Syllabus
Education Department – Lincoln University
EDU 312
Math Foundations I: Preschool Years

Instructor: Prof. Kenneth Parker
Credits: 3
Room: Dickey Hall Room 330
Time:
Office:
Office Hours:
Office Phone/Extension/e-mail: Extension 7603/kparker@lincoln.edu

**Course Description:**
EDU 314, (3 credits), is a course designed to provide an examination of mathematics needs for the early childhood learner. Students will be given opportunities to develop instructional strategies and techniques, appropriate for use in the early childhood setting. Consideration will be given to classroom strategies that (1) build on children’s’ experience and individual approaches to learning, (2) base teaching practices on knowledge of children’s’ development, (3) base teaching practices on strengthening children’s problem-solving and reasoning processes, (4) integrate mathematics with other activities, (5) actively introduce mathematical concepts, methods, and language through appropriate experiences. Particular emphasis will be given to the following important parts of mathematical learning in preschool: numbers, geometry and spatial relations, measurement, patterns and geometry, and analyzing data.

This course addresses the following Pennsylvania Department of Education Competencies: *Math Foundations and Methods*

The 150 hours of Pre-Student Teaching are met through 3 clusters of methods courses:
- Junior Block I includes EDU 304, EDU 311, and EDU 315 – 50 hours;
- Junior Block II includes EDU 313, **EDU 312**, and EDU 308 – 50 hours
- Senior Block includes EDU 310, EDU 314, and EDU 330 – 50 hours

**Concurrent Courses for Field Exploration – Tutoring**

Pre-service teachers are to enroll concurrently in EDU-313, EDU-312, and EDU-308 in order to meet 50 Pre-Student Teaching hours. This is the beginning of student teaching in which candidates teach small groups of students in schools and early learning settings. This field experience is a combination of individual tutorials, small group, and whole class instruction at the selected grade level over the course of the semester. Pre-service teachers work with materials that they have prepared and created for classroom instruction.
Required Text:

Course Requirements:

- Textbook (mandatory for course assignment credit)
- 3 pocket folders (for chronological organization of handouts)
- Class attendance at every session and full participation/Class Attendance Policy found on pages 60-61 of the 2003-2006 Lincoln University Bulletin
- Satisfactory and timely completion of the mid-term exam, final exam, quizzes, and assignments
- Timely submission of 2 lesson plans in elementary mathematics
- In-class micro-peer teaching presentation with lesson plan
- Field re-student teaching

Expectations:

- Students are expected to attend all classes. Students are expected to arrive for class on time. Any student who arrives late will not be given additional time to complete quizzes, exams, or in-class assignments.
- Students are expected to submit all assignments on time. Late submissions are not allowed.
- The student is expected to have the required text.
- Students are expected to come to class having read all assignments, and to participate in class discussions.
- Students are expected to word process all assignments.

Attendance:

No unexcused absences are permitted for this class. If there is an emergency beyond the student’s control, the student must present an official document to the professor, which includes the date in question. This document must be presented upon the student’s return to class. Letters must be written in an official manner. In cases of excessive absence, (4 sessions), the professor has the right to request that the student withdraw from the course or issue an automatic failure for the semester or drop the student one letter grade for each absence beyond the 4 absences. For every three (3) times that a student is late for class, (5 minutes or more), the student will be charged with one absence. Make-up regarding exams, quizzes, class work, or homework will not be provided in the event of unexcused absences.
Learning Outcomes:

• Listen and effectively communicate ideals through written, spoken and visual means.
• Think critically via classifying, analyzing, comparing, contrasting, hypothesizing, synthesizing, extrapolating and evaluating ideas.
• Apply information literacy/research skills to assist their systematic process of critical thought; articulating the problem; gathering information from multiple sources and venues; evaluating the accuracy/thoroughness/timeliness of the collected data, and determining when/if the problem has been satisfactorily resolved.
• Apply and evaluate quantitative reasoning through the disciplines of mathematics, science, and other like-minded approaches that require precision of thought.
• Recognize that all students have the ability to be mathematics learners.
• Design effective lesson plans in elementary mathematics.
• Plan and implement an effective elementary mathematics lesson.
• Examine mathematics and literature links.
• Examine the Pennsylvania Department of Education Academic Standards for Mathematics.

Grading Policy:

Personal Ownership of Required Text 10%
Attendance/Participation/Assignments/Reading Assignment Checks: 10%
Mid-Term & Final Exam: 30%
Quizzes: 20%
Lesson Plans (3): 10%
In-Class Micro-Teach with Lesson Plan: 10%
Field Teaching: 10%
Total: 100%

Weekly Topics:

Week 1  Mathematics and You
         Teaching Math Differently, Math for Special Needs Children,
         Developmentally Appropriate Math

Week 2  The Language of Math
         Math and Language through Song and Verse, Math Language
         Through Literature Connections, The Early Childhood Curriculum

Week 3  Early Math Concepts: Matching, Classification, Comparing, and Ordering
         Matching, Classification, Comparing, Ordering or Seriation

Week 4  Space and Shape
         Spatial Relationships, Block Building, Shape Activities, Geometric Concepts

Week 5  Pattern and Function
         Principles of Pattern, Pattern in Music and Art, Functions in the
         Primary Classroom
Week 6  Graphing  
*Graph Construction, Reading Graphs, Probability*

Weeks 7  Developing Number Sense  
*Counting, Counting-On, Counting-Back, Counting to Part-Part-Whole, Thinking in Groups, Reading and Writing Numerals, Fractions and Number Sense*

Week 8  Problem-Solving – Addition and Subtraction  
*Kinds of Problems, Problem Posing, Helping Children Write Their Own Problems, MID-TERM EXAM*

Week 9  Understanding Our Place Value System  
*Base-Ten Features, Readiness for Place Value, Learning With Manipulatives, Base-ten Blocks, The Abacus, Money, Estimation*

Week 10  Measurement  
*Principles of Measurement, Guided Learning-Physical Quantities, Guided Learning-Nonphysical Quantities*

Week 11  Problem Solving – Multiplication and Division  
*Readiness for Multiplication and Division, Remainders, Linking Problem-Solving To Symbolic Representation, Rules of Operation, The Role of Zero, Helping Children Write Their Own Problems*

Week 12  Assessment  
*Curriculum Reform and Alignment, Assessment Strategies, Alternatives for Students in Inclusive Settings, Record Keeping*

Week 13  Planning for Success  
*Getting Started, Involving Parents, Meeting the Needs of Children from Diverse Backgrounds, Planning for Computer-Assisted Instruction, Planning for Calculators*

Week 14  Thematic Units

**FINALS EXAM**

**Notes:**

- This course adheres to the Lincoln University Academic Integrity Statement which can be found on pages 54-55 of the 2003-2006 Lincoln University Bulletin.
- This course adheres to the PDE PreK-4 Program Specific Guidelines, 2008, Candidate Competencies as they relate to curriculum, education foundation, child development theory, classroom environment, early math foundations, diversity, and assessment.
- The instructor of this course is required to comply with the PDE Code of Professional Practice and Conduct for Educators, which can be found at http://www.teaching.state.pa.us
- The use of cell phones and other electronic devices is prohibited in class.