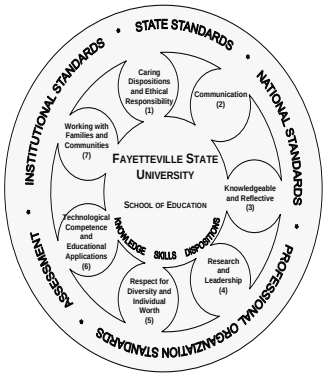

Fayetteville State University
School of Education
Department of Elementary Education

Undergraduate

1. LOCATOR INFORMATION

Instructors: Dr. Geraldine Campbell Munn, Assistant Professor
Department of Elementary Education
gmunn@uncfsu.edu

Mrs. Lisa D. Washington, Master Teacher
Department of Elementary Education
lwashin1@broncos.uncfsu.edu
BU 232
910-672-1261

Course Number and Name: ELEM 455: Teaching Mathematics in the Elementary School (K-6)

Semester: Fall 2009

Credit Hours: 3 semester hours

Course Location & Meeting Time: Butler 211
Thursday 4:00 PM – 5:50 PM

Office Hours: Butler 232
Thursday 2:00 PM – 4:00 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. DESCRIPTION

A concentrated view of basic mathematics, mathematical concepts and algorithms applicable to the elementary grades, with emphasis on content and activities related to various approaches, and strategies for teaching mathematics in the elementary grades (K-6). Course requirements include a practicum in a partner elementary school classroom.

Prerequisite: Admission to teacher education.

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 please contact the Center for Personal Development in the Spaulding Building, Room 155 (1st floor), 910.672.1203.

5. TEXTBOOKS

Reys, Suydam, Lindquist, Lambdin, and Smith (2009*). Helping Children Learn Mathematics*. John Wiley & Sons New Jersey **(9th edition).**

Smith, Lambdin, Lindquist, and Reys (2009). *Teaching Elementary Mathematics.* John Wiley & Sons New Jersey (**4th Edition**).

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

Upon completion of this course the facilitator of learning will have achieved the following competencies and will be able to demonstrate the acquired competencies at a proficiency level of 80% or higher.

A. Teacher candidates will be able to perform basic operations on whole numbers, integers, rational numbers, algorithms, etc., which are appropriate to grades K-6.

B. Teacher candidates will be able to demonstrate that they have basic knowledge and skills in calculator and computer use.

C. Students will be able to demonstrate basic knowledge, and understanding of objectives appropriate to grades K-6.

D. Students will be able to plan, design, and teach a lesson using the six- point lesson plan. This will include microteaching and demonstrations.

E. Students will be able to solve mathematical problems by intuitive approaches (critical thinking).

8. NORTH CAROLINA PROFESSIONAL TEACHING STANDARDS

Standards Used in this Course	Assessment (s)
Standard I: Teachers demonstrate leadership	• **Interdisciplinary/Methods Fair** • **Professional Development Activities**
Standard II: Teachers establish a respectful environment for a diverse population of students	• **Children's Literature Lesson and Presentation** • **Classroom Ideas for Teaching Mathematics**
Standard III: Teachers know the content they teach.	• **Classroom Ideas for Teaching Mathematics** • **Cooperative Learning Lesson** • **Demonstration Lessons** • **Chapter Tests**
Standard IV: Teachers facilitate learning for their students	• **Technology Lesson Plan Presentation** • **Demonstration Lessons**
Standard V: Teachers reflect on their practice	• **Practicum Assignments** • **Writings w/prompts**

9. CONCEPTUAL FRAMEWORK THEMES

Themes used in this course	Assessments (s)
Caring dispositions and ethical responsibility	• **Practicum Assignments** • **Interdisciplinary/Methods Fair** • **Professional Development Activities**
Communication	• **Demonstration Lessons**
Knowledgeable and reflective educators	• **Practicum Assignments** • **Writings w/prompts**
Research and leadership	• **Interdisciplinary/Methods Fair** • **Professional Development Activities**
Respect for diversity and individual worth	• **Children's Literature Lesson and Presentation**

	• **Classroom Ideas for Teaching Mathematics**
Technological competence and educational applications	• **Technology Lesson Plan Presentation** • **Demonstration Lesson**
Working with families and communities	• **Interdisciplinary/Methods Fair**

10. TECHNOLOGY

This course will help strengthen and enhance the candidates' technological competence and skill in using technology. Candidates will use a variety of technologies to enhance their knowledge of technology in this course. Some technologies for this course may include: productivity tool (Power Point, presentation software), Internet, web page construction, e-mail, on-line course applications, grade book, video camera.

