I. GENERAL COURSE INFORMATION

Subject and Number: Child Development 118
Descriptive Title: Science and Math for Young Children
Course Disciplines: Child Development/Early Childhood Education
Division: Behavioral and Social Sciences

Catalog Description:
This course focuses on the principles and methods of planning, presenting, and evaluating science and math experiences for young children ages two to six. Students will develop activities that foster children's natural curiosity about scientific and mathematical concepts. These activities will be designed to encourage exploration, experimentation, problem solving, and discovery. Methods for adapting science and math experiences for young children with special needs will also be discussed. This course is designed for teachers in training and teachers in service needing to develop or refine skills in understanding, planning, and implementing developmentally appropriate science and math curriculum. Students will be required to participate in one structured activity related to children and/or professional development outside of class hours.

Conditions of Enrollment:
Prerequisite: Child Development 103with a minimum grade of C or equivalent or Concurrent Enrollment

Recommended Preparation: English 1 or eligibility for English 1A or qualification by appropriate assessment

Course Length:	**X Full Term**	**Other (Specify number of weeks):**
Hours Lecture:	**3.00 hours per week**	**TBA**
Hours Laboratory:	**0 hours per week**	**TBA**
Course Units:	**3.00**	

Grading Method: Letter
Credit Status: Associate Degree Credit

Transfer CSU: X Effective Date: February 18, 1997
Transfer UC: No

General Education:
El Camino College:

CSU GE:

IGETC:

II. OUTCOMES AND OBJECTIVES

A. COURSE STUDENT LEARNING OUTCOMES (The course student learning outcomes are listed below, along with a representative assessment method for each. Student learning outcomes are not subject to review, revision or approval by the College Curriculum Committee)

1. Supporting Play: Design and implement curriculum based on observation and assessment to support play and learning using developmental, inclusive and anti-bias principles in collaboration with families to support all children.
2. Activity Plans: Develop an activity plan, for preschool children, that is age-appropriate and includes: required materials, advanced preparation, developmental objectives, detailed procedures, and theme based related activities.
3. Role of the Teacher: Demonstrate an understanding of the many aspects of the teachers' role in early childhood programs in regard to math and science.

The above SLOs were the most recent available SLOs at the time of course review. For the most current SLO statements, visit the El Camino College SLO webpage at http://www.elcamino.edu/academics/slo/.

B. Course Student Learning Objectives (The major learning objective for students enrolled in this course are listed below, along with a representative assessment method for each)

1. Identify developmentally appropriate science and math activities for children ages two through six in diverse early childhood educational programs.
   - Term or other papers
2. Design science and math experiences to foster cognitive, psychosocial, and physical development of young children.
   - Presentation
3. Formulate objectives and concepts for science and math experiences for young children.
   - Term or other papers
4. Create and evaluate teaching materials and activities appropriate for science and math experiences for young children.
   - Presentation
5. Plan, present, and evaluate science and math experiences to meet the needs of children from diverse cultures.
   - Presentation
6. Adapt math and science activities for children with special needs.
   - Term or other papers
7. Develop and employ strategies to communicate the value of math and science experiences to parents of young children.
   - Term or other papers
8. Evaluate state standards and the National Association for the Education of Young Children's (NAEYC) Developmentally Appropriate Practices to curriculum planning.
   - Term or other papers
9. Develop and express a deeper knowledge and understanding of the foundations of mathematics and science to enhance personal teaching skills and strategies.
   - Term or other papers

III. OUTLINE OF SUBJECT MATTER (Topics are detailed enough to enable a qualified instructor to determine the major areas that should be covered as well as ensure consistency from instructor to instructor and semester to semester.)

Lecture or Lab	Approximate Hours	Topic Number	Major Topic
Lecture	6	I	Overview of Science and Math Experiences for Young Children A. Developmental Stages B. Enhancing Physical, Social and Psychosocial Development C. How Children Construct Scientific and Mathematical Knowledge D. Piaget's Theory of Cognitive Development E. Nature of Problem Solving
Lecture	6	II	Role of the Teacher A. Creating a Classroom for Science Exploration B. Identifying Sources of Materials C. Teaching Strategies D. Children with Special Needs E. Children of Diverse Cultures
Lecture	6	III	Basic Science Concepts for Young Children A. Life Science B. Earth Science C. Physical Science D. Vocabulary Development
Lecture	6	IV	Science Activities for Young Children A. Exploring, Planning, Presenting, and Demonstrating Science Activities
Lecture	3	V	Basic Food Preparation Concepts for Young Children A. Value of Food Preparation Activities B. Social Skills C. Cultural Awareness D. Nutrition E. Vocabulary Development
Lecture	3	VI	Food Preparation Activities for Young Children A. Planning, Presenting, and Demonstrating Food Preparation Activities
Lecture	6	VII	Basic Math Concepts for Young Children A. Numbers and Symbols B. Counting, Matching, Classifying, Comparing, Ordering, Measuring, C. Graphing, Spatial and Shape Concepts D. Vocabulary Development

