Reese Campus

COURSE SYLLABUS

Course Title: **CDEC 2307.200 ~ Math and Science for Young Children**
Semester: Summer 2018
Class Times: Tuesdays 6:00 – 8:50; Thursday Online
Instructor: Cherri Stallings, Adjunct Faculty
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Phone: 806-392-4122 (cell)
Office Hours: By appointment

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

General Course Information

COURSE DESCRIPTION

This course is designed to provide an exploration of principles, methods, and materials for teaching children math and science concepts through discovery and play.

STUDENT LEARNING OUTCOMES *See STANDARDS page attached

	NAEYC Standards	NAEYC Supportive Skills
Relate the sequence of cognitive development to the acquisition of math and science co... describe the scientific process and its application to the early childhood indoor and outdo... environments.	S1 S3 S4	SS2 SS4 SS4
Develop strategies which promote thinking and problem-solving skills in children.		
Utilize observation and assessment as a basis for planning discovery experiences for the ind... child.		
Create, evaluate, and/or select developmentally appropriate materials, equipment and env... to support the attainment of math and science concepts.		

COURSE OBJECTIVES: Scans (C) and Foundations (F) list attached

1. **Relate the sequence of cognitive development to the acquisition of math and science concepts.**
   a. Summarize the sequential development of mathematical concepts.
   b. Outline appropriate science concepts for children.
   c. Describe how the development of mathematical concepts promotes children's thinking skills. (F11)
   d. Explain how to promote children's cognitive development and understanding of their world through active, hands-on exploration of science concepts and processes. (F11)
   e. Compare theories of cognitive development as they relate to math and science. (F12).
   f. Summarize how brain development affects concept formation.
   g. Compare gender similarities and differences in the acquisition of math and science concepts. (C14)

2. **Describe the scientific process and its application to the early childhood indoor and outdoor learning environments.**
   a. Explain how to encourage all children to view themselves as competent scientific explorers.
   b. Describe ways to promote all children's ability to think scientifically (e.g., by providing opportunities to observe, describe, classify, and order.)
   c. Summarize ways to nurture all children's natural curiosity by encouraging them to explore and make discoveries about their world (e.g., by using their senses to gain information, draw conclusion and report outcomes)

3. **Develop strategies that promote thinking and problem-solving skills in children. (F9, F10)**
   a. Explain how instructional methods involving the use of various types of thinking (e.g., exploration, discovery learning, problem solving) can enhance children's mathematical and scientific understanding.
   b. Describe how to integrate curriculum content through a variety of learning experiences so children make connections across disciplines.
   c. Explain techniques for integrating math and science throughout the curriculum.
   d. Plan developmentally appropriate methods that include play, small group projects, open-ended questioning, group discussions, problem solving, cooperative learning and inquiry experiences to help children develop intellectual curiosity, solve problems, make decisions and become critical thinkers. (F7)
   e. Brainstorm strategies to encourage girls to feel competent in math and science. (C14)

4. **Utilize observation and assessment as a basis for planning discovery experiences for the individual child.**
   a. Review a variety of assessment strategies. (C5)
   b. Explain how assessment information is interpreted and used to provide developmentally appropriate learning activities. (C7)
   c. Use a variety of assessment strategies to monitor children's progress in achieving outcomes and planning learning activities.

5. **Create, evaluate and/or select developmentally appropriate materials, equipment and environments to support the attainment of math and science concepts. (F 9, F7)**
   a. Evaluate children's books, software, manipulatives, music, blocks and other materials that enhance math and science concepts for developmentally appropriateness. (C1, C5)
   b. Describe how to create indoor and outdoor environments that encourage emergent numeracy and scientific literacy by offering children varied, meaningful and concrete learning experiences. (F7)
   c. Discuss how technology can be philosophically integrated to support the development of math and science concepts in the curriculum.
   d. Explore community resources, including cultural, available for enhancing math and science concepts. (C9)
   e. Make and use developmentally appropriate, culturally diverse and nonsexist activities and materials to support development of specific math and science concepts. (C9, C14)
   f. Adapt math and science activities, materials, equipment and environments for children with special needs. (C14)

