Course Syllabus

Course Title:	**CDEC 2307-151 ~ Math and Science for Young Children**
Semester:	Summer 2025 (10 Weeks) June 2nd August 7th
Online Instructor:	Cherri Stallings
Class Times:	Online ~ Blackboard
Office:	SPC Lubbock Carrer and Technical Center
Office Hours:	By Appointment Book time with Stallings, Cherri D
Phone:	806-716-4619 (Office)
Email:	**cstallings@southplainscollge.edu**

"South Plains College improves each student's life."

General Course Information

Course Description

Exploration of principles, methods, and materials for teaching children math and science concepts and process skills through discovery and play.

Learning Outcomes

*See *See attached NAEYC Associate Standards* Students will:	**NAEYC Standards** [see attached]
Align the sequence of cognitive development to the acquisition of math and science concepts	S1,S4
Explain the scientific process and its application to early care and education environments	
Create, evaluate, and/or select developmentally appropriate materials, equipment and environments to support the attainment of math and science concepts.	
Develop strategies which promote critical thinking and problem-solving skills in children	
Plan discovery experiences using observation and assessment	
Evaluate developmentally appropriate materials, equipment, and environments to support the attainment of math and science concepts and skills	

Course Objectives

All objectives correlate with Foundation Skills F1, F2, F5, F6, and Scans Competencies C1, C3, C18.
At the conclusion of the course, students should be able to:

1. **Align the sequence of cognitive development to the acquisition of math and science concepts**
   a. Overview of Piaget's stages of cognitive development
   b. How children's thinking evolves and influences learning
   c. Matching developmental readiness with math and science skills (e.g., one-to-one correspondence, classification, cause and effect)
   d. The role of scaffolding in concept acquisition
2. **Explain the scientific process and its application to early care and education environments**
   a. Steps of the scientific process (question, hypothesis, experiment, observation, conclusion)
   b. Integrating inquiry-based learning in the classroom
   c. Encouraging curiosity and exploration in young children
   d. Real-world examples of science investigations in preschool settings
3. **Create, evaluate, and/or select developmentally appropriate materials, equipment, and environments to support the attainment of math and science concepts**
   a. Characteristics of developmentally appropriate materials for various age groups
   b. Safe and accessible science and math tools (e.g., counting manipulatives, magnifying glasses, sorting trays)
   c. Organizing indoor and outdoor environments to promote exploration
   d. Culturally responsive and inclusive materials
4. **Develop strategies which promote critical thinking and problem-solving skills in children**
   a. Open-ended questioning techniques
   b. Modeling and supporting trial-and-error learning

c. The importance of play-based problem solving
d. Encouraging multiple solutions and perspectives

5. **Plan discovery experiences using observation and assessment**
   a. Using child observations to guide activity planning
   b. Aligning discovery experiences with individual learning needs
   c. Documenting learning through anecdotal records or portfolios
   d. Incorporating child interests into science and math exploration

6. **Evaluate developmentally appropriate materials, equipment, and environments to support the attainment of math and science concepts and skills**
   a. Tools and checklists for evaluating learning environments
   b. Adapting materials for children with diverse needs
   c. Balancing teacher-directed and child-led opportunities
   d. Reflecting on the effectiveness of materials in meeting learning goals

Evaluation Methods

1. Ongoing weekly participation in Blackboard
2. Weekly reading assignments
3. Completion of weekly assignments

SCANS and Foundation Skills

Basic Skills	Personal Qualities	Information	Systems
Thinking Skills	Resources	Interpersonal	Technology

Specific Course Requirements

Text and Materials

All reading materials will be provided for you on Blackboard.

Computer Requirements

It is the responsibility of the student to have the necessary computer resources and skills to take this class. Students are not required to purchase their own computer but must have access to one that meets specifications. Computer labs are available for student use on the Levelland campus and at the Lubbock centers.

You will need:

- **Microsoft Word**
- **Adobe Reader**

See SPC Instructional Technology Resources:

http://www.southplainscollege.edu/instructional-technology/instructional-technology.php
FREE Office 365 for students https://www.microsoft.com/en-us/education/products/office
Adobe Acrobat Reader - **https://get.adobe.com/reader/**

Attendance Policy

Students in this course attend class online. Attendance includes logging into the **course 2-3 times per week**, to be documented through the Blackboard system.

If a student finds that he/she cannot complete the requirements of this course in a successful manner, it is the responsibility of that student to initiate a drop from the course. Course withdrawals are made through the registrar's office. The last drop date for the college is **July 30, 2025**.

Assignment Policy

All assignments will be completed and/or submitted on Blackboard.
Assignments are due on the dates specified in the course calendar, by 11:59pm.

