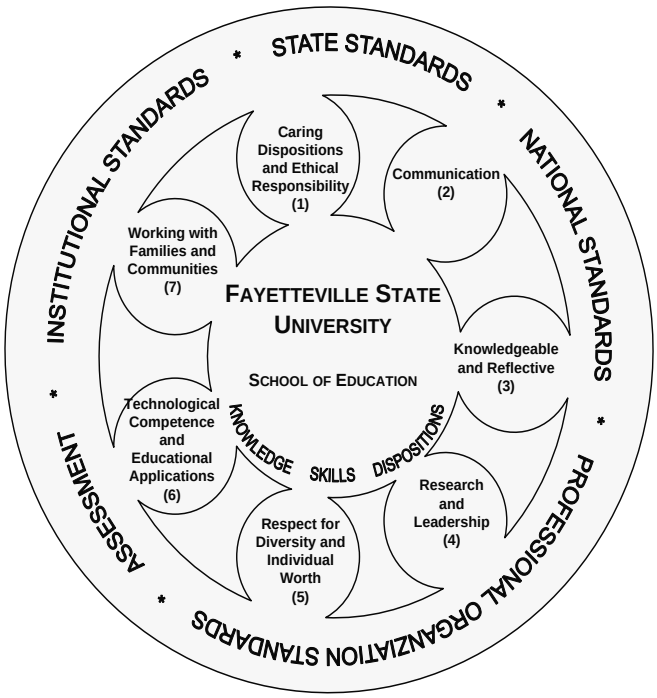

FAYETTEVILLE STATE UNIVERSITY
School of Education
Elementary Education
Middle Grades, Secondary, and Special Education

1. LOCATOR INFORMATION

Instructor: **Dr. Lillian Riggs Johnson**
Office Location: **Butler Building, Room 208**
Office Telephone: **910-672-1504**
e-mail: **Ljohns17@uncfsu.edu**

Course Number and Name:
ELEM 456 Methods/Materials of Teaching Science in the Elementary School (K-6)

Semester**: Fall 2009**
Credit Hours: 3 credit hours
Course Location & Meeting Time**: LYONS Science Building, Room 207, Thursdays 6:00 PM to 8:50 PM**

Office Hours: **Mondays** **10:00 AM – 12:00 noon**
Wednesday **10:00 AM – 12:00 noon**
2:00 PM - 6:00 PM

2. **FSU Policy on Electronic Mail**: Fayetteville State University provides to each student, free of charge, an electronic mail account (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 is a critical analysis of the content and teaching strategies in the biological, physical environmental and earth sciences applicable to the elementary school grades (K-6). The education professional as a facilitator of learning, will place emphasis upon content to be taught to pupils, on the field, in laboratory experiences, and during inquiry teaching.

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 (1st Floor); 910 672 – 1203.

5. TEXTBOOKS

Peters, J. M. and Stout, D. L. (2006). Science in elementary education: Methods, concepts, and inquiries, Tenth Edition, Upper Saddle River, NJ: Pearson Merrill Prentice Hall.

Study Guide: Elementary Education: Content Knowledge. *Test Code: 0014* (2004). A Publication of the Educational Testing Service (online).

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. COURSE GOALS AND OBJECTIVES - STANDARDS FOR TEACHERS

Standards– NC Department of Public Instruction – Final Draft for Review - August 20, 2008

Twenty-first (21st) Century Teacher candidates have the knowledge and understanding of scientific inquiry, process skills, concepts and application relative to the life, physical, and earth sciences.

Teacher candidates are knowledgeable in and are able to design and implement science learning activities that:

a) Demonstrate appropriate safety practices and procedures to ensure the welfare and safety of all students and living organisms in the learning environment, including proper maintenance and disposal of

materials. – Sample Lesson; Class Assignments 1-5; Guest Speaker Ms. Jennifer Sharp; Practicum experience; role play

b) Use the unifying concepts and processes in the life, physical, and earth sciences. – Sample Lesson; Class Assignments 1-5; Guest Speakers Mrs. Kathy Linskins, Mr. Brian Mosley, Field trip to Fascinate-U; Field trip to Cape Fear Botanical Garden; Practicum experience; role play