EVALUATION MEASURES
1. Class attendance and participation
2. Practice using math and science skills in class
3. Weekly Discussion Board
4. Two Class Presentations
5. Minimum average score of 75 on grading components

ACADEMIC INTEGRITY
It is the aim of the faculty of South Plains College to foster a spirit of complete honesty and a high standard of integrity. The attempt of any student to present as his or her own, any work which he or she has not honestly performed, is regarded by the faculty and administration as a most serious offense and renders the offender liable to serious consequences and possibly suspension.

Cheating: Dishonesty of any kind on examinations or on written assignments, illegal possession of examinations, the us of unauthorized notes during an examination, obtaining information during an examination from the textbook or from the examination paper of another student, assisting others to cheat, alteration of grade records, and illegal entry or unauthorized presence in an office are examples of cheating.

Plagiarism: Offering the work of another as one's own, without proper acknowledgement, is plagiarism. Therefore, any student who fails to give credit for quotations or essentially identical expression of material taken from books, encyclopedias, magazines and other reference works, or from the themes, reports or other writings of a fellow student, is guilty of plagiarism. Refer to college catalog page 23.
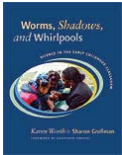
Resources   ~   Information Systems   ~   Interpersonal   ~   Technology

Basic Skills   ~   Thinking Skills   ~   Personal Qualities

Refers also to Course Objectives /SCANS and Foundation Skills attached

Specific Course Requirements

TEXTBOOK & MATERIALS

Worth, K. & Grollman, S. (2003). <u>Worms, Shadows and Whirlpools</u>, Portsmouth, NH: Heinemann, ISBN 0-325-00573-7.

ATTENDANCE & ASSIGNMENT POLICIES

Students will be expected to complete the following tasks:

- Students are expected to be punctual and attend all classes.
- Attendance will be taken at each class session using the sign-in process,
  It is the student's responsibility to sign in during each class.
- More than **three absences** from class may result in withdrawal of the student from class.
- Two tardies or leaving early twice = 1 absence.
- **Students are responsible for staying informed on all announcements concerning reading assignments, examination dates, etc. that are made during class periods, whether or not they are present when the announcement is made.**
- Good attendance may be used to raise a grade if it is near a "cut-off" point.
- Failure to attend class and/or complete assignments will affect your final grade
- **Students are responsible for maintaining awareness of their class average and /or grades throughout the semester.**
- **Instructor DOES NOT accept late work.**
- Students with excessive absences should consider withdrawing from the course to protect their GPA.
- It is the student's responsibility to initiate and completely withdraw from the course.
- Drops may be completed through the registrar's office at South Plains College.
- Student's who simply stop attending, and do not withdraw from class, will receive an "F" as a final grade
- Drop date for the college is **July 19, 2018.**

ASSIGNMENT POLICIES

- All assignments are to be typewritten, and are due on the date given.
- Students are responsible for reading and being prepared for each class.
- Presentations must be given on specified date, unless prior arrangements have been made.
- Discussion Board Posts: Students will complete 7 Discussion Board Sessions during the duration of this course. All original posts are due by 11 p.m. on the due date, unless otherwise noted on the calendar (no late submissions will be graded or receive credit—no exceptions will be made. Missing a posting will also count as an absence.)
- Response Posts: Additionally, each student can choose to respond to at least one of their peers' questions. In order to receive credit for each discussion board, students need to provide minimal of one response to their peer. Each student will state some information from the text (Worms, Shadows and Whirlpools) in their response to another student. (Stating "I agree" is not adequate). All response posts are due by 11:00 p.m. on due date.

