Course Title – Math and Science for Early Childhood
Course Prefix and Number – CDEC 2307
Department – Education/ Early Childhood
Division – Technology and Business
Course Type: (check one)
☐ Academic General Education Course (from ACGM – but not in WCJC Core)
☐ Academic WCJC Core Course
☒WECM course (This course is a Special Topics or Unique Needs Course: Y ☒ or N ☐)

Semester Credit Hours # : Lecture Hours # : Lab/Other Hours #  3:3:0
EQUATED PAY hours for course - 3

Course Catalog Description - An exploration of principles, methods, and materials for teaching children math and science concepts and process skills through discovery and play.

Prerequisites/Co-requisites - none

Prepared by Barbara S. Lynn
Date 06-19-2015

Reviewed by Department Head Barbara S. Lynn
Date 06-19-2015

Accuracy verified by Division Chair David Kucera
Date 07/10/2015

Approved by Dean or Vice President of Instruction Leigh Ann Collins
Date 12/3/15
I. **Topical Outline** – Each offering of this course must include the following topics (be sure to include information regarding lab, practicum, 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
II. Course Learning Outcomes

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<tr>
<th>Learning Outcomes</th>
<th>Methods of Assessment</th>
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<tr>
<td>Upon successful completion of this course, students will:</td>
<td>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.</td>
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<tr>
<td>1. Align the sequence of cognitive development to the acquisition of math and science concepts</td>
<td>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.</td>
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<td>2. Explain the scientific process and its application to early care and education environments.</td>
<td>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.</td>
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<td>3. Develop strategies which promote critical thinking and problem-solving skills in children</td>
<td>6. In-class journal entries factored into the attendance/participation grade</td>
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<td>4. Plan discovery experiences using observation and assessment</td>
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<td>5. Evaluate developmentally appropriate materials, equipment, and environments to support the attainment of math and science concepts and skills.</td>
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<td>6. Reflect on developmentally appropriate practice and application of course content to Early Childhood settings</td>
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III. Required Text(s), Optional Text(s) and/or Materials to be Supplied by Student.


IV. Suggested Course Maximum - 35

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

None

VI. 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
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

VII. Curriculum Checklist

☐ - Academic General Education Course (from ACGM – but not in WCJC Core)
   No additional documentation needed

☐ - Academic WCJC Core Course
   Attach the Core Curriculum Checklist, including the following:
   • Basic Intellectual Competencies
   • Perspectives
   • Exemplary Educational Objectives

✓ - WECM Courses
   If needed, revise the Program SCANS Matrix & Competencies Checklist.