ELED 4310
Teaching Math in Elementary School
Spring 2016 Syllabus

University of Texas at El Paso
College of Education, Department of Teacher Education

Instructor: Dr. Song An
Email: saan@utep.edu

Class Locations: 201 Education Building, UTEP
Office Phone: 915-747-7616
Office Hours: College of Education (Education Building 201)
M & F 2:00 pm– 3:15 pm (Other time by appointment)
Class Time: Monday (8:30am to 11:20am)
Online discussions throughout the semester

This syllabus is subject to change as needed. Any changes to the syllabus will be announced in class.

Course Description

This course analyzes contemporary curricula; implementation of methods relevant for active, authentic learning, and culture relevant teaching of mathematics to elementary grade learners. Course instruction and activities include opportunities to understand state and national standards related to teaching and learning mathematics. The course will investigate how children learn mathematics and what is meant by deep understanding of mathematics as well as how to teach mathematics so that learners see relationships and connections within and between mathematics ideas. The course will also discuss equity principle and develop conceptual understanding of elementary grade mathematics contents.

Required Textbook


Recommended Resources

1. NCTM Illuminations: http://illuminations.nctm.org/
3. Early Algebra: www.ase.tufts.edu/education/earlyalgebra/default.asp
7. Texas Education Agency (TAKS Released Tests). http://www.tea.state.tx.us/
Course Objectives/Student Learning Outcomes

<table>
<thead>
<tr>
<th>Students enrolled in this section will have multiple academic goals to achieve:</th>
<th>Instructor will use following assessments to evaluate students’ learning outcomes</th>
</tr>
</thead>
</table>
| 1. Develop a positive belief in teaching and learning mathematics; understand the role of the teacher as a reflective practitioner. | a. Course graded assignments  
b. Class discussion |
| 2. Design mathematics lessons aligned with the NCTM and TEKS with emphasis of mathematics processes and conceptual understanding | a. Course graded assignments  
b. Lesson observation  
c. Class discussion |
| 3. Identify and use curricular materials and resources that support learner-centered teaching practices. | a. Course graded assignments  
b. Lesson Development  
c. Lesson Demonstration |
| 4. Create differentiated lessons effective for the diverse mathematics classroom. | a. Lesson Demonstration  
b. Class presentations  
c. Lesson observation |
| 5. Explore and develop skills in instructional methods (i.e., use of mathematics manipulatives) appropriate for the teaching and learning of elementary mathematics concepts. | a. Course graded assignments  
b. Final Exam  
c. Class discussion and presentation on specific math contents |
| 6. Create assessments appropriate for the Elementary school students | a. Course graded assignments  
b. Class discussions  
c. Final exam |

Attendance, Participation and Professionalism

Attendance of individuals in the class is required and unexcused absences will result in a grade reduction. University rules regarding absences will be followed for the required class meetings. There will be a student sign-in sheet at the beginning of each class. If a student misses a session, it is the responsibility of the student for knowing and completing all work required. Each attendance will count towards the final grade. Two tardies (including early leaves) will count as one absence. More than two absences may result in a student earning one-letter grade lower in the course.

Students are expected that students will attend all classes and actively participate in working on projects and class discussions. Students are expected to prepare for each class session. Lateness to class is strongly discouraged. With the emphasis on collegiality it is important that all group members be in class to contribute to the group’s effort in developing an understanding of what it means to teach mathematics effectively.

All teaching candidates are expected to demonstrate the ethical and professional values associated with Elementary Level Education. It is critical teaching candidates adopt and exhibit a professional demeanor at each point in their teacher preparation. Evidence of professional dedication will be expected through all work during classes and practicum, seminar, internship, and clinical experiences. Credit for participation and professionalism will be part of the evaluation. **Wireless phone usage is strictly prohibited in class.**
Assignment Format and Late Assignments

All assignments must be submitted electronically unless specified. It is highly recommended you save all your work electronically and possibly a hardcopy for your records before turning it in. The following format is required for every assignment submitted. Deviating from the format may result in reduced points, returned paper, or rejection of the assignment completely. All assignments should be double spaced and typed with 12-point font; page numbers should be included if more than one pages. You must label your assignment as you save it containing your name and the assignment name. Only assignments submitted complete and on time will be considered for full credit. Without evidence that you were unavailable (sick) for the entire range of days, the assignment will be given a zero. Any assignments turned more than one week late (or the range of dates for submission) will receive zero points.

