PELLISSIPPI STATE COMMUNITY COLLEGE
MASTER SYLLABUS

MATH & SCIENCE IN EARLY CHILDHOOD
ECED 2385 (formerly ECED 2085)

Class Hours: 3.0 Credit Hours: 3.0
Laboratory Hours: 0.0 Revised: Fall 2015

Catalog Course Description:

A study of the standards, principles, and practices in teaching mathematics and science to children ages birth through eight. The course emphasizes developing an integrated math and science curriculum that includes appropriate content, processes, environment and materials based on child-centered choices. Field experience is required.

Entry Level Standards:

Must be able to read and write at the college level.

Prerequisites:

ECED 2315

Textbook(s) and Other Course Materials:

Required:

Websites as assigned

Other Helpful Materials:


I. Week/Unit/Topic Basis:

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
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<tbody>
<tr>
<td>1</td>
<td>Introduction to Math and Science in ECED</td>
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<td>2</td>
<td>Concept Development and Acquisition</td>
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<td>3</td>
<td>Basics of Science</td>
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<td>4</td>
<td>One-to-One Correspondence/Number Sense and Counting</td>
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<td>5</td>
<td>Logic and Classifying/Comparing/Shape/Spatial Sense</td>
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II. a. EARLY CHILDHOOD EDUCATION Program Goals:
Upon completion of the Early Childhood Education program, the graduate will have developed the skills, knowledge and abilities to accomplish the following:

I. Be prepared for job entry or career advancement in the child-care field.

II. Use appropriate verbal and written communication skills.

III. Demonstrate understanding of fundamental child development principles that promote positive outcomes for young children (birth through age 8).

IV. Apply on-the-job principles of good work habits, ethical standards and professionalism.

II. b. NAEYC Associate Degree Standards:
The following standards are assessed in this course:

**Standard 1  Promoting Child Development and Learning**

1a Knowing and understanding young children’s characteristics and needs

1b Knowing and understanding the multiple influences on development and learning

1c Using developmental knowledge to create healthy, respectful, supportive, and challenging learning environments

**Standard 2  Building Family and Community Relationships**

2a Knowing about and understanding diverse family and community characteristics

2b Supporting and engaging families and communities through respectful, reciprocal relationships

2c Involve families and communities in their children’s development and learning

**Standard 3  Observing, Documenting, and Assessing to Support Young Children and Families**
3a Understanding the goals, benefits, and uses of assessment
3b Know about and use observation, documentation, and other appropriate assessment tools and approaches, including the use of technology in documentation, assessment, and data collection
3c Understanding and practicing responsible assessment to promote positive outcomes for each child
3d Knowing about assessment partnerships with families and other professional colleagues

Standard 4 Using Developmentally Effective Approaches
4a Understanding positive relationships and supportive interactions as the foundation of their work with children
4b Know and understand effective strategies and tools for early education, including appropriate uses of technology.
4c Use a broad repertoire of developmentally appropriate teaching/learning approaches.
4d Reflect on own practice to promote positive outcomes for each child.

Standard 5 Using Content Knowledge to Build Meaningful Curriculum
5a Understand content knowledge and resources in academic disciplines.
5b Know and use the central concepts, inquiry tools, and structures of content areas or academic disciplines.
5c Use own knowledge, appropriate early learning standards, and other resources to design, implement, and evaluate developmentally meaningful and challenging curriculum for each child.

Standard 6 Becoming a Professional
6a Identifying and involving oneself with the early childhood field
6b Knowing about and upholding ethical standards and other professional guidelines
6c Engaging in continuous, collaborative learning to inform practice
6d Integrating knowledgeable, reflective, and critical perspectives on early education
6e Engaging in informed advocacy for children and the profession

II. c. Course Goals*:
A. Identify appropriate concepts for early childhood learning in math and science. (5a)
B. Understand commonalities between math and science. (5a)
C. Understand and identify variations in individual and cultural learning styles and the need for curriculum integration. (5c)
D. Understand and implement experiences for children to engage in play that incorporates math and science. (4b, 4c, 5a, 5b, 5c)
E. Demonstrate understanding of math and science concepts through planning appropriate experiences for children that support the development of math and science skills. (4b, 4c, 4d, 5a)

F. Demonstrate appropriate individual child assessment methods in math and science learning. (3b)

*Numerals after course goals reference goals of the ECED program which are based on NAEYC Associate Degree Standards

III. Expected Student Learning Outcomes*:

Upon successful completion of the course the student will be able to:

1. Understand content knowledge and resources in math and science. (5a)

2. Identify standards for math and science instruction and programming in early education settings. (5c, 6d)

3. Plan math and science experiences for children throughout an integrated, play-based curriculum. (4b, 4d, 5b, 5c)

4. Plan and implement appropriate experiences for children that support the development of child outcomes in five areas: Number and Operations, Geometry and Spatial Sense, Patterns and Measurement, Scientific Skills and Methods, and Scientific Knowledge. (4b, 4c, 4d, 5b, 5c)

5. Identify appropriate individual child assessment methods in math and science learning. (3b)

*Numerals after Student Learning Outcomes reference NAEYC Associate Degree Standards

IV. Evaluation:

A. Testing Procedures

Students will complete regular assessments (projects, exams, papers, journals, research, presentations) to test their knowledge of early childhood practices and theories.

B. Laboratory Expectations:

N/A

C. Field Work:

Students will observe and assess an early childhood education environment or a child that is a part of an early childhood education environment.

D. Other Evaluation Methods:

As determined by the instructor

E. Grading Scale:

For 100-point rubric:

A = 90-100 points
B = 80-89 points
C = 70-79 points
D = 60-69 points
F = Below 60 points

V. Policies:

A. Attendance Policy:

Pellissippi State expects students to attend all scheduled instructional activities. As a minimum, students in all courses (excluding distance learning courses) must be present for at least 75 percent of their scheduled class and laboratory meetings in order to receive credit for the course. Individual departments/programs/disciplines, with the approval of the vice president of Academic Affairs, may have requirements that are more stringent. In very specific circumstances, an appeal of the policy may be addressed to the head of the department in which the course was taken. If further action is warranted, the appeal may be addressed to the vice president of Academic Affairs.

B. Academic Dishonesty:

Academic misconduct committed either directly or indirectly by an individual or group is subject to disciplinary action. Prohibited activities include but are not limited to the following practices:

- Cheating, including but not limited to unauthorized assistance from material, people, or devices when taking a test, quiz, or examination; writing papers or reports; solving problems; or completing academic assignments.
- Plagiarism, including but not limited to paraphrasing, summarizing, or directly quoting published or unpublished work of another person, including online or computerized services, without proper documentation of the original source.
- Purchasing or otherwise obtaining prewritten essays, research papers, or materials prepared by another person or agency that sells term papers or other academic materials to be presented as one’s own work.
- Taking an exam for another student.
- Providing others with information and/or answers regarding exams, quizzes, homework or other classroom assignments unless explicitly authorized by the instructor.
- Any of the above occurring within the Web or distance learning environment.

Please see the Pellissippi State Policies and Procedures Manual, Policy 04:02:00 Academic/Classroom Conduct and Disciplinary Sanctions for the complete policy.

C. Accommodations for disabilities:

Students that need accommodations because of a disability, have emergency medical information to share, or need special arrangements in case the building must be evacuated should inform the instructor immediately, privately after class or in her or his office. Students must present a current accommodation plan from a staff member in Disability Services (DS) in order to receive accommodations in this course. Disability Services may be contacted by sending email to disabilityservices@pstcc.edu, or by visiting Alexander 130. More information is available at http://www.pstcc.edu/sswd/.