



FAYETTEVILLE STATE UNIVERSITY  
 School of Education  
 Department of Elementary Education

**1. LOCATOR INFORMATION**

Instructor:	Dr. Beverlyn Cain
	BU 347
	910-672-1527
Course Number and Name:	Educ 426 DL Science, Math and Social Studies
Semester:	Fall 2009
Credit Hours:	3
Course Location & Meeting Time:	Online, SBE 114 MWF

**2. FSU Policy on Electronic Mail:** Fayetteville State University provides to each student, free of charge, an electronic mail account ([username@uncfsu.edu](mailto:username@uncfsu.edu)) that is easily accessible via the Internet. The university has established FSU email as the primary mode of correspondence between university officials and enrolled students. Inquiries and requests from students pertaining to academic records, grades, bills, financial aid, and other matters of a confidential nature must be submitted via FSU email. Inquiries or requests from personal email accounts are not assured a response. The university maintains open-use computer laboratories throughout the campus that can be used to access electronic mail. Rules and regulations governing the use of FSU email may be found at <http://www.uncfsu.edu/PDFs/EmailPolicyFinal.pdf>

**3. COURSE DESCRIPTION**

This course provides an overview of how children learn mathematics, science, and social studies and suggest developmentally appropriate practices for helping BK professional plan and implement instruction for preschool children. An integrative, thematic approach focusing on how these learning experiences can be embedded in play is emphasized. ***(A ten hour field experience is required)***

**4. Disabled Student Services:**

In accordance with Section 504 of the 1973 Rehabilitation Act and the Americans with Disabilities Act (ACA) of 1990, if you have a disability or think you have a disability to please contact the Center for Personal Development in the Spaulding Building, Room 155 (1<sup>st</sup> Floor); 910 672 – 1203.

## 5. TEXTBOOK

Davis, G.A.; Keller, D.J. (2009). *Exploring science and mathematics in a child's world*. Pearson Education, Inc., New Jersey: Upper Saddle River.

Seefeldt, C. (2005). *Social Studies for the preschool/primary Child*. (7<sup>th</sup> ed.) New Jersey: Upper Saddle River.

## 6. SCHOOL OF EDUCATION'S CONCEPTUAL FRAMEWORK

The conceptual framework of the School of Education is reflected in this course and establishes a shared vision of its efforts in preparing educators to work effectively in P-12 schools. It defines the educator as a *Facilitator of Learning*, one who seeks to make the learning process accessible and one who enables learning to take place successfully. This presupposes that the educator is reflective and serves as a catalyst, stimulator, and motivator of the teaching for learning process. The conceptual framework defines the unit's vision which underscores the school's purpose for preparing its candidates for teaching and leadership roles in a global society. The unit prepares candidates who support student learning, within the context of family and community participation, for a diverse, technological, and global society. We achieve this vision through teaching, research, and service. Our conceptual framework serves as a lens through which we view our education professionals in the music program. The themes of our conceptual framework are: (1) caring dispositions and ethical responsibility; (2) communication; (3) knowledgeable and reflective educators; (4) research and leadership; (5) respect for diversity and individual worth; (6) technological competence and educational applications; and (7) working with families and communities.

## 7 Student Outcomes and Conceptual Frame

The competencies for this course come from the Department of Public Instruction and are similarly to those prescribed by the National Association for the Education of Young Children.

Standard 6: Birth-Kindergarten professional prepare for teaching and learning by creating an integrated curriculum and responsive environment. Students will be able to do the following:

- Indicator 1: Use play/active learning processes as a foundation for ALL young children's learning.
- Indicator 2: Plan suitable balance child-initiated and adult-initiated activities.
- Indicator 3: Create and adapt integrated, meaningful, challenging, and engaging developmentally supportive learning experiences.
- Indicator 4: Implement and adapt developmental and functional curricula across all domains (including cognitive, physical social, emotional, and language) in response to ALL young children's strengths, interests, needs and differing ability levels.
- Indicator 5: Integrate content from disciplines that set the stage for subsequent academic development to include emergent reading, writing, mathematics, the arts (visual art, music, movement, drama, and dance) science, and social studies.

- Indicator 6: Create and adapt developmentally supportive environments with attention to curriculum, interactions, teaching practices, and learning materials.
- Indicator 7: Create, manage, and adapt environments with developmentally appropriate interpersonal, spatial, and temporal organization.

