

## Course Syllabus

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Department : Child Development

Course Title : Math and Sci for Early Chldhd

Section Name : CDEC\_2307\_730

Start Date : 08/22/2011

End Date : 12/9/2011

Modality : FACE-TO-FACE

Credits : 3

## Instructor Information

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Name : Mary Hanson

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OC Phone # : 432-335-6483

## Course Description

An exploration of principals, methods, and materials for teaching children math and science concepts through discovery and play. Applies scientific approach of problem solving and creative thinking to a child's world. Includes how to make or select inexpensive, simple science and /or math materials. Emphasizes how to write and present age appropriate sciences and/or math activities on subjects such as animals, plants, electricity, five senses, measurement, shapes, sizes, numbers, symbols, etc. Also includes criteria for arranging a science/discovery learning area in a classroom.

## Prerequisites/Corequisites

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None

## Scans

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1,2,4,5,6,7,9,10,11

## Course Objectives

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1. Relate the sequence of cognitive development to the acquisition of math and science concepts. (5, 6, 8, 10)
  - a. Summarize the sequential development of mathematical concepts. (5)
  - b. Outline appropriate science concepts for children.

c. Describe how the development of mathematical concepts promotes children's thinking skills. (10, ExCET 016)

d. Explain how to promote children's cognitive development and understanding of their world through active, hands-on exploration of science concepts and processes. (10, ExCET 018)

e. Compare theories of cognitive development as they relate to math and

science. (8)

f. Summarize how brain development affects concept formation.

g. Compare gender similarities and differences in the acquisition of math and science concepts.

2. Describe the scientific process and its application to the early childhood indoor and outdoor learning environments. (6, 10)

a. Explain how to encourage all children to view themselves as competent scientific explorers. (10, ExCET 018)

b. Describe ways to promote all children's ability to think scientifically (e.g., by providing opportunities to observe, describe, classify and order).

(10, ExCET 015, 018)

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 conclusions and report outcomes). (10, ExCET 018)

3. Develop strategies which promote thinking and problem-solving skills in children.

(1, 2, 4, 5, 6, 8, 9, 10)

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. (2, 5, 8, 9, 10, ExCET 015, 016)

b. Describe how to integrate curriculum content through a variety of learning experiences so children make connections across disciplines.

(1, 10, ExCET 015)

c. Explain techniques for integrating math and science throughout the

curriculum. (1)

d. Plan developmentally appropriate methods that include play, small group projects, open-ended questioning, group discussion, problem solving, cooperative learning and inquiry experiences to help

children develop intellectual curiosity, solve problems, make decisions and become critical thinkers. (2, 4, 5, 8, 9, 10).

e. Brainstorm strategies to encourage girls to feel competent in math and science.

4. Utilize observation and assessment as a basis for planning discovery experiences for the individual child. (1, 2, 4, 5, 6, 7, 8, 9, 10)

a. Review a variety of assessment strategies. (2, 4, 7, ExCET 021)

b. Explain how assessment information is interpreted and used to provide developmentally appropriate learning activities. (1, 2, 4, 7, 10, ExCET 021)

c. Use a variety of assessment strategies to monitor children's progress in achieving outcomes and planning learning activities.

(1, 2, 4, 5, 7, 8, 9, 10, ExCET 021)

5. Create, evaluate and/or select developmentally appropriate materials, equipment and environments to support the attainment of math and science concepts.

(1, 2, 5, 6, 7, 8, 9, 10)

a. Evaluate children=s books, software, manipulatives, music, blocks and other materials which enhance math and science concepts for developmental appropriateness. (1, 10)

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. (1, 2, 5, 7, 8, 9, 10, ExCET 016)

c. Discuss how technology can be philosophically and physically integrated to support development of math and science concepts in the curriculum.

(5, 8, 9, 10, ExCET 025)

d. Explore community resources, including cultural, available for enhancing math and science concepts. (1, 10)

e. Make and use developmentally appropriate, culturally diverse and nonsexist activities and materials to support development of specific math and science concepts. (7, 10)

f. Adapt math and science activities, materials, equipment and environments for children with special needs.