c) Involve the nature of science, the historical development of scientific thought, the process of scientific inquiry, and the reciprocal relationship between science and society.– Sample Lesson; Class Assignments 1-5; Guest Speaker Ms. Jennifer Sharp; Practicum experience; role play

d) Involve the application of science skills, equipment and processes, technological tools and mathematical knowledge and skills. – Class Assignments 1-5; Sample lesson; Guest speakers; Practicum experience; role play

e) Allow students to develop and apply content knowledge and critical thinking skills that lead to the development of scientific literacy. – Class Assignments 1-5; Sample lesson; Guest speakers; Practicum experience; role play

Course objectives – Fall 2009

Teachers (in-service and pre-service) completing the course will be able to:

1. Devise and implement units, lessons, activities, and demonstrations to illustrate scientific principles and concepts based on the needs, abilities, and interest of diverse elementary school children. *Conceptual Framework Themes:1, 2, 3, 4, 5, and 6*

2. Determine sources of information, equipment, and supplies that may be obtained inside and outside of the school environment (e. g. grants, field trips, guest speakers, special events, natural resources*). Conceptual Framework Themes: 1, 2, 3, 4, 5, and 6*

3. Demonstrate ways to integrate science (biology, physical science, and earth science) with various other disciplines. *Conceptual Framework Themes*: *1, 2, 3, 4, 5, and 6*

4. Incorporate the use of technology to include Smart Boards, computers, calculators, DNA isolation equipment, and digital scales in teaching elementary school kids. *Conceptual Framework Themes*: *1, 2, 3, 4, 5, and 6*

5. Develop an awareness and appreciation of the use of newspapers in the classroom for elementary school children. *Conceptual Framework Themes*:*1, 2, 3, 4, 5, and 6*

6. Demonstrate an awareness of the need for conservation, preservation and wise use of natural resources by including outdoor activities on the school grounds and other sites. *Conceptual Framework Themes*: *1, 2, 3, 4, 5, and 6*

7. Demonstrate a knowledge of and skill in the use of scientific instruments and the ability to construct simple science equipment using house-hold items. *Conceptual Framework Themes: 1, 2, 3, 4, 5, and 6*
8. Develop criteria for selecting appropriate science textbooks for elementary school children. *Conceptual Framework Themes: 1, 2, 3, 4, 5, and 6*
9. Develop learning competitions (games) to include both an engagement and learning component. *Conceptual Framework Themes: 1, 2, 3, 4, 5, and 6*
10. Partner with leaders in education who work outside of a public or private school environment to teach science. *Conceptual Framework Themes: 1, 2, 3, 4, 5, 6, and 7*

8. EVALUATION CRITERIA

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.

No cell phones or pagers are allowed in class unless turned on silence mode.

Grade Distribution

Practicum – "Field Experience Outside of the Public Schools"

All elementary methods courses require a practicum. As part of the ELEM 456 class, students are required to spend 10 hours teaching in one of three agencies outside of the public schools: Fascinate-U Children's Museum, Cape Fear Botanical Garden, and John Pechmann Fishing Center. Time sheets are available for each student and weekend hours may be available for students who work. Students will receive 100 points for the practicum which amounts to 10 points per hour. **Failure to complete the practicum will result in the student failing the course.**

Assignments/Points Earned – For the 16 weeks of the semester, students will receive 200 points each for assignments and for being in attendance to participate. Missed assignments will cost the student 200 points also. Please note that although you loose 200 points if you are not present to take part in the activities of the day, you may use the additional points/extra credit/make-up to gain back those points. Total number of points that can be earned by a student is 3,300 = A.

Additional Points/Extra Credit/Make-up – 300 points

- Fieldtrips Planned for Class
- Guest Speakers Invited to Class
- Grant Written and Submitted

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.