Lecture	6	VIII	Math Activities for Young Children A. Planning, Presenting, and Demonstrating Math Activities
Lecture	6	IX	Teacher Created Math Materials A. Concept and Skill Development B. Evaluating Math Materials
Lecture	3	X	Involving Parents and the Community in the Math and Science Program A. Communicating the Value of Early Math and Science Experience for Children to Parents
Lecture	3	XI	Standards A. State Standards B. National Association of the Education of Young Children (NAEYC) C. Developmentally Appropriate Practices
Total Lecture Hours		54	
Total Laboratory Hours		0	
Total Hours		54	

IV. PRIMARY METHOD OF EVALUATION AND SAMPLE ASSIGNMENTS

A. PRIMARY METHOD OF EVALUATION:
Substantial writing assignments

B. TYPICAL ASSIGNMENT USING PRIMARY METHOD OF EVALUATION:
Design a two- to three-page science activity plan that is developmentally appropriate for children age two to six. The plan must include objectives, concepts, an indication of how the activity will be integrated into the curriculum, and an explanation of how the plan is appropriate for young children.

C. COLLEGE-LEVEL CRITICAL THINKING ASSIGNMENTS:
1. Observe and evaluate a science or math activity. In a two- to three-page essay, describe how the activity develops or reinforces specific skills such as counting, matching, classifying, problem solving, or comparing in children. The evaluation must propose ways in which the activity can be improved to enhance children's development, be adapted for children with special needs, or increase knowledge of other cultures.

2. Portfolio Assignment: Create a class portfolio which includes science and math curriculum that has been designed to foster cognitive, physical, and psychosocial development of young children. The portfolio should include, but not be limited to, a table of contents, a one-page philosophy statement of early childhood education, internet resources, activity plans, materials resource lists, and course handouts.

D. OTHER TYPICAL ASSESSMENT AND EVALUATION METHODS:
Written homework
Term or other papers
Presentation

V. INSTRUCTIONAL METHODS

Demonstration
Discussion
Group Activities
Guest Speakers
Lecture
Multimedia presentations

Note: In compliance with Board Policies 1600 and 3410, Title 5 California Code of Regulations, the Rehabilitation Act of 1973, and Sections 504 and 508 of the Americans with Disabilities Act, instruction delivery shall provide access, full inclusion, and effective communication for students with disabilities.

VI. WORK OUTSIDE OF CLASS

Study
Answer questions
Required reading
Written work
Journal

Estimated Independent Study Hours per Week: 6

VII. TEXTS AND MATERIALS

A. UP-TO-DATE REPRESENTATIVE TEXTBOOKS

G. Davis and J. David Keller. Exploring Science and Mathematics in a Child's World. 1st ed. Pearson, 2009.
Qualifier Text: Discipline standard.,
Barratta-Lorton. Workjobs II: Number Activities for Early Childhood. Addison-Wesley, 1985.
Qualifier Text: Discipline standard.
Sally Moomaw, Ed.D. Teaching STEM in the Early Years: Activities for Integrating Science, Technology, Engineering, and Mathematics . 1st ed. Redleaf Press, 2013.
Qualifier Text: Discipline standard.~~,~~

B. ALTERNATIVE TEXTBOOKS

C. REQUIRED SUPPLEMENTARY READINGS

D. OTHER REQUIRED MATERIALS

Students will furnish various materials and supplies necessary for preparation and presentation of learning activities

VIII. CONDITIONS OF ENROLLMENT

A. Requisites (Course and Non-Course Prerequisites and Corequisites)

Requisites	Category and Justification
Course Prerequisite Child Development-103	Sequential

B. Requisite Skills

Requisite Skills
Understanding of Piaget's theory of cognitive development CDEV 103 - Examine and discuss major theories of child development such as those of Piaget, Vygotsky, Freud, Erikson, and Bronfenbrenner.
Ability to identify major principles governing development CDEV 103 - Define developmental theory and explain how theories are used to understand child behavior and development.
Ability to recognize and analyze the effects of environmental and cultural influences on development CDEV 103 - Analyze the effect of biological, environmental, and cultural influences on the development of children of all ages.

C. Recommended Preparations (Course and Non-Course)

Recommended Preparation	Category and Justification
English 1	**Category:** Course **Justification:** This course involves reading college level textbooks, developing written projects, and answering essay questions. A student's success in this class will be enhanced if they have these skills.
Eligibility for English 1A or qualification by appropriate assessment	**Category :** Non-Course **Justification:** This course involves reading college level textbooks, developing projects, and answering essay questions. A student's success in this class will be enhanced if they have these skills.

D. Recommended Skills

Recommended Skills
Students need well-developed reading skills in order to understand and interpret information in their textbooks and writing skills to develop essays and projects. In addition, writing is required for essay questions and projects. ENGL 1- Summarize, analyze, evaluate, and synthesize college-level texts. ENGL 1 - Write a well-reasoned, well-supported expository essay that demonstrates application of the academic writing process.

E. Enrollment Limitations

Enrollment Limitations and Category	Enrollment Limitations Impact

Course created by Antoinette Phillips on 10/01/1996.

BOARD APPROVAL DATE: 02/18/1997

LAST BOARD APPROVAL DATE: 10/21/2019

Last Reviewed and/or Revised by Janet Young **Date: 04/01/2019**

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