Late Work Policy

- **Late work is only accepted with prior approval from the instructor**.
- To request approval, students must send a written request through Blackboard messages at least 48 hours before the assignment is due.
- Approval is at the instructor's discretion.
- If approved, late submissions will incur a 10% deduction of the total points available per week late.
- Late work cannot be submitted more than two weeks past the original due date.
- No late work will be accepted after Week 14 of the semester to allow time for final grading.
- Unauthorized late work will not be accepted.

Please do not wait until the last minute to turn in assignments, or you may have problems.

Grading Policy

Grades for this class will be determined by the following criteria:

Syllabus Quiz	50 points
Introduction Post	50 points
Weekly Assignments:	
Project Reflections	
9 @ 50points	450 points
Activity Share	
9 @ 50points	450 points
	1000 points

900-1000	90%	A
800-899	80%	B
750-799	75%	C
700-749	70%	D
699 & below		F

*Students must earn **C or higher** for course to be applied to Child Development degree or certificate.

Communication Policy

- Primary communication between the instructor and students in this course should take place through **Blackboard Messages**.
- **Students may expect instructor responses to email messages within 48 hours.**

Student Conduct

Students are expected to follow the standards of student conduct as defined in SPC Student Guide. 24-25 Student Guide (See signature form.)

Course Syllabus Statements

All students are required to review the official South Plains College syllabus statements, which provide important information regarding college policies and student resources. These include statements on intellectual exchange, accessibility services, non-discrimination, pregnancy and parenting accommodations, campus safety, COVID-19 procedures, appropriate use of artificial intelligence, and more.

These policies apply to all courses and are available at the following link:
https://www.southplainscollege.edu/syllabusstatements/

COURSE OUTLINE

I-Introduction to Early Childhood Math and Science
II-Cognitive Development and Learning Sequences
III-The Scientific Process in Early Childhood
IV-Methods for Teaching Math Concepts
V-Promoting Critical Thinking in Children
VI-Planning Discovery Experiences
VII-Developmentally Appropriate Materials
VIII-Creating an Engaging Learning Environment
IX-Assessing Learning and Progress

SCANS Competencies

RESOURCES

C-1 **TIME** - Selects goal - relevant activities, ranks them, allocates time, prepares and follows schedules.

C-2 **MONEY** - Uses or prepares budgets, makes forecasts, keeps records and makes adjustments to meet objectives.

C-3 **MATERIALS AND FACILITIES** - Acquires, stores, allocates, and uses materials or space efficiently.

C-4 **HUMAN RESOURCES** - Assesses skills and distributes work accordingly, evaluates performances and provides feedback.

INFORMATION - Acquires and Uses Information

C-5 Acquires and evaluates information.

C-6 Organizes and maintains information.

C-7 Interprets and communicates information.

C-8 Uses computers to process information.

INTERPERSONAL–Works With Others

C-9 Participates as members of a team and contributes to group effort.

C-10 Teaches others new skills.

C-11 Serves Clients/Customers–works to satisfy customer's expectations.

C-12 Exercises Leadership–communicates ideas to justify position, persuades and convinces others, responsibly challenges existing procedures and policies.

C-13 Negotiates-works toward agreements involving exchanges of resources; resolves divergent interests.

C-14 Works With Diversity–works well with men and women from diverse backgrounds.

SYSTEMS–Understands Complex Interrelationships

C-15 Understands Systems–knows how social, organizational, and technological systems work and operates effectively with them.

C-16 Monitors and Corrects Performance–distinguishes trends, predicts impacts on system operations, diagnoses systems performance and corrects malfunctions.

C-17 Improves or Designs Systems–suggests modifications to existing systems and develops new or alternative systems to improve performance.

TECHNOLOGY–Works With a Variety of Technologies

C-18 Selects Technology–chooses procedures, tools, or equipment, including computers and related technologies.

C-19 Applies Technology to Task–understands overall intent and proper procedures for setup and operation of equipment.

C-20 Maintains and Troubleshoots Equipment–prevents, identifies, or solves problems with equipment, including computers and other technologies.

Foundations Skills

BASIC SKILLS–Reads, Writes, Performs Arithmetic and Mathematical Operations, Listens and Speaks

F-1 Reading – locates, understands, and interprets written information in prose and in documents such as manuals, graphs, and schedules.

F-2 Writing – communicates thoughts, ideas, information and messages in writing and creates documents such as letters, directions, manuals, reports, graphs, and flow charts.

F-3 Arithmetic – performs basic computations; uses basic numerical concepts such as whole numbers, etc.

F-4 Mathematics – approaches practical problems by choosing appropriately from a variety of mathematical techniques.

F-5 Listening – receives, attends to, interprets, and responds to verbal messages and other cues.

F-6 Speaking – organizes ideas and communicates orally.

THINKING SKILLS–Thinks Creatively, Makes Decisions, Solves Problems, Visualizes and Knows How to Learn & Reason

F-7 Creative Thinking – generates new ideas.