Points Earned/Grades	Percentage of Total	Grade
3300 - 3036	100 – 92	A
3035 - 2739	91 - 83	B
2738 - 2409	82 - 73	C
2408 - 2145	72 - 65	D
Below 2144	64 - 00	F

9. COURSE OUTLINE (with Assignment Schedule)

ELEM 456-Methods/Materials of Teaching Science in the Elementary School (K-6)

"Teaching science is more than using paper and pen.", lrj, 2005

Weeks of Semester	Topics/Activities Tentative
Week 1 – August 20	NC Standard Course of Study/Lesson Plans/Unit Plans: Dr. Johnson conducts a sample hands-on lesson
Week 2 – August 27	• John Peckmann Fishing Center – Mr. Kristopher Smith • **Assignment**: Using Your Creativity to Design Lesson Plans
Week 3 – September 3	• Bright Ideas Grants: Mrs. Julie Wahl • **Assignment**: Using Your Creativity to Design Lesson Plans
Week 4 – September 10	• Field trip Fascinate-U Children's Museum
Week 5 – September 17	• Field trip Cape Fear Botanical Garden
Week 6 – September 24	• No Class –Conference Presentation – Dr. Johnson • Work on future assignments
Week 7 – October 1	• Science House -Technology Lessons – Ms. Jennifer Sharp
Week 8 – October 8	• **Interim Exam – Praxis II Sample Test** • Learning Competition/Games **Assignment**

Week 9 – October 15	**Fall Break - No Class**
Week 10 – October 22	• Smart Board Guest Speaker: Mr. Brian Mosley – BU 317
Week 11 – October 29	• Smart Board **Assignment**– BU 317
Week 12 – November 5	• Using Newspapers for Science Lesson Plans **Assignment**
Week 13 – November 12	• Mrs. Kathy Linskins – Educator for Environmental Sciences
Week 14 – November 19	**Open Date – Guest speaker or field trip**
Week 15 – November 26	• **Thanksgiving Holiday – No Class**
Week 16 - December 3	• Science Textbook Evaluation **Assignment**
December 4	**Last Day of Classes**
December 10	**Final Exam – Practice PRAXIS II**

12. TEACHING STRATEGIES This course will involve lectures/demonstrations, student discussions, simulated teaching experiences, cooperative learning groups, and computer experiences. (E.g., large and small group activities, individual and group projects, demonstrations, discussions, role play, and Internet research.

13. UNIVERISTY POLICIES

Division of Student Affairs
Services for Students with Disabilities
http://www.uncfsu.edu/studentaffairs/CFPD/cfdservices.htm
Phone: 910.672.1222

The university continues to be sensitive to the identification of possible barriers to students with disabilities and attempts to make reasonable accommodations for these students.

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 (1st Floor); 910-672-1203.

14. REFERENCES (Suggested Readings, Internet and/or Multi-media Resources)

Ardley, N. (1993). *101 great science experiments: A step-by-step guide.* New York, New York: Dorling Kindersley, Inc.

Hopwood, J. (2008). *Cool dry ice devices: Fun science projects with dry ice.* Edina, Minnesota: ABDO Publishing Co.

Ingram, M. (2003). *Bottle Biology*. Second Edition. Madison, Wisconsin: Kendall/Hunt Publishing Co.

Kauchak, D. and Eggen, P. (2005). *Introduction to Teaching: Becoming a professiona*l, Second Edition, Upper Saddle River, NJ: Pearson/Merrill Prentice Hall.

Kim, D. M. (2005). *Scientific methods in action*. ELL Reader. Scott Foresman Reading Street 5.3.1. New York, NY: Pearson/Scott Foresman.

Mysliwiec, T. H., Shibley, Jr., I. and Dunbar, M. E. (Dec. 2003/Jan. 2004). *Using newspapers to facilitate learning.* Journal of College Science Teaching, 33, (3), p. 24-28.

Norman, P. (2005). *ScienceWiz: Chemistry: Solids, Liquids & Gases*. El Sobrante, CA: Norman & Globus, Inc.

Peters, J. M. and Stout, D. L. (2006). *Science in elementary education: Methods, concepts, and inquiries*, Tenth Edition, Upper Saddle River, NJ: Pearson Merrill Prentice Hall.

Smith, A. (1996). *The Usborne big book of experiments*. Tulsa, Oklahoma: EDC (Educational Development Corporation) Publishing.

Study Guide: Elementary Education: Content knowledge (2006).Test Code 0014. A Publication of the Educational Testing Service.