**Conceptual Frame:** Knowledgeable and Reflective : Indicators 1-7  
Technological Competence and Educational Applications: 6  
Respect for Diversity 4, 7  
Working with Families and Communities 7  
Caring Dispositions-Parent Handbook  
Communication –Collaborative Group Project Work  
Research and Leadership- Development of units of study

## 8. Requirements

- Students enrolled in this course are required to do the following:
- participate in **ALL** class discussions and activities. All work due on the due date.
  - prepare a presentation for the class for each of the four modules (a group. (200 points)
  - develop five teaching materials for modules 2, 3, 4 and share with the class. (200 points for each Module)
  - Each group will write an integrated unit for Module 4 make a handbook for parents with at least four activities in each of the areas we study that they can use at home and also design a bulletin board. (200 Points)
  - observe in a classroom for ten hours and keep a journal of observations to be submitted to instructor. (100 points)
- take a test after each module. (400 points)

## 9. Class Attendance

Students are expected to attend **all** class meetings, laboratories, and other instructional sessions for **all** courses in which they are enrolled. Students are also expected to arrive to class on time and remain in class for the entire scheduled period. When students must miss class (es) for unavoidable reasons, i.e., illness, family emergencies, or participation in official university sponsored activities – they are responsible for informing faculty of the reasons for the absences, in advance if possible, and completing all missed assignments. Faculty members will indicate in their syllabi the conditions for making up missed assignments.

During the first half of the semester/term, faculty will assign an interim grade of "EA," Excessive Absences, for students whose class absences exceed 10% of the total contact hours for the class. Students who receive EA interim grades must either withdraw from the class or resume attendance. Students who resume attendance must consult with the instructor about completion of missed assignments. The EA is not a final grade, so students who are assigned an interim grade of EA, but do not withdraw from the class, will receive a final grade based on the evaluation criteria for the class.

**Please note that the WN grade is no longer in effect. Students must not expect faculty to withdraw them from classes.**

## 10. Student Behavior Expectations

The instructor will respect all students and will make every effort to maintain a classroom climate that promotes learning for all students. Students must accept their responsibility for maintaining a positive classroom environment by abiding by the following rules:

1. Students are expected to arrive to class on time, remain in class until dismissed by the instructor, and refrain from preparing to leave class until it is dismissed.
2. Student/teacher relationships, as well as relationships among peers, must be respectful at all times.
3. Students are not permitted to wear headphones or other paraphernalia that may be distracting to the classroom environment.
4. Students must refrain from any activity that will disrupt the class; this includes turning off cell phones and pagers.
5. Students are not permitted to use profanity in the classroom.
6. Students will not pass notes or carry on private conversations while class is being conducted.

**Consequences for Failing to Meet Behavioral Expectations:** The first time a student violates one of these rules, the instructor will warn him or her privately, either after class or before the next class. (Faculty members reserve the right to warn students publicly if needed.) The second time a student violates the guidelines; the instructor may deduct as many as twenty points from the student's next exam grade. If a student violates the guidelines three times, the instructor will report the student to the Dean of Students for disciplinary action according to the FSU Code of Student Conduct

## 11. Course Outline

- A. How Children learn
- B. Environments that Support learning
- C. The process of Problem Solving for children
- D. Measurement in science and math
- E. Organizing data in science and math
- F. Concept Formation
- G. Early Geometric Shapes
- H. Assessing the Child's Developmental Level
- I. The Basics of Science
- J. How Young Scientist Use Concepts
- K. Planning for Science
- L. Fundamental Concepts in Science
- M. Symbols
- N. Overview of Primary Science
- O. These are the Social Studies
- P. Planning to Teach
- Q. Self, Others, and Community Skills
- R. Thinking and Concept Formation
- S. Children's Study of Time, Continuity and Change: History
- T. People, Places and Environments: Geography
- U. Production, Distribution, Consumption: Economics

## 12. Course Activities

This course is divided into four modules.

1. The first module will examine theoretical foundations for teaching science and mathematics This module covers first four weeks of the course.

**Chapters 1-6**

2. The second module will deal primarily with mathematics concepts for young children and will be completed during the second four weeks of the class.