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PLEASE PUT YOUR DEPARTMENT SPECIFIC INFORMATION IN THIS AREA

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Required Readings/Materials

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a) You must purchase the following required readings/materials: Charlesworth, Rosalind and Lind, Karen K. Math and Science for Young Children, 6th Edition, Delar Publishing 2010

b) You are encouraged to buy the following optional books/materials None

Course Requirements (Lectures, Assignments and Assessments)

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Week

Units Discussed in Class

Weekly Reading Assignment

Homework for the Week

Week #1

Introduction

Units 1-2

1. All Vocabulary for Unit 1 p. 22 and 2 p. 35  
math or science center

2. Bring 10 items from home to be used in a

Week #2

Units 1-2

Units 22, 39 and 40

1. Write a lesson plan for the math you saw in class today

2. All vocabulary for Unit 22 p. 312

Week #3

Units 22, 39 and 40

Units 3 and 4

1. All Vocabulary for Unit 3 p. 55 and 4 p. 72 2. Unobserved Math or Science activity in your classroom

Week #4

Units 3 and 4

Units 8 and 9

1. All Vocabulary for Unit 8 p. 129 and 9 p. 145

Week #5

Units 8 and 9

Units 10 and 11

1. Suggested Activity for Unit 10 #1 p. 161 2. all Vocabulary for Unit 11 p. 173



Week #6

Units 10 and 11

Units 12, 13 and 14

1.All Vocabulary for Unit 14 p. 210

Week #7

Units 12, 13 and 14

Student Math Activity and Mid-Term

One unobserved and One observed should be completed as this point in the semester.

Prepare a Math Activity-Follow Instruction sheet and study all vocabulary for Units study from Weeks 1-7.

Week #8

Student Math Activity and Mid-Term

Units 17, 18, and 19

1. All Vocabulary for Unit 18 p. 268      2. Review Question Unit 19 p. 282      3.Study for Mid-Term and bring a Math Activity to teach the class      Chapter 1 and 2

Week #9

Units 17, 18, and 19

Unit 20 and 21

1. All Vocabulary for Unit 21 p. 302      2. Unobserved Math or Science activity in your classroom

Week #10

Unit 20 and 21

Units 5, 6, and 7

1. All Vocabulary for Unit 5 p. 88 and Unit 6 p. 102

Week #11

Units 5, 6, and 7

Units 15, 16, and 26

1. All Vocabulary for Unit 16 p. 237

Week #12

Units 15, 16, and 26

Units 33 and 34

1. All Vocabulary for unit 33 p. 491 and Unit 34 p. 508

Week #13

Units 33 and 34

Units 36, 37and 38

1. All Vocabulary for Unit 36 p. 537 and Unit 38 p. 561

Week #14

Units 36, 37and 38

Units 27, 28, 29, 30, 31, and 32

1. All Vocabulary for Unit 27 p. 395, Unit 30 p. 438 and Unit 32 p. 472

Week #15

Units 27, 28, 29, 30, 31, and 32

Complete any late assignments and lab observations this week

Prepare a Science Activity-Follow Instruction sheet and study all vocabulary for Units study from Weeks 9-15.

Week #16

Student Science Activity and Final Exam

Have a wonderful holiday!!!

Grading Policy

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Each week, I will provide grades or scores and comments on assignments within 6 days of when they were submitted. After I send feedback each week, I will post a notification in the Main forum.

Late assignments receive a 10% deduction for each day they are late if assignments are not posted by 11:59 p.m. central on the day they are due. Assignments more than 5 days late will not be accepted. Technological issues will not be considered as valid grounds for late assignment submission. In the event of a server outage, students should submit assignments to the instructor.

Percentage % Grade

Instructors: please enter grade percentage. Instructors: enter letter grade.

## Special Needs

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Odessa College complies with Section 504 of the Vocational Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990. If you have any special needs or issues pertaining to your access to and participation in this or any other class at Odessa College, please feel free to contact me to discuss your concerns. You may also call the Office of Disability services at 432-335-6861 to request assistance and accommodations.

## Learning Resource Center (Library)

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The Library, known as the Learning Resources Center, provides research assistance via the LRC's catalog (print books, videos, e-books) and databases (journal and magazine articles). Research guides covering specific subject areas, tutorials, and the "Ask a Librarian " service provide additional help.

## Student E-mail

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Please access your Odessa College Student E-mail, by following the link to either set up or update your account: <http://www.odessa.edu/gmail/>. All assignments or correspondence will be submitted using your Odessa College email.

## Student Portal

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Please access your Odessa College Student E-mail, by following the link to either set up or update your account: <http://www.odessa.edu/gmail/>. All assignments or correspondence will be submitted using your Odessa College email.

## Technical Support

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For Blackboard username and password help and for help accessing your online course availability and student email account contact the Student Success Center at 432-335-6878 or online at [https://www.odessa.edu/dept/ssc/helpdesk\\_form.htm](https://www.odessa.edu/dept/ssc/helpdesk_form.htm).

#### Important School Policies

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For information regarding student support services, academic dishonesty, disciplinary actions, special accommodations, or student's and instructors' right to academic freedom can be found in the Odessa College Student Handbook.