	Technological Applications for this Course
X	Productivity tool (Power Point)
X	Presentation software
X	Internet
	Web page construction
X	e-mail
X	On-line applications
	Grade book
	Video camera
	Scanner
	Excel
X	Smart board
	Lap Top and LCD panel
	Music Stereo and CD

Include the NCDPI Technology Standards and the assessment(s). Only include the standard or standards you will address in this course.

Technology Standards Used in this Course	**NCDPI Technology Standards**	**Assessment(s)**
X	1. Teachers demonstrate a sound understanding of technology operations and concepts.	Online Tests
X	2. Teachers plan and design effective learning environments and experiences supported by technology.	Demonstration Smart board Lessons
X	3. Teachers implement curriculum plans	Interactive Lesson

	that include methods and strategies for applying technology to maximize student learning.	Plans
X	4. Teachers apply technology to facilitate a variety of effective assessment and evaluation strategies.	Technology Presentation
X	5. Teachers use technology to enhance their productivity and professional practice.	Internet Research
	6. Teachers understand the social, ethical, legal and human issues surrounding the use of technology in PK-12 schools and apply those principles in practice.	Practicum

11. DISPOSITIONS

Dispositions will be addressed through readings, modeling, reflecting, field experiences, discussion and other approaches. This course will seek to enhance and strengthen the dispositions listed below.

Professional Competence		**Professional Responsibilities**	
X	Appreciates and engages in self-reflection	X	Dresses appropriately for the setting
X	Shows a commitment to ongoing learning	X	Is punctual
X	Desires to learn and apply new technologies	X	Attends class regularly and participates in the class
X	Is receptive to new ideas and feedback	X	Completes assignments and tasks in a timely manner
X	Writes and speaks clearly and effectively	X	Willing to go beyond required assignments
X	Uses culturally sensitive language when communicating with families	X	Shows initiative and motivation
	Respects the privacy of students and their families		Assumes fair share of responsibilities

Professional Dispositions and Qualities		**Professional Integrity**	
X	Believe all children can learn	X	Displays high and ethical professional standards
X	Understands the culture of students and their families	X	Is honest and dependable
X	Values and respects diversity and individual differences	X	Is courteous and respectful
X	Demonstrates flexibility and adaptability	X	Has a positive professional attitude
X	Treats all students fairly and equitably	X	Accepts and uses constructive

			criticism
X	Is sensitive to the feelings of others	X	Maintains emotional control and appropriate behavior
X	Interacts appropriately and positively with others		

12. GENERAL REQUIREMENTS

A. School Practicum / Professional Development Activities

All elementary methods courses **require** a one-day per week practicum in an assigned partnership school. As part of this course you are required to spend an entire school day each week in your assigned partnership classroom. A minimum of twelve visits is **required**. **Failure to complete the practicum will result in the student failing the course.** A list of practicum assignments are linked to your partnership school experience (refer to the table below). The methods professor will provide an attendance log to document your school visits. Practicing teachers may use the school where they are employed to complete their practicum assignments.

PRACTICUM ASSIGNMENTS AND DUE DATES
Smith, Lambdin, Lindquist, and Reys (2009). *Teaching Elementary Mathematics.* John Wiley & Sons New Jersey (**4th Edition**).

