I. BASIC COURSE INFORMATION

A. Course Number and Title: ECHD – 183 Math & Science for Young Children

B. Date of Proposal: January 29, 2007

C. Sponsoring Department: Humanities Social Sciences and Education

D. Semester Credit Hours: 3

E. Weekly Contact Hours: 3

F. Prerequisites: None

G. Lab Fees: None

II. CATALOG DESCRIPTION

This course identifies and classifies the major Mathematical and Science concepts and topics considered in teaching the young child. Emphasis is placed on planning Math and Science activities that encourage thinking, exploring, discovering and problem solving. Each concept is exemplified by hands-on experiences.

III. STATEMENT OF COURSE NEED

This course provides the Early Childhood Education student with the knowledge and skills to develop basic mathematical and scientific understanding when working with young children. It meets the state certification requirements for Early Childhood Education majors. Furthermore, young children begin to build good computational skills early and have an open and inquisitive mind when they are exposed to a developmentally stimulating learning environment with things to explore and someone to answer their questions.

IV. PLACE OF COURSE IN CURRICULUM

This Course is required in the Early Childhood Certificate Program. This course is required for the AAS degree in Early Childhood Education. This course can be used as an elective.
V. Educational Goals and Learning Outcomes

**General Education Goals**

Student will:

1. Understand basic math and science concepts appropriate for young children (G.E. 1, 2).
2. Describe and select appropriate materials and activities (G.E. 3, 4).
5. Use audio-visual materials, including technology, to enhance numerical understanding (G.E. 2, G.E. 3, G.E. 4).

**Learning Outcomes**

Student will be able to:

1. Describe developmental levels in mathematical acquisition in young children.
2. Demonstrate concept development methods for instructional delivery in mathematics.
3. Assess and develop appropriate concept delivery and learning.
4. Describe and use Piaget’s Preoperational Child to develop mathematical and scientific instructional lessons for the young child.
5. Use Piaget’s developmental tasks.
6. Understand how Math is taught.
7. Describe how to assess the child’s developmental level.
8. Demonstrate the following mastery of math basics:
   a. Matching
   b. Number and Counting
   c. Sets and Classifying
   d. Comparing
   e. Shape
   f. Space
   g. Parts and Wholes
   h. Ordering
   i. Measurement
   j. Time
   k. Graphs
   l. Blocks in the classroom/what they teach
   m. Symbols and Teaching Aids
   n. Science Terms
   o. Goals and Objectives in Science in regards to the New Jersey Core Curriculum Content Standards
   p. Science inside and outside the classroom
   q. How to organize and present a science fair with children
VII. Modes of Teaching and Learning:

- Lecture/Discussion
- Simulation/Role Playing
- Student Collaboration

VIII. Papers, Examinations, and Other Assessment Instruments

- Written assignments: Pupil assessment of math readiness; math and science lesson plans.
- Construction and presentation of teaching materials- one math game and one calendar.
- Organize and participate in a science fair- class project.
- Text
- Final Exam

IX. Grade Determinants

- Reflective Responses
- Child Study analysis
- Classroom Participation
- Lesson development and delivery

X. Text and Materials

**Suggested Text**

XI. Resources

- [www.neayc.org](http://www.neayc.org)