis, and problem solving ) with other subject areas, including the language arts.
8. Approaches for adapting math materials to best meet students' needs.

9. The *Ohio Academic Content Standards: K-12 Mathematics* and how to use them in classrooms.
10. The influence of the *National Council of Teachers of Mathematics* on math curricula.
11. Appropriate assessment of students' learning of mathematics concepts.
12. Math resources, including those from the Internet.
13. The processes needed to develop, implement, monitor, and assess math-based learning centers within the early childhood classroom.
14. The role of the family and/or caregivers in young children's understanding of mathematics concepts and activities that can support that learning.

**Skills:****The teacher education student will have skills to:**

1. Effectively teach mathematics to all children within a developmentally appropriate environment using best practices.
2. Create developmentally appropriate math lessons based on the *Ohio Academic Content Standards: K-12 Mathematics*.
3. Demonstrate appropriate assessment of children's learning of mathematics concepts.
4. Locate and critically evaluate math 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 mathematics into the other content areas, including language arts.
6. Develop interactive and meaningful learning environments based on mathematics 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 math content in young children's lives and appreciate that the investigations of mathematics are an integral part of the constructivist environment.
3. Have a commitment to life-long learning, valuing the importance of conveying current and accurate mathematics 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:**

Burris, A. C. (2005). *Understanding the math you teach, content and methods for prekindergarten through grade 4*. New Jersey: Pearson, Merrill Prentice Hall.

Ohio Department of Education. (2002). *Academic content standards: K-12 mathematics*. Columbus, OH: Author. Retrieved March 22, 2007 from <http://www.ode.state.oh.us/GD/Templates/Pages/ODE/ODEDetail.aspx?page=3&TopicRelationID=333&ContentID=801&Content=13794>

**Suggested instructional strategies:**

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. Math unit that includes math-based lesson plans and other requirements as determined by the instructor.
2. Classroom-based activities or resources such as learning games, math-based centers, that can be used in the classroom or early childhood learning environment.
3. Products emerging from tests, projects, group work, discussion, and related field experience.

**Faculty who frequently teach the course:**

Faith Wesolik  
Lori Eibel

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

Early Childhood Education and Early Childhood Intervention

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

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

Copley, J.V. (2000), *The young child and mathematics*. Washington, DC: NAEYC and Reston, VA: NCTM.

Charlesworth, R., & Lind, K. (2006). *Math and science for young children* (5<sup>th</sup> ed.). Clifton Park, NY: Thomson Delmar Learning.

Smith, S. S. (2006). *Early childhood mathematics* (3<sup>rd</sup> ed.). Boston, Pearson Education.

Van de Walle, J.A. & L.H. (2006). *Teaching student centered mathematics (Grades K-3)*. Boston, Pearson Education.

Wright, R. J., Stanger, G., Martland, J., & Stafford, A. K. (2006). *Teaching number in the classroom with 4-8 year olds*. London: Paul Chapman Publishing.

**Professional Journals:**

Arithmetic Teacher  
Teaching Children Mathematics  
Ohio Journal of School Mathematics