Wharton County Junior College

Administrative Master Syllabus

Course Information

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

Semester Credit Hours

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

Approval Signatures

Title	Signature	Date
Department Head:	Sandra McCarstle, Early Childhood / Education Program Director	06-01-2025
Division Chair:	David Kucera, Technology & Business Division Chair	06-01-2025
VPI:	Leigh Ann Collins Digitally signed by Leigh Ann Collins Date: 2025.06.18 13:57:40 -05'00'	

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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 Thinkin
- 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 three (3) Math and three (3) 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. (latest edition). Math and science for young children. Belmont, CA: Wadsworth/ Cengage Learning.

Bredecamp, S. & Copple, C. *Developmentally Appropriate Practice in Early Childhood Programs Serving Children from Birth Through Age 8 (latest edition).* Washington, DC: NAEYC.

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: three (3) Math and three (3) 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.

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Grades will be determined in the following manner:
40% Written tests (minimum of midterm with one essay question and a final exam)
40% Term project
20% Attendance, class participation, and participation in weekly in-class reflections

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