F-8 Decision-Making – specifies goals & constraints, generates alternatives, considers risks, evaluates & chooses best alternative.

F-9 Problem Solving – recognizes problems, devises and implements plan of action.

F-10 Seeing Things in the Mind's Eye – organizes and processes symbols, pictures, graphs, objects, and other information.

F-11 Knowing How to Learn – uses efficient learning techniques to acquire and apply new knowledge and skills.

F-12 Reasoning – discovers a rule or principle underlying the relationship between two or more objects and applies it when solving a problem.

PERSONAL QUALITIES–Displays Responsibility, Self-Esteem, Sociability, Self-Management, Integrity and Honesty

F-13 Responsibility – exerts a high level of effort and perseveres towards goal attainment.

F-14 Self-Esteem – believes in own self-worth and maintains a positive view of self.

F-15 Sociability – demonstrates understanding, friendliness, adaptability, empathy and politeness in group settings.

F-16 Self-Management – assesses self accurately, sets personal goals, monitors progress and exhibits self-control.

F-17 Integrity/Honesty – chooses ethical courses of action.

National Association for the Education of Young Children (NAEYC)

Professional Standards and Competencies for Early Childhood Educators

Standard 1: Child Development and Learning in Context

1a: Understand the developmental period of early childhood from birth through age 8 across physical, cognitive, social and emotional, and linguistic domains, including bilingual/multilingual development.
1b: Understand and value each child as an individual with unique developmental variations, experiences, strengths, interests, abilities, challenges, approaches to learning, and with the capacity to make choices.
1c: Understand the ways that child development and the learning process occur in multiple contexts, including family, culture, language, community, and early learning setting, as well as in a larger societal context that includes structural inequities.
1d: Use this multidimensional knowledge – that is, knowledge about the developmental period of early childhood, about individual children and about development and learning in cultural contexts – to make evidence-based decisions that support each child.

Standard 2. Family-Teacher Partnerships and Community Connections

2a: Know about, understand and value the diversity of families.
2b: Collaborate as partners with families in young children's development and learning through respectful, reciprocal relationships and engagement.
2c: Use community resources to support young children's learning and development and to support families, and build partnerships between early learning settings, schools, and community organizations and agencies.

Standard 3. Child Observation, Documentation, and Assessment

3a: Understand that assessments (formal and informal, formative and summative) are conducted to make informed choices about instruction and for planning in early learning settings.
3b: Know a wide range of types of assessments, their purposes, and their associated methods and tools.
3c: Use screening and assessment tools in ways that are ethically grounded and developmentally, ability, culturally, and linguistically appropriate in order to document developmental progress and promote positive outcomes for each child.
3d: Build assessment partnerships with families and professional colleagues.

Standard 4. Developmentally, Culturally, and Linguistically Appropriate Teaching Practices

4a: Understand and demonstrate positive, caring, and supportive relationships and interactions as the foundation of early childhood educators' work with young children.
4b: Understand and use teaching skills that are responsive to the learning trajectories of young children and to the needs of each child, recognizing that differentiating instruction, incorporating play as a core teaching practice, and supporting the development of executive function skills are critical for young children.
4c: Use a broad repertoire of developmentally appropriate, culturally and linguistically relevant, anti-bias, evidence-based teaching skills and strategies that reflect the principles of universal design for learning.

Standard 5. Knowledge, Application, and Integration of Academic Content in the Early Childhood Curriculum

5a: Understand content knowledge – the central concepts, methods and tools of inquiry, and structure – and resources for the academic disciplines in an early childhood curriculum.
5b: Understand pedagogical content knowledge – how young children learn in each discipline – and how to use the teacher knowledge and practices described in Standards 1-4 to support young children's learning in each content area.
5c: Modify teaching practices by applying, expanding, integrating, and updating their content knowledge in the disciplines, their knowledge of curriculum content resources and their pedagogical content knowledge.

Standard 6. Professionalism as an Early Childhood Educator

6a: Identify and involve themselves with the early childhood field and serve as informed advocates for young children, families, and the profession.
6b: Know about and uphold ethical and other early childhood professional guidelines.
6c: Use professional communication skills, including technology-mediated strategies, to effectively support young children's learning and development and to work with families and colleagues.
6d: Engage in continuous, collaborative learning to inform practice.
6e: Develop and sustain the habit of reflective and intentional practice in their daily work with young children as members of the early childhood profession.

June 2025

☐ I have reviewed the syllabus for this course and understand the requirements as described.

☐ I am familiar with the South Plains College **Student Guide** and agree to follow the code of conduct as given in the guide.

_____

Signature

No signature needed. There will be two questions in the syllabus quiz in Blackboard where you will agree to the statements above.

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Date