

**College of Education**  
**Department of Teacher Education**  
**Spring 2010**

**Course:** ECED 4322A: Early Childhood Mathematics Education  
**Time:** TR: 8:30 – 9:45; UH 355  
**Instructor:** Dr. Emam Hoosain: **Office:** University Hall: 369  
**Telephone:** 667- 4507 (W); 447- 8063 (H); **Email:** ehoosain@aug.edu  
**Office Hours:** TR: 10 -12; 2:30 – 4:00; and by appointment.

**Required Texts**

Van de Walle, John A., Karen S. Karp, & Jennifer M. Bay-Williams. (2010).  
*Elementary and Middle School Mathematics: Teaching Developmentally* (7<sup>th</sup> ed.).  
NY: Pearson/Allyn & Bacon.  
Hoosain, E. (2003). *A Concrete, Problem-Solving Approach to Teaching Operations on Fractions Using Discrete, Manipulative Materials*. Tempe, AZ: Scholargy, Inc.  
\*\*\*Livetext Membership

**Recommended Texts:**

Bahr, Damon L. & Lisa A. de Garcia. (2010). *Elementary Mathematics is Anything but Elementary*. CA: Wadsworth, Cengage Learning.  
Cathcart, W. G., Pothier, Y. M., Vance, J. H. & Bezuk, N. S. (2003). *Learning Mathematics in Elementary and Middle Schools* (3<sup>rd</sup> ed.). NJ: Merrill Prentice Hall.  
Kennedy, L. M. Tipps, S. & Johnson, A. (2004). *Guiding Children's Learning of Mathematics* (9<sup>th</sup> ed.). Belmont, CA: Wadsworth Publishing Company  
Musser, G. L. & Burger, W. F. (1994). *Mathematics for Elementary Teachers: A Contemporary Approach* (3<sup>rd</sup> ed.). NY: Macmillan College Publishing Company.  
Reys, R. E., Lindquist, M. M., Lambdin, D. V., Smith, N. L. & Suydam, M. N. (2003). *Helping Children Learn Mathematics* (6<sup>th</sup> ed.). NY: John Wiley & Sons, Inc.  
Sheffield, L. J. & Cruikshank, D. E. (2000). *Teaching and Learning Elementary and Middle School Mathematics* (4<sup>th</sup> ed.). NY: John Wiley & Sons, Inc.  
Troutman, A. P. & Lichtenberg, B. K. (1995). *Mathematics: A Good Beginning* (5<sup>th</sup> ed.). CA: Brooks/Cole Publishing Company.

**Pertinent Publications:**

National Council of Teachers of Mathematics. (2000). *Principles and Standards for School Mathematics*. Reston, VA: NCTM.

Supplementary Readings will be assigned from time to time.

**Syllabus**

**Catalog Description:**

The course focuses on a conceptual approach to mathematics that enables students to acquire clear and stable concepts by constructing meanings and abstracting concepts from physical situations and empirical experiences. The students will be expected to integrate their knowledge of mathematics, learning, pedagogy, students, and assessment, and apply

that integrated knowledge to teaching mathematics in grades Pre-K through 5.  
Prerequisites: Admission to ECED program; successful completion of Block I and II courses.

**Conceptual Framework Principles Addressed:**

***Conceptual Framework: Understanding for Teaching, Teaching for Understanding***

The preparation of teachers and other school personnel is critical to all other professions, and to communities, the state, and the nation. The professional educator plays an essential role in student learning. The Conceptual Framework of the professional education unit at Augusta State University consists of a mission and vision with an overarching theme to produce **prepared, able, and responsive** professionals to teach and support diverse learners.

This mission and vision requires a partnership between the professional education unit including the College of Education, the College of Arts and Sciences, the local community educational system, community agencies, and the Professional Development School Network.

***Conceptual Framework: Mission***

Our mission is to educate prospective school professionals to be knowledgeable, effective, and ethical practitioners.

***Conceptual Framework: Vision***

Our vision is to prepare school professionals who transform P-12 learners into thinking, productive citizens.