Standards of Academic Integrity

Students are expected to uphold the highest standards of academic integrity. Any form of scholastic dishonesty is an affront to the pursuit of knowledge and jeopardizes the quality of the degree awarded to all graduates of UTEP. Any student who commits an act of scholastic dishonesty is subject to discipline. Scholastic dishonesty includes, but is not limited to cheating, plagiarism, collusion, the submission for credit of any work or materials that are not attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts. Proven violations of the detailed regulations, as printed in the Handbook of Operating Procedures (HOP) and available in the Office of the Dean of Students, may result in sanctions ranging from disciplinary probation, to failing grades on the work in question, to failing grades in the course, to suspension or dismissal among others.

Students with Disabilities Statement

If you have or believe you have a disability, you may wish to self-identify. You can do so by providing documentation to the Office of disabled Student Services located in Union E Room 203. Students who have been designated as disabled must reactivate their standing with the Office of Disabled Student Services on a yearly basis. Failure to report to this office will place a student on the inactive list and nullify benefits received. If you have a condition which may affect your ability to exit safely from the premises in an emergency or which may cause an emergency during class, you are encouraged to discuss this in confidence with the instructor and/or the director of Disabled Student Services. You may call 747-5148 for general information about the Americans with Disabilities Act (ADA).

Course Requirement

Attendance and Class Participation

Your active participation in each class session is vital to your learning as well as to the learning of other students in the class. I expect you to attend all class meetings prepared for active, collaborative, participation during the session, whether it is whole group discussion, small group activity, or individual reflection. Preparation for class involves completion of assigned readings and
tasks. If you are unable to attend a particular class session, please let me know beforehand. You are responsible for contacting someone in the class to find out what transpired in your absence. Late work will not be accepted. Make-up quizzes or tests may be scheduled only in the event of documented illness or emergency.

Activity Demonstration

Working independently, you demonstrate a mathematics activity on a specified date in class that corresponding with the course weekly class topics. The activity should no more than 10 minutes in length. In the activity demonstration, (1) you will provide interactive activities to the class; (2) you will explain your target mathematics concepts to the class; (3) you will offer your original mathematics questions as assessment to your classmates. Your role in the demonstration is to be a "peer leader", that is while other students work in small groups, you will be providing content activities, and will help to maintain and encourage student interest and focus on conceptual understanding through interactions.

Online Discussions and Take Home Final Exam

This semester you will participate a series online discussions about strategies of teaching mathematics throughout the semester. Each student should post answers to each discussion questions (no less than 150 words), the answer should be brief, meaningful, well thought-out, and articulate. Post your first response by the due days and post your follow up responses in the following two days. Read all the postings of your peers, and interact with your peers in a positive manner. You will reply at least three of your classmates’ posts in a meaningful way. At the end of the semester, you will have a take home exam, and the exam will cover teacher certification tests contents, class/online discussions, assignments, activities, and readings.

Assignment 1: Mathematics Teaching Philosophy (No less than 600 words)

In assignment 1, you will write a short essay about your teaching philosophy. In the essay, you will reflect your mathematics teaching and learning experiences and describe what the most effective mathematics teaching strategies are and why these strategies are effective. For example, you can reflect and evaluate mathematics teaching strategies (such as culturally relevant teaching, Inquiry based teaching and/or Interdisciplinary teaching) as ways to develop your own mathematics teaching philosophy.

Assignment 2: TEKS and NCTM Review (No less than 600 words)

Texas Essential Knowledge & Skills (TEKS) and National Council of Teachers of Mathematics Standards (NCTM) Standards are the two important mathematics standards that all teachers are required to know. You will read both documents and write a review report of the documents. Specifically, (1) you will discuss the structures of each standard for elementary grade levels, and (2) you will also identify and discuss at least one of the key differences between the TEKS and the NCTM standards on a specific content area.
Assignment 3 - 5: Activity Evaluations (No less than 500 words)

In Assignment 3-5, you will select 3 articles in one of the two journals (Teaching Children Mathematics and/or Mathematics Teaching in the Middle School) about to review and write a comprehensive reflection paper for a specific topic that you learned from each article. Each article review report should be no less than 400 words, and an activity review template will be provided. Not to just summarize or synthesize the activity contents, the key task is for you to EVALUATE the activities. A critique does not necessarily have to criticize the piece in a negative sense. Your reaction to the text may be largely positive, negative, or a combination of the two.