Due Date	Assignment
September 10, 2009	**Mathematics in the School, p.3** **Attitudes about Mathematics, p. 61** **Curriculum Guide, p.4** **Classroom Manipulatives Finding Them , p.5** **Classroom Manipulatives Using Them, p.6** **Classroom Sketch, p.7** **The Learning Environment, p. 32** **Analyzing Classroom Discourse, pp. 35-36** **Mathematics Textbook Lesson, p.9 (Use the six-point lesson**

	plan)
October 1, 2009	**Connections in the Textbook, p. 12**
	Problem Solving in the Textbook, p.13
	Counting in the Textbook and Classroom, p.13
	Place Value in the Textbook and Classroom, p.15
	Proctoring a Test, p.41
	Literature Context for Facts, p.222
November 19, 2009	
	Look for Patterns, p.235
	Fraction Strips, p.238
	Three-Fourths/Proportions/Percents, pp.83-86
	Equality/Algebraic Thinking, pp.89-90
	Let's Find Out, p.267
	Measuring, p. 97
	What are the Chances?, p.271

Professional Development Activities

Additionally, as a part of your methods instruction you are required to attend a minimum of five professional development activities. You will need to present proof of attendance at the end of the semester. Students who fail to attend five professional development activities are not eligible for the "A" grade. Students who fail to attend a minimum of four professional development activities are not eligible for the "B" grade. Students attending three or fewer professional development activities are ineligible for the "C" grade. For your information, an education major earning a grade that is lower than a "C" grade in an education course is required to repeat the course. Listings of professional development workshops, field trips, and conferences available to you are posted on the bulletin board outside of BU343.

B. CHILDREN'S LITERATURE PRESENTATION – Due September 24, 2009

Your group will present a grade appropriate book to the class that has real mathematics concepts imbedded in the story. Your peers will role-play your "students" as you read the story. You may bring manipulatives that might enhance your presentation. Check with the other working groups so there will be no duplication of books. Your group will need to provide a one-page explanation of the book to share with your peers.

C. TECHNOLOGY GROUP PRESENTATION – Due October 8, 2009

Working with your group, you will teach a mathematics lesson using Smart Board for the assigned grade level. The lesson must teach objectives from the North Carolina Standard Course of Study. As a group, prepare to submit a lesson plan (hard copy)for the lesson using the six-point format.

D. CLASSROOM IDEAS FOR TEACHING MATHEMATICS – Due November 12, 2009

After reviewing the North Carolina Standard Course of Study for your grade level, your group will present to the class five ideas you have developed that will enhance the taught mathematics curriculum. The ideas must be different (games, bulletin boards, cooperative learning lessons, etc.) and should include the title, strand, competency goal, and objective it supports form the North Carolina Standard Course of Study. Groups should prepare copies of each idea for distribution to your peers and the instructors.

E. CULMINATING PROJECT- Interdisciplinary Fair – November 20, 2009

Teacher candidates enrolled in this class are required to contribute to the planning and presentation of an academics fair. This semester's fair is interdisciplinary and is planned in conjunction with other methods classes. Therefore, your entry must address **mathematics, literacy (reading and language arts), science, and social studies.** Each methods professor will use a different rubric to evaluate your work and you will receive a grade from each of your methods professors. Your presentation must meet the requirements for each content area.

Review the following requirements:

- Interdisciplinary Fair entries are presented on tri-fold boards.
- Each student is assigned a separate table to house their presentations and associated materials.
- You are required to provide a table covering and any other materials.
- You must prepare an interactive presentation.
- You must base the entry on objectives from the North Carolina Standard Course of Study for each of the content areas.
- Your entry should reflect creativity. Your presentation should draw students to your booth.

- This activity requires organization. Please plan to adhere to the following schedule:

Set up time 12:15 PM – 1:00 PM
Students visit booths 1:00 PM – 2:30 PM
Dismantle booths 2:30 PM – 3:00 PM

F. TESTING

Assessments for this course are administered through the Blackboard Learning System on specified dates. Tests are made available according to schedule that follows. Students may access the tests only on the designated dates beginning @ 5:00 PM on the first date and ending @ 11:55 PM on the final date. Make plans to take your tests during the assigned time.

