



**Course Information**

<b>Course Title</b>	Math And Science for Early Childhood
<b>Course Prefix, Num. and Title</b>	CDEC 2307 – Math And Science for Early Childhood
<b>Division</b>	Technology & Business
<b>Department</b>	Education / Early Education
<b>Course Type</b>	WECM Course
<b>Course Catalog Description</b>	An exploration of principles, methods, and materials for teaching children math and science concepts and process skills through discovery and play
<b>Pre-Requisites</b>	None
<b>Co-Requisites</b>	None

**Semester Credit Hours**

<b>Total Semester Credit Hours (SCH): Lecture Hours:</b>	3:3:0
<b>Lab/Other Hours</b>	
<b>Equated Pay Hours</b>	3
<b>Lab/Other Hours Breakdown: Lab Hours</b>	0
<b>Lab/Other Hours Breakdown: Clinical Hours</b>	0
<b>Lab/Other Hours Breakdown: Practicum Hours</b>	0
<b>Other Hours Breakdown</b>	0

**Approval Signatures**

<b>Title</b>	<b>Signature</b>	<b>Date</b>
<b>Prepared by:</b>		
<b>Department Head:</b>		
<b>Division Chair:</b>		
<b>Dean/VPI:</b>		
<b>Approved by CIR:</b>		

## Additional Course Information

**Topical Outline:** Each offering of this course must include the following topics (be sure to include information regarding lab, practicum, and clinical or other non-lecture instruction).

Theories of Cognitive Development (Piaget, Vygotsky, Bruner, and others deemed appropriate)  
Concept development in children (birth-age 12 years)  
Assessing children in Math and Science  
Planning the environment for Math and Science  
Developmentally Appropriate Practice for Math and Science Topics  
Readiness techniques in infancy and toddler years for Math and Science  
One-to-one Correspondence  
Rote Counting, Rational Counting, Number Sense  
Classifying across the ages  
The development of logic  
Life Science  
Physical Science  
Earth Science  
Space  
Health and Nutrition Topics  
The Four Operations  
Graphing and Data Collection  
Place Value  
Groups and Symbols in Math  
Patterns and Algebraic Thinking  
Fractions  
Money, Time, Measurement  
Geometry  
Importance of conversations in concept development in infancy and toddler years  
Teaching Math and Science throughout an integrated curriculum

National Association for the Education of Young Children (NAEYC) Standards measured in this course:

1. Promoting child development and learning
2. Teaching and learning
3. Observing, documenting, and assessing
4. Using developmentally appropriate approaches to connect with children and families
5. Using content knowledge to build meaningful curriculum
6. Becoming a professional

### Course Learning Outcomes:

#### Learning Outcomes – Upon successful completion of this course, students will:

1. Align the sequence of cognitive development to the acquisition of math and science concepts
2. Explain the scientific process and its application to early care and education environments.
3. Develop strategies which promote critical thinking and problem-solving skills in children
4. Plan discovery experiences using observation and assessment
5. Evaluate developmentally appropriate materials, equipment, and environments to support the attainment of math and science concepts and skills.
6. Reflect on developmentally appropriate practice and application of course content to Early Childhood settings

### **Methods of Assessment:**

1. 3. 5. Students will design a term project of five (5) Math and (5) Science activities that are developmentally appropriate for a specific group of children ages birth-grade 6. It will include a hypothetical budget to spend \$300 for a science center. This project will be graded by a departmental rubric with student achieving a minimum grade of 70 points.
- 1.2.3. In class assignments, mid-term (which includes a minimum of one essay question), final, and other quizzes deemed necessary by the instructor.
4. Assignment of observing an early childhood setting for one hour to evaluate opportunities available for math and science learning and discovery. This assignment will be graded by a departmental rubric with a grade of 70 indicating master.
6. In-class journal entries factored into the attendance/ participation grade

### **Required text(s), optional text(s) and/or materials to be supplied by the student:**

Charlesworth, R. & Lind, K. K. (most recent edition). Math and science for young children. Belmont, CA: Wadsworth/Cengage Learning.

Bredcamp & Copple (2009). Developmentally appropriate practices in programs serving children (3rd ed.) Washington, DC: NAEYC. ISBN 13: 9781928896647

### **Suggested Course Maximum:**

35

### **List any specific or physical requirements beyond a typical classroom required to teach the course.**

None

**Course Requirements/Grading System:** Describe any course specific requirements such as research papers or reading assignments and the generalized grading format for the course.

After reading the text books and participating in class lectures and discussions, students will compile and arrange a term project: five (5) Math and five (5) Science activities that are developmentally appropriate for a specific group of children ages birth-grade 6. The project will Administrative-Master Syllabus Revised April 2014 Page 4 of 4 be graded according to a departmental rubric, and portions will be shared in class. Students will take tests reflecting the course objectives.

Grades will be determined in the following manner:

10% Attendance, class participation, and participation in weekly in-class reflections

60% Written tests (minimum of midterm with one essay question and a final exam)

30% Term project of Language/Literacy Activities

Grading Scale:

A-90-100%

B-80-89%

C-70-79%

D-60-69%

F-59 and below

### **Curriculum Checklist:**

- Administrative General Education Course** (from ACGM, but not in WCJC Core) – No additional documents needed.
- Administrative WCJC Core Course.** Attach the Core Curriculum Review Forms

- Critical Thinking
- Communication
- Empirical & Quantitative Skills
- Teamwork
- Social Responsibility
- Personal Responsibility

**WECM Course** -If needed, revise the Program SCANS Matrix and Competencies Checklist