GRADING POLICY Grades will be assigned using the following criteria:

Weekly Discussion Questions (7X50)	350 points	
Response to Discussion Questions (7x50)	350 points	
Science Project	150 points	
Math Project	150 points	
	1000 points	

Final grades will be assigned as follows:		
900 - 1000	90-100%	A
800 - 899	80-89%	B
750 - 799	75-79%	C
700 - 749	70-74%	D
699 & below	0-69%	F

*A grade of C or above is required for application of this course to a degree or certificate in Child Development.

SPECIAL REQUIREMENTS:

Communication Policy

Electronic communication between instructor and students in this course will utilize the South Plains College "My SPC" email system. Instructor will not initiate communication using private email accounts. Students are encouraged to check SPC email on a regular basis. **If you need to email the instructor you need to have the subject of the email to be CDEC 2307: Math and Science for Young Children followed by the subject of the email. Example: CDEC 2307: Math and Science for Young Children Question about Assignment 1**

Student Conduct

Students in this class are expected to abide by the standards of student conduct as defined in the SPC Student Guide. Please see signature page included in this syllabus.

Campus Carry

Campus Concealed Carry - Texas Senate Bill - 11 (Government Code 411.2031, et al.) authorizes the carrying of a concealed handgun in South Plains College buildings only by persons who have been issued and are in possession of a Texas License to Carry a Handgun. Qualified law enforcement officers or those who are otherwise authorized to carry a concealed handgun in the State of Texas are also permitted to do so. Pursuant to Penal Code (PC) 46.035 and South Plains College policy, license holders may not carry a concealed handgun in restricted locations. For a list of locations, please refer to the SPC policy at: (http://www.southplainscollege.edu/human_resources/policy_procedure/hhc.php)

Pursuant to PC 46.035, the open carrying of handguns is prohibited on all South Plains College campuses. Report violations to the College Police Department at 806-716-2396 or 9-1-1.

Other Requirements

Cell phones must be turned OFF during class periods unless discussed with instructor, prior to class. This includes auditory alerts and text messaging! Cell phones are to be used outside the classroom.

COURSE OUTLINE

Concept Development

Fundamental Math Concepts like:

Comparing

Classifying

Measuring

Are also used in Science and are called process skills.

Math in Early Childhood

How and why to support math in early childhood classrooms;

How to use developmentally appropriate practices in math;

Discussing formal and informal math instruction;

Develop math lessons

Discuss the five math strands.

Numbers and Operations

Geometry and Spatial Reasoning

Measurement

Algebra and Patterns

Analyzing Data

Including Planned Mathematics into Daily Routines

How to use Math throughout the day.

Discuss integrating math into read alouds.

Setting up a math center.

Science in the Early Childhood Classroom

Recognize how observation and gathering information are skills used when exploring science rather than relying on memory to determine results.

Laying the foundation for scientific thinking.

Use the "Five E's" to facilitate inquiry during classroom experiments.

Recognize ideal locations, materials, and themes to consider when setting up a Science Center.

Science as a Process

Recognize and Illustrate key points of "free discovery".

Explore the concept of a science board and how it can be used to plan science activities.

Develop a thematic science activity using a Science Board.

ACCOMMODATIONS

Disabilities Statement

Students with disabilities, including but not limited to physical, psychiatric, or learning disabilities, who wish to request accommodations in this class should notify the Disability Services Office early in the semester so that the appropriate arrangements may be made. In accordance with federal law, a student requesting accommodations must provide acceptable documentation of his/her disability to the Disability Services Office. For more information, call or visit the Disability Services Office at Levelland (Student Health & Wellness Office) 806-716-2577, Reese Center (Building 8) 806-716-4675, or Plainview Center (Main Office) 806-716-4302 or 806-296-9611.

Diversity Statement

In this class, the teacher will establish and support an environment that values and nurtures individual and group differences and encourages engagement and interaction. Understanding and respecting multiple experiences and perspectives will serve to challenge and stimulate all of us to learn about others, about the larger world and about ourselves. By promoting diversity and intellectual exchange, we will not only mirror society as it is, but also model society as it should and can be.