***Standard: Prepared***

***Disposition: To think critically about the process of teaching, learning and assessment.***

***Competencies: Candidates who are prepared will:***

- P1 - demonstrate strong content and pedagogical preparation in their respective subject area or professional field. (I – 1) (NB – 2)
- P2 - use self assessment and analysis as a basis for collaboration with colleagues, continuing professional development and lifelong learning. (I – 9) (NB – 4)
- P3- possess an understanding of the central concepts, tools of inquiry, and structures of the discipline(s) or professional field of study and create learning experiences that enable all students to learn. (I-1) (NB-5)
- P4- demonstrate an understanding about how students learn and develop (intellectually, socially, and individually) and provide developmentally appropriate curricula, learning opportunities and support. (I – 2) (NB – 1)
- P5- demonstrate knowledge about how to use information and technology effectively to foster active inquiry, collaboration, and supportive interaction in educational settings. (I – 6) (NB – 2)

***Standard: Able***

***Dispositions: To be Creative, challenging, and flexible in teaching/professional practices.***

***Competencies: Candidates who are able will:***

- A1 - understand, use and support a variety of instructional strategies to encourage critical and creative thinking, problem solving, and achievement. (I – 4) (NB – 2)
- A2- create a learning environment that encourages positive social interaction, active engagement in learning, and self-motivation for all learners. (I – 5) (NB – 3)
- A3- plan, guide, and support instruction using knowledge of subject matter, the learners, the community, and curriculum goals. (I – 7) (NB – 2)
- A4- understand and use authentic assessment to evaluate and ensure the continuous development of the learner. (I – 8) (NB – 3)
- A5- organize, allocate and manage resources to support learning. (I-5) (NB-3)

***Standard: Responsive***

***Disposition: To act in a manner that is empathetic, responsive, enthusiastic, inclusive, and reflective in relations with students, parents, peers, and others.***

***Competencies: Candidates who are responsive will:***

- R1- respect the dignity of all persons believing that all children can learn and have the right to an opportunity to do so. (I – 3) (NB – 1)
- R2- translate knowledge into creating and supporting meaningful experiences for diverse learners. (I – 1) (NB – 2)
- R3-accept responsibility for teaching and working in authentic settings with diverse populations of learners.(I – 3) (NB – 3)
- R4- demonstrate a commitment to meet the educational needs of learners in a fair, caring, nondiscriminatory, and equitable manner. (I – 2) (NB – 1)
- R5- reflect on practice and continually evaluate the effects of choices and actions on others (students, parents, and other professionals in the learning community). (I – 9) (NB – 4)
- R6- foster professional relationships with school colleagues, parents, and agencies in the larger community to support the learning and well-being of all students. (I – 10)

**Course Goal:**

To provide a framework of:

- (a) research-based pedagogical methods;
- (b) knowledge of curriculum, instruction, and assessment issues in mathematics education, and
- (c) practical experience, that will enable the students to (i) develop confidence in their ability to manage the instructional process; and (ii) formulate a plan for their continued professional development.

**Specific Objectives:**

The students will:

- (a) demonstrate a knowledge of NCTM’s *Principles and Standards* and the Georgia Performance Standards (GPS);
- (b) plan learning experiences;
- (c) define learning goals for daily and unit plans;

- (d) develop daily and unit plans (unpack a standard);
- (e) develop strategies to teach mathematical concepts through hands-on and other experiences;
- (f) learn how to manage student behavior;
- (g) learn how to assess student achievement; and
- (h) gain practical experience by observing classrooms.