Chapters	1-4	September 4-8, 2009
Chapters	5-8	September 18-22, 2009
Chapters	9-11	October 23-27, 2009
Chapters	12-14	November 13-17, 2009
Chapters	15-18	December 4-8, 2009

The mid-term examination is scheduled for October 29, 2009 and will include content from chapters one to nine.

Final examination is scheduled for administration on December 10, 2009 @ 4:00 PM and will include content from chapters ten – eighteen.

11. EVALUATION CRITERIA

The final grade you receive in this course will reflect how accurately you complete the learning activities, examinations, group activities, and the practicum. Please submit each learning activity **typed and double-spaced** on the appropriate due date. **Turning in assignments late will result in a fifteen-point penalty deduction from each late assignment.** You will receive a score for each of the written activities. An average of scores from these activities, credit for presentations, professional development activities, practicum assignments, and exam scores will determine your final grade.

GRADING SCALE:

92 - 100	=	A			
83 - 91	=	B			
			73 - 82	=	C
64 - 72	=	D			
			63 or less	=	F

Class attendance is extremely important and greatly impacts your final grade. Much of the content required for this class will receive its foundation through class presentations and interactive activities. Your participation in all

classes will allow you to develop a comprehensive understanding of course competencies. You cannot participate if you are absent. Therefore, students who miss more than **two** classes are not qualified for an "A" grade. Students who miss more than **three** classes are ineligible for a "B" grade. For your information, an education major earning a "D" in an education course is required to repeat the course.

13. COURSE CALENDAR

Date	Topics/Assignments
August 27, 2009	• Syllabus Review • Course Requirements • Attendance Policy • Practicum Requirement • Professional Development Activities • Working Groups and other Assignments

August 27, 2009	• Chapter 1 – School Mathematics in a Changing World • http://standards.nctm.org/document/chapter3/index.htm • Click here: N http://community.learnnc.org/dpi/math/archives/2005/03/2003_mathematic.phpTM e-Resources • http://www.ncpublicschools.org/curriculum/mathematics/scos/2003/k-8/index • Chapter 2 - Helping Children Learn Mathematics with Understanding • Assignment: Read the NCTM's Assessment Principle ,*Assessment Standards for School Mathematics,* Chapters 3, and 4. • **It is important that you carefully read each chapter and answer the focus questions prior to the day it is discussed in class. You are expected to contribute to class discussions based upon the assigned reading.**
September 3, 2009	• Chapter 3 – Planning and Teaching • Chapter 4 - Assessment: Enhanced Learning and Teaching • Assignment: Read Chapters 5 and 6.
September 10, 2009	• Chapter 5 - Processes of Doing Mathematics • Chapter 6: Helping Children With Problem Solving • Assignment - Chapters 7 and 8.
September 11, 2009	• United We Serve: Professional Service in Public Schools
September 17, 2009	• Chapter 7 – Counting and Number Sense in Early Childhood and Primary Grades • Chapter 8 - Extending Number Sense: Place Value • Assignment: Read Chapter 9.
September 24, 2009	• Children's Literature Presentation • **Undergraduate Education Majors Meeting 2:00 PM – 3:00 PM – Butler Theatre (Extra Credit Opportunity)**
October 1, 2009	• Chapter 9 – Operations: Meanings and Basic Facts • Read Chapters 10 and 11
October 8, 2009	• Technology Group Presentation – "Teaching Elementary Mathematics Using SmartBoard"
October 15, 2009	 • Fall Break

