

**Course Syllabus**

**COURSE:** CDEC 2307.200 ~ Math and Science for Young Children  
**SEMESTER/YEAR:** Summer 2015  
**INSTRUCTOR:** Cherri Stallings  
**OFFICE:** Reese Campus, Building #5, Room 512A  
**OFFICE HOURS:** By appointment  
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*"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.

**Learning Outcomes**

*See NAEYC Associates Standards attached Students will:	NAEYC Standards	NAEYC Supportive Skills	Head Start Core Knowledge Areas
Relate the sequence of cognitive development to the acquisition of math and science concepts and describe the scientific process and its application to the early childhood indoor and outdoor learning environments.	S1	SS2	P3
Develop strategies which promote thinking and problem-solving skills in children.	S4	SS2	P3
Utilize observation and assessment as a basis for planning discovery experiences for the individual child.	S4	SS4	P3
Create, evaluate, and/or select developmentally appropriate materials, equipment and environments to support the attainment of math and science concepts.	S1	SS4	A5

**Course Goals and Objectives (Foundations and Scans Skills 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)

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### Methods of Evaluation

1. Class attendance and participation
2. Practice using math and science skills in class
3. Weekly Discussion Board
4. Class presentations and practice using math and science skills in class

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### 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, possibly suspension.

**1. Cheating:** Dishonesty of any kind on examinations or on written assignments, illegal possession of examinations, the use 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, illegal entry or unauthorized presence in an office are examples of cheating.

**2. 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.

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## SCANS and Foundation Skills

Resources

Interpersonal Skills

Information Systems

Thinking Skills

Basic Skills

Personal Qualities

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## Verification of Workplace Competencies - CAPSTONE EXPERIENCE

CDEC 2307 students will design developmentally appropriate Math and Science activity plans for young children to be placed in student's professional portfolio.

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### SPECIFIC COURSE REQUIREMENTS

#### Text

- Louv, R. (2006). Last Child in the Woods: Saving Our Children from Nature-Deficit Disorder, Chapel Hill, NC: Algonquin Books, ISBN 13: 978-156512-522-3.



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#### Attendance Policy

- Students are expected to be punctual and attend all classes.
- Outside preparation must be documented on the appropriate form and submitted each week.
- Attendance will be taken at each class session using the sign-in process. It is the responsibility of the student 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 = 1 absence)
- Attendance records will be consulted only when final grades are assigned.
- Attendance may be used to raise or lower a grade if it is near a "cut-off" point.
- Students are responsible for staying informed of announcements concerning reading assignments, examination dates, etc. that are made during class periods, whether or not they are present when the announcements are made
- Failure to attend class and/or complete assignments will affect your overall grade
- Students should consider withdrawing from the course in these instances to protect their GPA.
- **It is the student's responsibility to maintain awareness of their class average and / or grade.**
- Drop date for the college is **July 20, 2015**

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#### Assignment Policy

- 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 (Last Child in the Woods) 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

Course grades will be based upon the following criterion.

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%	<b>A</b>
800 - 899	80-89%	<b>B</b>
750 - 799	75-79%	<b>C</b>
700 - 749	70-74%	<b>D</b>
699 & below	0-69%	<b>F</b>

All work must be the sole work of the individual student who expects to earn the points assigned to it. The exception to this is work assigned to be completed as a **team**. In this case, the same grade will be given each member of the team.

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## Communication Policy

Electronic communication between instructor and students will utilize the South Plains College email system. Instructor will not initiate communication using private email accounts or text messaging. Students are encouraged to check SPC email on a regular basis.

## Student Conduct

Students are expected to abide by standards of student conduct as defined in the SPC Student Guide pages 11-14.

## Special Requirements

- **Cell Phones** should be turned **OFF** during scheduled class periods, unless prior approval has been given from the instructor. This includes text messaging and auditory signals. Cell phones are to be used **outside** the classroom.
- **Missed classes** – Notes should be obtained from a classmate or from the instructor before or after class. Class time will not be used for make up concerns.

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## Accommodations

### 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.

### 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 Special 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 Coordinator of Special Services. For more information, call or visit the Special Services Office in rooms 809 and 811, Reese Center Building 8, (806) 885-3048 ext. 4654.

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## FOUNDATION 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 & Knows How to Learn & 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 & 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 & 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**

- 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 a member 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.

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## **NAEYC ASSOCIATE STANDARDS**

### **NAEYC Standards (S)**

#### **Standard 1: Promoting Child Development & Learning**

- 1a. Knowing and understanding young children’s characteristics and needs
- 1b. Knowing and understanding the multiple influences on development and learning
- 1c. Using developmental knowledge to create healthy, respectful, supportive, and challenging learning environments

#### **Standard 2: Building Family & Community Relationships**

- 2a. Knowing about and understanding family and community characteristics
- 2b. Supporting and empowering families and communities through respectful, reciprocal relationships
- 2c. Involving families and communities in their children’s development and learning

#### **Standard 3: Observing, Documenting, and Assessing to Support Young Children & Families**

- 3a. Understanding the goals, benefits, and uses of assessment
- 3b. Knowing and using observation, documentation and other appropriate assessment tools and approaches
- 3c. Understanding and practicing responsible assessment
- 3d. Knowing about assessment partnerships with families and other professionals

#### **Standard 4: Teaching & Learning**

- 4a. Knowing, understanding, and using positive relationships and supportive interactions
- 4b. Knowing, understanding, and using effective approaches, strategies and tools for early education
- 4c. Knowing and understanding the importance, central concepts, inquiry tools, and structures of content areas of academic disciplines.
- 4d. Using own knowledge and other resources to design, implement, and evaluate meaningful, challenging curriculum to promote positive outcomes.

