

Auburn University Course Syllabus Spring 2010

Course Number: CTEC 3020-001
Course Title: Primary Math and Science
Course Time and Place: Tuesday 11:00 am - 1:50 pm (2442 Haley Center)
Credit Hours: 3 semester hours
Prerequisites: Admission to Early Childhood Teacher Education
Co-requisites: None

Instructor: Jonghee Shim, Ph.D.
Office: 5020 Haley Center
Office Phone: (334) 844-6791
E-mail: jonghee@auburn.edu
Office Hours: M 1:00-6:00 pm, and by appointment
Required Text:

Charlesworth, R., & Lind, K. (2010). *Math and Science for Young Children* (Sixth ed.). Belmont, CA: Wadsworth/Cengage learning.

COURSE DESCRIPTION

This course is to provide pre-service teachers opportunities to be more knowledgeable and practical in early childhood (Pre-K, K-3rd grade) curriculum and instruction in the areas of mathematics and science. Pre-service teachers will have a better understanding of children's learning and development, curriculum development, and instructional methods. Based on their understanding of early learning standards as well as aforementioned areas, pre-service teachers will apply their knowledge to designing, implementing, and evaluating the interdisciplinary curriculum. In addition, through hands-on activities and teaching demonstrations, they will also develop effective teaching strategies working with young children that can be used in their future classrooms.

COURSE OBJECTIVES

Upon completion of the course, students will be able to:

1. Identify important mathematics /science content, process skills, and attitudes appropriate to young children. (NAEYC Standard 1b, 4a, 4b, 4c, & 4d)
2. Become acquainted with the principles and elements of curriculum development (e.g., goal setting, planning, implementing, and assessing curriculum) in mathematics and science. (NAEYC Standard 1a, 1b, 1c, 4b, 4c & 4d)
3. Develop an understanding that early childhood curriculum is an integrated curriculum and that children's learning in mathematics and science takes place in integrated learning experiences with concrete materials in a variety of contexts. (NAEYC Standard 4c)

4. Acknowledge the unique needs (e.g., physical, social, intellectual, linguistic, and cultural) of all children and the need to work with their families. (NAEYC Standards 1a, 1b, 1c, 3b, 3c, 3d, 4b, 4d, 5b, 5c, & 5e)
5. Design, implement, and evaluate developmentally appropriate curricular content, strategies, and instructional materials, and reflect on their performance. (NAEYC Standards 1a, 1b, 1c, 4b, 4c, & 4d)
6. Understand how to record, report, and evaluate development level of young children through naturalistic/performance-based assessment and utilize developmentally appropriate assessment and reporting techniques. (NAEYC Standards 3a, 3b, & 3c)

USEFUL WEBSITES

National Association for the Education of Young Children: <http://www.naeyc.org>

National Council of Teachers of Mathematics (NCTM): <http://www.nctm.org>

National Science Teachers Association (NSTA): <http://www.nsta.org>

Council for Exceptional Children (The Division for Early Childhood): <http://www.cec.sped.org>

Alabama Math, Science, and Technology Initiative: <http://www.amsti.org>

Montessori Program: <http://www.montessori.org>

High Scope Program: <http://www.highscope.org>

Bank Street Approach: <http://www.bnkst.edu>

Project Approach: <http://www.projectapproach.org> or <http://illinoispi.org>

Waldorf approach: <http://www.awsna.org>

Reggio Emilia Approach: <http://www.reggioemiliaapproach.net>

AUBURN COLLEGE OF EDUCATION-CONCEPTUAL FRAMEWORK

Competent

Competent professionals demonstrate the knowledge and skills needed to facilitate the learning of the individuals they serve. Their competence enables them to model and promote active, collaborative, and ongoing learning. Their efforts are enhanced by their abilities to foster learning communities that are safe, stimulating, and enriched with diversity; engage in reasoned and purposeful decision making; and implement their professional practices in proactive, flexible, and self-regulating ways.

We recognize that the development of professional competence is linked to levels of preparation and experience. We also acknowledge that competence continues to develop over the course of an entire career.

Committed

Committed professionals make reasoned decisions based on thoughtfully constructed values. As a College, we strive to nurture values that support the learning of all people, honor diversity, protect the integrity of learning, and expand the scholarship of our professions. We view these values as professional dispositions, and we define them as filters for responsible decision making. Our College emphasizes the conscious development of commitments related to professional responsibilities and ethics, collaboration, diversity, and intellectual vitality.

Reflective

We choose to frame reflection as a critical and pervasive habit of mind that permeates and fuels the ongoing expansion of competence and the continued development of reasoned commitments. Reflective professionals subject their own competencies and commitments to continuous scrutiny as they systematically monitor the impact of their professional practices on the individuals they serve and make adjustments as needed. Thoughtful reflection emphasizes reviewing and analyzing past practices in ways that influence and improve future practices. This stance inspires self-initiated professional growth and results in increased capacities for addressing the complexities and dilemmas situated within the work of educational and human services professionals.