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 and Reason

F-7 Creative Thinking – generates new ideas.

F-8 Decision-Making – specifies goals and constraints, generates alternatives, considers risks, evaluates and 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.

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.

NATIONAL ASSOCIATION FOR THE EDUCATION OF YOUNG CHILDREN (NAEYC)
Standards for Early Childhood Professional Preparation

STANDARD 1. PROMOTING CHILD DEVELOPMENT AND LEARNING

1a: Knowing and understanding young children's characteristics and needs, from birth through age 8.

1b: Knowing and understanding the multiple influences on early development and learning

1c: Using developmental knowledge to create healthy, respectful, supportive, and challenging learning environments for young children

STANDARD 2. BUILDING FAMILY AND COMMUNITY RELATIONSHIPS

2a: Knowing about and understanding diverse family and community characteristics

2b: Supporting and engaging families and communities through respectful, reciprocal relationships

2c: Involving families and communities in young children's development and learning

STANDARD 3. OBSERVING, DOCUMENTING, AND ASSESSING TO SUPPORT YOUNG CHILDREN AND FAMILIES

3a: Understanding the goals, benefits, and uses of assessment – including its use in development of appropriate goals, curriculum, and teaching strategies for young children

3b: Knowing about and using observation, documentation, and other appropriate assessment tools and approaches, including the use of technology in documentation, assessment and data collection.

3c: Understanding and practicing responsible assessment to promote positive outcomes for each child, including the use of assistive technology for children with disabilities.

3d: Knowing about assessment partnerships with families and with professional colleagues to build effective learning environments

STANDARD 4. USING DEVELOPMENTALLY EFFECTIVE APPROACHES

4a: Understanding positive relationships and supportive interactions as the foundation of their work with young children

4b: Knowing and understanding effective strategies and tools for early education, including appropriate uses of technology

4c: Using a broad repertoire of developmentally appropriate teaching /learning approaches

4d: Reflecting on own practice to promote positive outcomes for each child

STANDARD 5. USING CONTENT KNOWLEDGE TO BUILD MEANINGFUL CURRICULUM

5a: Understanding content knowledge and resources in academic disciplines: language and literacy; the arts – music, creative movement, dance, drama, visual arts; mathematics; science, physical activity, physical education, health and safety; and social studies.

5b: Knowing and using the central concepts, inquiry tools, and structures of content areas or academic disciplines

5c: Using own knowledge, appropriate early learning standards, and other resources to design, implement, and evaluate developmentally meaningful and challenging curriculum for each child.

STANDARD 6. BECOMING A PROFESSIONAL

6a: Identifying and involving oneself with the early childhood field

6b: Knowing about and upholding ethical standards and other early childhood professional guidelines

6c: Engaging in continuous, collaborative learning to inform practice; using technology effectively with young children, with peers, and as a professional resource.

6d: Integrating knowledgeable, reflective, and critical perspectives on early education

6e: Engaging in informed advocacy for young children and the early childhood profession

STANDARD 7. EARLY CHILDHOOD FIELD EXPERIENCES

7a. Opportunities to observe & practice in at least two of the three early childhood age groups (birth–3, 3-5, 5-8)

7b. Opportunities to observe and practice in at least two of the three main types of early education settings (early school grades, child care centers and homes, Head Start programs)

NAEYC SUPPORTIVE SKILLS

Supportive Skill #1: Self-assessment and self-advocacy

Supportive Skill #2: Mastering and applying foundational concepts from general education

Supportive Skill #3: Written and verbal communication skills

Supportive Skill #4: Making connections between prior knowledge/experience and new learning

Supportive Skill #5: Identifying and using professional resources

National Association for the Education of Young Children, 2011

I have read the above syllabus for Child Development and understand the requirements.

I understand that I must comply with all areas of the Student Guide as a student in the Child Development Program at South Plains College.

_____
Signature

_____
Date