#### **Standard 5: Becoming a Professional**

- 5a. Identifying and involving oneself with the early childhood field
- 5b. Knowing about and upholding ethical standards and other professional guidelines
- 5c. Engaging in continuous, collaborative learning to improve practice
- 5d. Integrating knowledgeable, reflective, and critical perspectives on early education
- 5e. Engaging in informed advocacy for children and the profession

### **NAEYC Supportive Skills (SS)**

**Supportive Skill 1: Self-Assessment & self-advocacy**

**Supportive Skill 2: Mastering & applying foundational concepts from general education**

**Supportive Skill 3: Written & verbal communications skills**

**Supportive Skill 4: Making connections between prior knowledge/experience & new learning**

**Supportive Skill 5: Identifying & using professional resources**

## **HEAD START CORE KNOWLEDGE AREAS**

**Head Start Core Knowledge and Skills for Practitioners (P)**

**Head Start Core Knowledge and Skills for Administrators (A)**

P1: Child Growth & Development

A1: Maintaining an Effective Organization

P2: Health & Safety  
P3: Professional Practice, Methods & Curriculum  
P4: Guidance  
P5: Family & Community Relationships  
P6: Cultural & Individual Diversity  
P7: Observation & Assessment

A2: Financial Management  
A3: Maintaining a Healthy & Safe Environment  
A4: Personnel Management  
A5: Implementing a Developmentally Appropriate Curriculum  
A6: Instituting Family-Centered Programming

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I \_\_\_\_\_ have received a copy of the South Plains College Student Guide. 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



CDEC 2307.200 ~ Math and Science for Young Children

<b>Week One:</b>	<b>6/2/15</b> <b>6/4/15</b>	<b>Class # 1</b> <b>Class # 2</b>	<b>Introduction and Concept Development</b> <b>Blackboard: (Take the Syllabus Quiz)</b>
<b>Week Two:</b>	<b>6/9/15</b> <b>6/11/15</b>	<b>Class # 3</b> <b>Class # 4</b>	<b>About Math in Early Childhood and Implementing Focused Mathematics Lessons</b> <b>Blackboard: Have Read Louv Part I Chapters 1-3</b> <b>Answer Discussion Question 1</b>
<b>Week Three:</b>	<b>6/16/16</b> <b>6/18/15</b>	<b>Class # 5</b> <b>Class # 6</b>	<b>Weaving Mathematics Purposefully into Daily Routines</b> <b>Blackboard: Have Read Louv Part II Chapters 4-8</b> <b>Respond to another student in Discussion 1</b> <b>Answer Discussion Question 2</b>
<b>Week Four:</b>	<b>6/23/15</b> <b>6/25/15</b>	<b>Class # 7</b> <b>Class # 8</b>	<b>Student Math Presentations</b> <b>Blackboard: Have Read Louv Part III Chapters 9-12</b> <b>Respond to another student in Discussion 2</b> <b>Answer Discussion Question 3</b>
<b>Week Five:</b>	<b>6/30/15</b> <b>7/2/15</b>	<b>Class # 9</b> <b>Class # 10</b>	<b>Science in the Early Childhood Classroom</b> <b>Blackboard: Have Read Louv Part IV Chapters 13-15</b> <b>Respond to another student in Discussion 3</b> <b>Answer Discussion Question 4</b>
<b>Week Six:</b>	<b>7/7/15</b> <b>7/9/15</b>	<b>Class # 11</b> <b>Class # 12</b>	<b>Blackboard: Have Read Louv Part V Chapters 16-17</b> <b>Respond to another student in Discussion 4</b> <b>Answer Discussion Question 5</b> <b>Blackboard: Have Read Louv Part VI Chapters 18-20</b> <b>Respond to another student in Discussion 5</b> <b>Answer Discussion Question 6</b>
<b>Week Seven:</b>	<b>7/14/15</b> <b>7/16/15</b>	<b>Class # 13</b> <b>Class # 14</b>	<b>Science as a Process</b> <b>Blackboard: Have Read Louv Part VII Chapters 21-23</b> <b>Respond to another student in Discussion 6</b> <b>Answer Discussion Question 7</b>
<b>Week Eight:</b>	<b>7/21/15</b> <b>7/23/15</b>	<b>Class # 15</b> <b>Class #16</b>	<b>Student Science Presentations</b> <b>Blackboard: Respond to another student in Discussion 7</b> <b>Submit Class Reflection</b>