**Chapters 7-12** in your textbook.

3. The third module will deal with science concepts for young children and will be completed during the third four weeks of the class. **Chapters 13-18** in your textbook.

4. The fourth module is devoted to teaching social studies to young children and will be completed during the fourth four weeks This module will also include a focus on diversity and strategies for teaching children with special needs.

**Please Read chapters 1- 3, 5-9 in your Social Studies Textbook.**

**5. There is also a ten-hour observation to be done in this class. You are expected to observe children while in a classroom setting and keep a journal of the science and math activities in which they are engaged. At the end of your observation, based on the theoretical foundations in chapters 1-6, please write a paper (no longer than three pages) describing what you saw and reflecting on whether you thought the lessons were appropriately designed for the age group based**

## 13. FSU Grading System

90 – 100	A
80 – 89	B
70- 79	C
60 – 69	D

## Grading for Course

1400-1500=A
1300-1399=B
1200-1299=C
1100-1199=D

**Late work is not accepted unless the student has communicated with the professor before or during the emergency. At that time an alternative due date will be set for the student.**

## Grading Activities

- Class Presentations (4 modules) 50 =200 points
- 5 Teaching Materials/chapter (2,3,4) 200=600 points
- Integrated Unit Module 4= 100points
- Design a Bulletin Board= 50 points
- Parent Handbook 4 activities/area=50 points

Observation journal=100

4 Tests (100)=400 points

1400-1500=A

1300-1399=B

1200-1299=C

1100-1199=D

Below 1100=F

### **Rubric used when grading writing activities**

Content, Clarity, Organization-----25 points

Grammar Usage, Sentence Structure, Spelling, Punctuation-----30 points

Creativity-----20 points

All work needs to be typewritten

### **14 Schedule**

**Each module will be concluded on the following dates.**

Module 1      Theoretical Concepts      September 20

Module 2      Math                                      October 15

Module 3      Science                                      October 27

Module 4      Social Studies/Diversity      November

### **COURSE ACTIVITY INFORMATION**

#### **Module 1 Theoretical Foundations for Teaching Science Mathematics**

In order to assist you in developing the skill of knowing a theoretical base to guide you in curriculum development, the first six chapters focus on how children learn, problem solving, creating environments that allow children to explore ask questions, and capturing observations in math and science.

#### **INDIVIDUAL ASSIGNMENTS**

**The first six chapter assignments are individual assignments. During this time, I strongly encourage you to become acquainted with your group members for future work.**

Chapter 1----A Child's World-How Young Children Learn

Chapter 2-Nurturing Child Development-Environments That Promote Learning

Assignment Read chapters 1 and 2

Write an original example of cause and effect

Write an activity for each basic mathematical concept described in the Chapter for infants and toddlers.

Refer to page 29. Create an Experience Chart

**Due August 25---**

Chapter 3-The Process of Problem Solving for Children

Chapter 4-A Way to Capture Observations in Mathematics and Science

Assignment Read chapters 3 and 4

Pick one problem solving style to create a problem

How can you capture and record a change in growth

**Due September 1**

Chapter 5-Organizing Data in Science and Mathematics

Chapter 6-Criteria for Developing Concept Formations

Assignment Read chapters five and six

Develop a chart to display a basic learning concept

Develop a web

**Due September 8**

■ **Module 1 Exam--- September 15 chapters 1-6**

### **Teaching Activity Guidelines for Math and Science**

The following information is assist you with developing the important skill for lesson plan development. This basic lesson plan is appropriate for infants, toddlers and preschoolers. For kindergarten and primary grades you may build those lessons on the six point lesson plan format. Six point lesson plans are used in public schools. Some of your lessons will focus on those grades. Your text is specific with developmentally appropriate activities.

Each unit of study must have five activities. To assist you with the skill of developing age appropriate activities, each of the five activities should address a particular age. (infant, toddler, preschool, kindergarten, first grade) Each activity needs to be adapted for a child with a special need. (Very Important). All children develop however, all children develop at different rates. Some children have special needs or English may be a second language.