October 22, 2009	• Chapter 10 - Computational Tools: Calculators, Mental Computation, and Estimation • Chapter 11 – Standard and Alternative Computational Algorithms
October 29, 2009	• ***NCCTM State Mathematics Conference (https://secure.ncctm.org/conference_info.cfm), Greensboro, NC or*** • Mid-term Examination ○ Chapters 1-9 • Assignment: Read Chapters 12 and 13.
November 5, 2009	• Chapter 12 – Fractions and Decimals: Meanings and Operations • Chapter 13 – Ratio, Proportion, and Percent: Meanings and Applications • Assignment: Read Chapter 14.
November 12, 2009	• Chapter 14 - Algebraic Thinking • **Classroom Ideas for Teaching Mathematics Group Presentation**
November 16, 2009 (Monday)	• **American Education Week** ○ **C.I. Brown Lecture, 6:00 PM, SBE, Shaw Auditorium (Course Requirement)**
November 18, 2009 (Wednesday)	• **American Education Week** ○ **Excellence in Teaching Mini-Institute BU 325 9:00 AM – 4:00 PM (Professional Development Activity)**
November 19, 2009	• Chapter 15 - Geometry • Chapter 17 - Data Analysis, Statistics, and Probability
November 20, 2009 (Friday)	• **American Education Week** ○ **Methods Fair/Interdisciplinary Fair, 12:15 PM – 3:00 PM, Upper Level, Capel Arena (Course Requirement)**
December 3, 2009	• Chapter 16 - Measurement
December 10, 2009 4:00 PM – 5:50 PM	• Final Examination ○ Chapters (10 – 17)

14. WORKING GROUPS

GROUP ASSIGNMENT	GRAPE	STRAWBERRY	ORANGE	KIWI
CHILDREN'S LITERATURE	K-1	2-3	4-5	6
TECHNOLOGY ASSIGNMENT	2-3	4-5	6	K-1
INTERDISCIPLINARY FAIR	4-5	6	K-1	2-3
CLASSROOM IDEAS FOR TEACHING	6	K-1	2-3	4-5

GRAPE	STRAWBERRY	ORANGE	KIWI
Yasmine	Shauna	Shalawn	Donna
Angela	Chavas	Heather-Marie	Erica
Crystal	Sarah	Marciava	Ebony
Christine	Suzane	Lomonica	Tina
Jessica	Paige	Chasity	Andrea
Jennifer	Corinna	Amber	

15. TEACHING STRATEGIES

a. **Large and small group activities**
b. **Individual and group presentations**
c. **Practicum assignments**
d. **Interactive lectures**
e. **Demonstration lessons**
f. **Role-play,**
g. **Case studies**
h. **Internet research**
i. **Guest Scholars**

15. UNIVERSITY POLICIES

Division of Student Affairs
Services for Students with Disabilities
http://www.uncfsu.edu/studentaffairs/CFPD/cfpdservices.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.

16. REFERENCES

Bennett, Albert B. Mathematics for elementary teachers: a conceptual approach. 5th ed. Boston: McGraw-Hill, c2001.

Charlesworth, Rosalind. Experiences in math for young children. 4th ed. Albany, N.Y.: Delmar c2000

Chazan, Daniel. Implementing standards-based mathematics instructions: a casebook for professional development. National Council of Teachers of Mathematics/Teacher College Press, 200

Mandy, Joan Ferrin. Making change in mathematics education: learning from the field. NTCM, 1998

Miller, Don. The Beginning School mathematics Project: a case study of school-university collaboration for improving children=s learning of mathematics in the first three years of school. Alexandria, VA: Association for Supervision and Curriculum Development, c1995.

Overholt, James L. Big math activities for young children for preschool, kindergarten, and primary children. Albany, N.Y. Delmar Publishers, 1998.

Riedesel, C. Alan. Teaching Elementary School Mathematics. Englewood Cliffs, NJ: Prentice-Hall, 1990.

Rosalind Charlesworth. Experiences in math for young children. 4th ed. Albany, N.Y. Delmar, c2000.

Whitin, David Jackman. Living and Learning Mathematics. Portsmouth, NH: Heinemann, 1990.

Whitin, Phyllis. Math is language too: talking and writing in the mathematics classroom. Urbana, Ill: National Council of Teachers of English c2000.

PERIODICALS

Arithmetic Teacher
Exceptional Children
The Gifted Child Today
The Journal of Computers in Mathematics and Science Teaching
Journal of Learning Disabilities
Journal for Research in Mathematics Education
Mathematics Teacher
New Directions for Teaching and Learning
Teaching Exceptional Children
Current Index of Journals of Education (CIJE)
Educational Resources Information Center (ERIC)
Mathematical Reviews
Mathematics and Computer Education
Mathematics of Operations Research