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

Course Description:  
EDU 314, (3 credits), is a course designed to provide an examination of mathematics instructional strategies in the elementary school. Students will be given opportunities to develop instructional strategies and techniques, appropriate for use in the early childhood and elementary school settings.  
Primary mathematics topics to be addressed will include using effective learning trajectories, using a wide range of instructional activities, and using a combination of teaching strategies. An additional focus will include the importance of math learning in the primary grades, all children’s potential to learn math, and the teacher’s need to understand children’s learning development.  
EDU 312 is one of the final methods courses before student teaching. It is important, therefore, that the student demonstrates mastery of the theory and skills necessary for elementary school mathematics. Such mastery will be demonstrated through class work, tests, assignments, and a lesson presentation.  

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-310, EDU-314, and EDU-330 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
- Satisfactory completion of field experience
- Timely submission of 3 lesson plans in elementary mathematics
- In-class micro-peer teaching presentation with lesson plan

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.
- Demonstrate good citizenship and service to one’s community. Students also benefit when they engage in free intellectual inquiry seeking truth, understanding and appreciating self as well as a readiness to learn from and about different cultural and/or linguistic perspectives.
- Demonstrate positive interpersonal skills by adhering to the principles of freedom, justice, equality, fairness, tolerance, open dialogue and concern for the common good.
- 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:**

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
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</thead>
<tbody>
<tr>
<td>Attendance/Participation/Assignments/Reading Assignment Checks:</td>
<td>15%</td>
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<tr>
<td>Mid-Term &amp; Final Exam:</td>
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<tr>
<td>Quizzes:</td>
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<tr>
<td>Lesson Plans (2):</td>
<td>10%</td>
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<tr>
<td>In-Class Micro-Teach with Lesson Plan:</td>
<td>10%</td>
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<tr>
<td>Field Teaching:</td>
<td>10%</td>
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<tr>
<td><strong>Total:</strong></td>
<td><strong>100%</strong></td>
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Weekly Topics:

Week 1 - 2  Learning and Teaching Mathematics (Chapters 1 and 2)
*Directions in Math Education, Learning Theories, Understanding Individual Needs, Preteaching Activities*

Week 3  Developing Mathematical Thinking and Problem-Solving Ability (Chapter 3)
*The Problem-Solving Process, Problem-Solving Strategies*

Week 4  Developing Number Concepts (Chapter 5)
*Pre-Number Activities, Number Meanings, Counting, Representing Numbers, Number Relationships*

Week 5  Developing Understanding of Numeration (Chapter 6)
*Numeration, Base-Ten, Understanding Place Value, Expanded Notation, Estimation*

Week 6  Developing Whole-Number Operations: Meaning/Basic Facts (Chapters 7 & 8)
*Understanding Addition and Subtraction, Understanding Multiplication and Division, Addition and Subtraction Facts, Multiplication and Division Facts, Drill and Practice*

Week 7  Estimation and Computation (Chapter 9)
*Computation, Estimation and Mental Computation, Paper and Pencil Computation, Algorithms*

Week 8  Developing Fraction Concepts/Fraction Computation (Chapters 10 & 11)
*Fraction Concepts and Number Sense, Comparing and Ordering Fractions, Equivalent Fractions, Fractional Computation*

**MID-TERM EXAMINATION**

Week 9  Developing Decimal Concepts and Computation (Chapter 12)
*Developing Decimal Number Sense, Equivalent Decimals, Fractions as Decimals*

Weeks 10  Understanding Ratio, Proportion and Percent (Chapter 13)
*Ratio and Rate, Proportion, Percent*

Week 11  Developing Geometric Thinking and Spatial Sense (Chapter 14)
*Development of Geometric Thinking, Two and Three Dimensional Shapes, Symmetry, Spatial Sense*

Week 12  Developing Measurement Concepts and Skills (Chapter 15)
*Children’s Understanding of Measurement, Teaching Strategies and Learning Activities*
Week 13  Collecting, Organizing, and Interpreting Data (Chapter 16)  
*Graphing, Interpreting Data*

Week 14  Collecting, Organizing, and Interpreting Data (Chapter 16)  
*Graphing, Interpreting Data*

**FINAL EXAMINATION**

**Notes:**

- *This course must be taken concurrently with EDU-310*
- *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*