Each teaching activity must include:

1. A theory based math concept. For example :As addressed in chapter 1- infants and toddlers experience pattern, sequence, seriation, object permanence, sorting, comparison, one to one correspondence and classification (pg 9)
2. Type of problem is being solved (Review information on problem solving in ch 3)
3. An objective ( What will children learn at he end of the activity? What skill will children develop?)
4. A procedure, ( Steps of implementation of the activity)
5. An evaluation, concept books, a graph or a measurement, What stage of development of understanding?
6. The activity needs to be developmentally appropriate for the child's age. For example: An activity on sorting different sized circles is appropriate for a 2 year old.

### **Unit Plans of study Guidelines for all groups**

The unit of study development is the responsibility of the group. All members are to participate. Each member is responsible for one lesson plan. All lesson plans should tie into the theme of the unit plan of study. Group collaboration is the skill being developed. You will need to become familiar with your group members and problem solve how to develop the plan of study for each math, science and social study topic given.Each unit of study must be in a powerpoint format Your unit plan should include:

1. Five lesson plans (one per group member)

2. Unit of study goal and or objective.
3. Creativity
4. Concept book lists,
5. Graphics, video clips
6. References if your lesson plan came from another resource.
7. Evaluation
8. Group member names
9. Group member name on section he or she submitted

**Module 2-Math Conceptual Units**  
**Chapters 7-12**

Each group may choose **three math units** to develop **three units of study on due dates** given below. Use **the math information** from the chapters 7-12 to assist you in developing your units. Remember to refer to the first six chapters for basic math information that will support your work.

Chapter 7 Astronomy and Space-

Chapter 8 Birds- **-DUE SEPTEMBER 22**

Chapter 9 Clouds-

Chapter 10 Insects-**DUE SEPTEMBER 29**

Chapter 11 Leaves-

Chapter 12 Light and Color—**DUE OCTOBER 6**

**TEST ch 7-12 OCTOBER 7**

**Module 3 Science Conceptual Units**  
**Chapters 13-18**

Each group may choose three units of study based on the concepts supplied. Remember to focus on the **science information** given in chapters 13-18 to assist you. Remember to refer to the first six chapters for basic science information that will guide you in developing your science units of study.

Chapter 13 Rocks Due **DUE OCTOBER 13.**

Chapter 14 Seeds Due

Chapter 15 Sun and Shadows Due **DUE OCTOBER 20**

Chapter 16 Toys and Tools Due

Chapter 17 Water Due **DUE OCTOBER 27**

Chapter 18 Wind Due

**Test 3 ch 13-18 OCTOBER 28**

#### Module 4 Social Studies

Read chapters 1-3, 5-9 in your social studies book. This area assists with skill development in guiding children to understand about the world around them. The world, countries, cities are diverse in child rearing styles and rich with culture. You will need to include diversity as an aspect in your final unit of study. November 3-17 is the time set for reading.

Group Research: Find information on the following types of curriculum development.

integrating curriculum

Project approach

Emergent curriculum

These types of curriculum will assist you in understanding the skill of integrating math, science and social studies to form an integrated unit of study. Each group will submit a two page paper on their understanding of these types of curriculum. Due November 10

#### FINAL INTEGRATED UNIT OF STUDY

1. Each group will submit a final powerpoint of an integrated unit of study (math, science, social studies) in a Powerpoint. ALSO INCLUDED

2. Bulletin Board as a segment of the unit of study

3. Parent Handbook that reflects some activities based on your unit of study that parents can do at home with children

**FIELDBOOKS**-----Your 10 hour observations can take place in a learning environment for children aged infant- third grade. Your observations should include observing math, science and social study activities. The purpose of the field book is to assist you in learning what theory looks like in practice. Your notes should reflect any theory bases found in text chapters. For example, The classroom of four year olds were engaged in play. At the water table, children were examining how to create a siphon for water. This activity is reflective of cause and effect.

Grading for group work is based on the following: Knowledge of content, clarity, creativity, well written work (grammar, sentence structure, use of proper English, spelling) The written work should be in your own words. If you use information from the chapter as a reference then you need to identify it as a reference or you will be plagiarizing. Group collaboration will be graded. If your unit of study reflects a solid base of understanding, which includes different perspectives flowing together then you are a master when working in a group.

## VIII. BIBLIOGRAPHY

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Myers, M. E. & Myers, B. K. (2002) Holidays in the public school kindergarten: An avenue for emerging religious and spiritual literacy. *Childhood Education*. 78, 79-84.

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