Assignment 6 - 8: Lesson Plan Development (No less than 600 words each)

You will develop a series of mathematics lesson plans for 5th grade based on the lesson plan templates. An student-centered investigation based activity should be included in each of your lesson plan, and a mathematics question (each question should be more than two steps during the problem solving process related with the target theme, and should have more than one way to solve). You will select a specific interdisciplinary theme (such as science, literacy, social studies, and arts). The same themes can be used repeatedly in different lessons. Specifically, in assignment 6 you will develop your first lesson, in assignment 7 you will develop your second lesson, and in assignment 8 you will develop your third lesson.

Assignments and Grades

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Points</th>
<th>Week</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assignment 1</td>
<td>10</td>
<td>(Week 2)</td>
</tr>
<tr>
<td>Assignment 2</td>
<td>10</td>
<td>(Week 4)</td>
</tr>
<tr>
<td>Assignment 3</td>
<td>10</td>
<td>(Week 6)</td>
</tr>
<tr>
<td>Assignment 4</td>
<td>10</td>
<td>(Week 7)</td>
</tr>
<tr>
<td>Assignment 5</td>
<td>10</td>
<td>(Week 8)</td>
</tr>
<tr>
<td>Assignment 6</td>
<td>10</td>
<td>(Week 10)</td>
</tr>
<tr>
<td>Assignment 7</td>
<td>10</td>
<td>(Week 12)</td>
</tr>
<tr>
<td>Assignment 8</td>
<td>10</td>
<td>(Week 14)</td>
</tr>
<tr>
<td>Online Discussion</td>
<td>20 × 4</td>
<td>Throughout Semester</td>
</tr>
<tr>
<td>Activity Demonstration</td>
<td>40</td>
<td>Throughout Semester</td>
</tr>
<tr>
<td>Final Exam</td>
<td>60</td>
<td>(Week 16)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>280</strong></td>
<td></td>
</tr>
</tbody>
</table>

Grade Distribution:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>90% - 100% of point total</td>
</tr>
<tr>
<td>B</td>
<td>80% - 89.9% of point total</td>
</tr>
<tr>
<td>C</td>
<td>70% - 79.9% of point total</td>
</tr>
<tr>
<td>D</td>
<td>60% - 69.9% of point total</td>
</tr>
</tbody>
</table>
## General Calendar
Changes may be made in this syllabus when judged appropriate by the instructor

<table>
<thead>
<tr>
<th>Date &amp; Location</th>
<th>Class Topics/Activities</th>
<th>Assignments and Due dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Jan 25          | Martin Luther King, Jr. Day  
No Class Meeting | Assignment 1  
Due Feb 15 |
| Week 2          |                         |                            |
| Feb 1           | Chapter 1-3  
Foundation of Math Teaching Part I | Assignment 1  
Due Feb 15 |
| Week 3          |                         |                            |
| Feb 8           | Chapter 4-7  
Foundation of Math Teaching Part II | Assignment 1  
Due Feb 15 |
| Week 4          |                         |                            |
| Feb 15          | Online Discussion 1     | Assignment 1  
Due Feb 15 |
| Week 5          |                         |                            |
| Feb 22          | Chapter 8-10  
Number Concepts | Assignment 1  
Due Feb 15 |
| Week 6          |                         |                            |
| Feb 29          | Chapter 11-13  
Number Operation | Assignment 1  
Due Feb 15 |
| Week 7          |                         |                            |
| Mar 7           | Spring Break  
No Class Meeting | Assignment 1  
Due Feb 15 |
| Week 8          |                         |                            |
| Mar 14          | Chapter 19  
Geometry | Assignment 1  
Due Feb 15 |
| Week 9          |                         |                            |
| Mar 21          | Chapter 20  
Measurement | Assignment 1  
Due Feb 15 |
| Week 10         |                         |                            |
| Mar 28          | Online Discussion 2   | Assignment 1  
Due Feb 15 |
| Week 11         |                         |                            |
| Apr 4           | Online Discussion 3   | Assignment 1  
Due Feb 15 |
| Week 12         |                         |                            |
| Apr 11          | Online Discussion 4   | Assignment 1  
Due Feb 15 |
| Week 13         |                         |                            |
| Apr 18          | Chapter 14  
Algebra | Assignment 1  
Due Feb 15 |
| Week 14         |                         |                            |
| Apr 25          | Chapter 21 & 22  
Data Analysis & Probability | Assignment 1  
Due Feb 15 |
| Week 15         |                         |                            |
| May 2           | Chapter 15-18  
Fraction and Proportion | Assignment 1  
Due Feb 15 |
| Week 16         |                         |                            |
| May 9           | Final Exam | Assignment 1  
Due Feb 15 |