EVALUATION PROCEDURES

Student achievement of course goals and objectives will be evaluated through the following:

- ☐ Participation in all class activities
- ☐ Developing lesson plans and integrated unit plan (with considerations for student diversity)
- ☐ Demonstration of teaching (with adaptations for students' diverse needs)
- ☐ Completion of assignments and exam/quizzes

COURSE REQUIREMENTS

1. Software Critique (10 points): Carefully designed classroom environment including educational software can function as an effective teaching and learning tool (NAEYC Standard 1b) if properly designed and used. Teacher candidates should be able to select developmentally appropriate software and use it effectively (NAEYC Standard 4b).

The best way to evaluate software is to observe students using it. Observing students, however, does not tell you everything about the software. Even some games and tutorials can work better with an appropriate plan from the teacher. If students are simply thrown in front of the software, they might not learn as much as they would if the software was used as part of an integrated lesson. Therefore, it is important to not only think about the software itself, but how the software will be used. The critique format will be provided in Blackboard. All questions should be answered.

2. Family Involvement Project (10 points): Describe an activity (to reinforce a math/science concept) which would be done at home by individual students (Pre-K, K-3rd grade) and their families (e.g., birthdates of everyone in the family – aunt, uncle, cousins – to see which month is most common). Be creative in involving the family. Prepare a packet (e.g., an instruction to students, a letter to families with instruction) to be sent home (NAEYC Standards 2c & 4a). An example will be provided in class. It will be demonstrated in class as a small group activity.

3. Science Center Designs (20 points): Design a center that might be set up in a classroom to reinforce one of the science concepts noted in textbook and class (NAEYC Standard 1a & 1b). Implement the various procedures discussed in class (NAEYC Standard 4). The center can be displayed on a table or mounted on a tri-fold, stand-up cardboard sheet. Include center title, directions, materials, and checking or self-checking (assessment/evaluation) procedures. The center should be based on the science concept chosen. Part of

the center design is to include the following: A lesson (of your choice but developmentally appropriate for grades (Pre-K, K-3rd grade) that can be taught to your peers in class and then, with necessary modifications, to small group of children at the practicum site in the near future.

4. Integrated Unit Plan & Teaching Demonstration (55 points): Teacher candidates should be able to integrate their understanding of developmentally effective approaches to teaching and learning and their knowledge of academic disciplines, to design, implement, and evaluate experiences that promote positive development and learning for all young children (NAEYC Standard 4).

Teacher candidates will be required to design a thematic unit plan with lesson plans (Math and Science) utilizing learning standards, technology, manipulatives, and provide adaptations for students with special needs including those of cultural and linguistic diversity. Each group of 3 students will demonstrate teaching the integrated unit using lesson plans and instructional materials they designed. Lesson plans should have the following:

1. Goals/Concepts & Objectives (NAEYC Standard 1a)
2. Grade level and Time (NAEYC Standard 1a)
3. Standards from the CORE curriculum (NAEYC Standard 4c)
4. Detailed procedures (NAEYC Standard 4b & 4c)
5. Differentiated Instruction (NAEYC Standard 1c)
6. Assessment procedures and Extension Ideas (NAEYC Standard 4d)

The detailed guidelines and rubric for this assignment will be provided in Blackboard.

5. Class Participation and Professional Behavior (15 points): Attendance is required for all classes unless excused prior to class meeting. 5 points will be deducted for each unexcused absence. In addition, two or more unexcused absences will result in a full letter grade deduction from the final letter grade. Additional information regarding attendance is provided in the Class Policy Statements.

All students are required to be active participants in class discussions and activities. Students are also expected to be respectful to other students and the instructor, and do not display disruptive or inappropriate behavior during class. Participation points will be assessed at the end of the semester and cannot be made up.

6. Quizzes (40 points) /Exam (50 points)

GRADES

Requirements and Points	Grades
☐ Software Critiques (10 points) ☐ Family Involvement Project (10 points) ☐ Science Center Designs (20 points) ☐ Integrated Unit Plan and Teaching (55 points) ☐ Class Participation and Professional Behavior (15 points) ☐ Quizzes (40 points) ☐ Exam (50 points)	A = 181-200 points B = 161-180.99 points C = 141-160.99 points D = 121-140.99 points F = 0-120.99 points
<u>Total: 200 points</u>	

CLASS POLICY STATEMENTS

Participation: Students are required to participate in all class discussions and participate in all exercises. It is the student's responsibility to contact the instructor if assignment deadlines are not met. Students are responsible for initiating arrangements for missed work.

Attendance/Absences: Attendance is required for all classes.