**Course Outline:**

Tentative Schedule

- Week 1: Big Ideas in the Teaching of Mathematics (Ch. 2, 3, 4, 8)
- Week 2: NCTM's *Principles and Standards for School Mathematics* and the GPS (Ch. 1)
- Week 3: Inductive and Deductive Reasoning and Multiple Representations
- Week 4: Pre-Number Concepts (Matching, 1 – 1 Correspondence, Sorting, Sequences and Patterns) (Ch. 8, 14)
- Week 5: Understanding Numbers and Number Concepts (Ch. 10, 11, 12)
- Week 6: Addition and Subtraction of Whole Numbers (Ch. 13)
- Week 7: Multiplication and Division of Whole Numbers (Ch. 13)
- Week 8: Informal Geometry, Spatial Sense, Measurement, and Fractions (Ch. 15, 16, 17, 19, 20)
- Week 9: Data Analysis & Probability, Assessing Student Achievement (Ch. 5, 21, 22)
- Week 10: Problem Solving and Cognitively Guided Instruction (CGI). (Ch. 3, 4)

**Laboratory Experience:** 02/15 – 02/19; 03/15 – 04/16.

**Spring Break:** 04/05 – 04/09.

**Evaluation**

**Course Grading Procedure:**

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|---|-------------------|
| <b>1. Pedagogical Knowledge</b>   | <b>100 pts.</b>   |
| Class Participation and Attendance  | 20 pts.           |
| Examinations (Mid-Term [03/02] and Final [05/04, 10 – 12]).   |                   |
| Exams will be based on what transpired in class and assigned readings. (MT/Final::30/50)  | 80 pts.           |
| <br><b>2. Pedagogical Application</b>   | <b>30 points</b>  |
| Unpacking a Standard (TBA) (I-7, A-3)   | 15 pts.           |
| Planning Learning Activities (Ongoing) [Inductive & Deductive Reasoning (I-4, A-1); Multiple Representation (I-2, P-4)]               | 15 pts.           |
| <br><b>3. Laboratory Experience Report (04/20) (I-4, A-1)</b>   | <b>100 points</b> |
| Please refer to the attached guidelines which should be followed to the letter. The focus is on the teaching of mathematics.          |                   |
| <br><b>4. Journal (1/26, 2/9, 3/2; 3/12.) (I-9, R-5)</b>  | <b>20 points</b>  |
| The Journal can be descriptive, reflective, and critical and may contain summaries of class proceedings and readings, what you are or |                   |

are not learning, what you will like to learn, applicability of what you are learning to the classroom, etc. A grade will be awarded for each Journal. Feedback will be provided on each Journal. **Livertext must be used to create and submit these Journals and all assignments and reports.**

**5. Impromptu Assignments (e.g., Summarize a journal article.) 15 pts.**

**More detailed directions about assignments will be given in class, if necessary. You are advised to meet with the Instructor individually or in small groups if you are unsure of what is required.**

**Note: All dates are tentative. A passing grade (at least a C) for the Lab Experience must be obtained in order to pass the course.**

**Note:** Students are required to attend classes regularly and punctually. If a student is absent for more than **two** times, he/she may be asked to withdraw from the class. Unsatisfactory attendance of classes and participation in class activities will adversely affect your final grade. It is the student's responsibility to complete any task assigned during his/her absence. **Points will be deducted for late submission of assignments – 10% for every day it is late.** Points will be deducted for grammatical and other errors in written assignments. All assignments should be typed double-spaced. You are advised to complete the readings and assignments, meet regularly with other students to discuss issues, and see the Instructor if you have any problems. Examinations could be in-class, take-home or both. Requests to take an examination before or after the scheduled time, etc. should be made (in writing) only in cases of absolute necessity. Please refrain from bringing (except in your stomach) any form of food or drink to the classroom. If you do, there should be no eating or drinking in class (except with the Instructor's permission); and turn off your cell phones, please. Children and other relations are not allowed in class. Occasionally, the Instructor may communicate with you via your Pipeline email address, or the Announcement facility in Livertext; you are advised to read your campus email and check your Livertext account regularly. Unless agreed upon (between you and the Instructor), assignments should not be submitted as email attachments. Students with disabilities need to contact ASU's Office of Disability at (706) 737 – 1469 to discuss appropriate accommodations. Students are strongly advised to read the section on "Academic Honesty" in the University Catalog. Final Grading will be as follows:

- A: 90+ - 100**
- B: 80+ - 90**
- C: 70+ - 80**
- D: 60+ - 70**
- F: 00 - 60**