- a. Excused absences: Students are granted excused absences from class for the following reasons: illness of the student or serious illness of a member of the student's immediate family, the death of a member of the student's immediate family, trips for student organizations sponsored by an academic unit, trips for university classes, trips for participation in intercollegiate athletic events, subpoena for a court appearance, and religious holidays. Students who wish to have an excused absence from class for any other reason must contact the instructor in advance of the absence to request permission. The instructor will weigh the merits of the request and render a decision. When feasible, the student must notify the instructor prior to the occurrence of any excused absences, but in no case shall such notification occur more than one week after the absence. Appropriate documentation for all excused absences is required. Please see the Tiger Cub for more information on excused absences.
- b. Make-Up Policy: Arrangement to make up a missed major examination (e.g., mid-term exam) due to properly authorized excused absence must be initiated by the student within one week of the end of the period of the excused absences. Except in unusual circumstances, such as the continued absence of the student or the advent of university holidays, make-up work will be completed within two weeks of the date that the student initiates arrangements for it. Except in extraordinary circumstance, no make-up work will be arranged during the last three days before the final exam period begins.

Late Work Policy: If you miss a class due to properly authorized excused absences, you are still required to turn in the assignments on time for full credit. NO late assignments will be accepted, except in extraordinary circumstance. For late assignments due to an extraordinary circumstance, only half of possible full credit/points will be in given. All assignments are due at the start of each class meeting on the date they are scheduled.

Academic Honesty Policy: All portions of the Auburn University student academic honesty code (Title XII) found in the Tiger Cub will apply to university courses. All academic honesty violations or alleged violations of the SGA Code of Laws will be reported to the Office of the Provost, which will then refer the case to the Academic Honesty Committee.

Disability Accommodations: Students who need special accommodations in class, as provided by the Americans with Disabilities Act, should arrange for a confidential meeting with the instructor during office hours in the first week of classes (or as soon as possible if accommodations are needed immediately). The student must bring a copy of their Accommodations Letter and an Instructor Verification Form to the meeting. If the student does not have these forms, they should make an appointment with the Program for Students with Disabilities, 1288 Haley Center, 844-2096 (V/TT).

Course Contingency: If normal class activities are disrupted due to illness, emergency, or crisis situation, the syllabus and other course plans and assignments may be modified to allow completion of the course. If this occurs, an addendum to your syllabus and/or course assignments will replace the original materials.

Professionalism: As faculty, staff, and students interact in professional settings, we are expected to demonstrate professional behaviors as defined in the College's conceptual framework. These professional commitments or dispositions are: a) Engage in responsible and ethical professional practices, b) Contribute to collaborative learning communities, c) Demonstrate a commitment to diversity, and d) Model and nurture intellectual vitality.

Cell Phone Policy: Cell phone use or text messaging during the class session is viewed as extremely unprofessional and will result in an automatic loss of 5 points of **Class Participation and Professional Behavior grade points** (under COURSE REQUIREMENTS) for each occurrence. It is best that cell phones not be visible during the class session to avoid any misunderstanding of their use.

Dates	Topic	Reading/ Assignments (Due)
1/12	- Course Introduction	Syllabus
1/19	- Historical and Theoretical Background of Mathematical Development and Education for Young Children - Concept Development in Mathematics	Textbook, Section 1, Unit 1
1/26	- Concept Acquisition in ECE - NCTM Standards for Mathematics - ECE Program Models I (High Scope)	Textbook, Section 1, Unit 2-3
2/2	- Concept Development in Science	Textbook, Section 1, Unit 5-6 Quiz 1 (on Unit 1-3)
2/9	- National Science Education Standards	Software Critique Due Alabama Courses of Study: Math & Science (Bring printouts from K-3 grades to the class)
2/16	- Fundamental Concepts in Science - Applications of Fundamental Concepts in ECE Science	Textbook, Section 2, Unit 16 Textbook, Section 3, Unit 21 Quiz 2 (on Unit 5-6)
2/23	- Planning the Curriculum: Standards, Scope, Sequence, Content & Skills	Textbook, Section 1, Unit 7 Bring 1 Math lesson plan and 1 Science lesson plan printouts from K-3 grades to the class
3/2	- Planning for Curriculum Evaluation	Textbook, Section 1, Unit 4
3/9		Exam (Unit 4, 7, 16, 21, ECE Program Models, and Lecture Notes)
3/16	- Spring Break	
3/23	- Family Involvement Project Presentation (small group) - Group Project Exemplary work	Family Involvement Project Due
3/30	- Science Center Design Presentation (whole class) - ECE Program Models II (Montessori)	
4/6	- Science Center Design Presentation (whole class) - ECE Program Models III (Reggio Emilia)	Science Center Design Due
4/13	- Integrated Unit Plan/ Teaching Presentation	
4/20	- Integrated Unit Plan/ Teaching Presentation	
4/27	- Integrated Unit Plan/ Teaching Presentation - Course Evaluation	Integrated Unit Plan Binder Due