

**ELED/BED 4310**  
**Teaching Math in Elementary School**  
**Fall 2017 Syllabus**

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

<b>Instructor</b>	Dr. Song An	<b>Email:</b> saan@utep.edu
<b>Class Locations</b>	201 Education Building, UTEP	
<b>Office Phone</b>	915-747-7616	
<b>Office Hours</b>	College of Education (Education Building 201) Monday 9:00 am– 11:15 am Tuesday 12:00 pm– 2:15 pm (Other time by appointment)	
<b>Class Time</b>	Session 1—Monday (12:00 pm to 2:50pm) 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

Van de Walle, J., Karp, A., Bay-Williams, J. (2009). *Elementary and Middle school mathematics: Teaching developmentally (7th ed.) Texas Edition*. Boston, MA: Pearson.

### Recommended Resources

1. **NCTM Illuminations:** <http://illuminations.nctm.org/>
2. **NCTM Principals and Standards (2000):** <http://standards.nctm.org/>
3. **Early Algebra:** [www.ase.tufts.edu/education/earlyalgebra/default.asp](http://www.ase.tufts.edu/education/earlyalgebra/default.asp)
4. **Annenberg Media:** <http://www.learner.org/index.html>
5. **National Library of Virtual Manipulatives:** <http://nlvm.usu.edu/en/nav/vlibrary.html>
6. **Mathematics Toolkit (2001):** <http://www.utdanacenter.org/mathtoolkit/>
7. **Texas Education Agency (TAKS Released Tests).** <http://www.tea.state.tx.us/>

### Course Objectives/Student Learning Outcomes

<i>Students enrolled in this section will have multiple academic goals to achieve:</i>	<i>Instructor will use following assessments to evaluate students' learning outcomes</i>
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 single 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**

- **15 Points × 8**

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. It is your responsibility to get the instructor's sign-in passcode on sign-in sheet BEFORE each class meeting starts. Please return your sign-in sheet to me in our last class meeting to receive your attendance credits

### **Online Discussions**

- **10 Points** × 7

This semester you will participate a series of 7 online discussions about strategies of teaching mathematics throughout the semester. You should post answers to each discussion questions (no less than 200 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.

### **Take Home Final Exam**

- **50 Points**

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. You will have a whole week to prepare your answers, and the exam will be submit through the Blackboard. You can feel free to use the resources from the internet to prepare your answers, however, you must use your own words to write answers. Any direct copy from the internet will be traced as scholastic dishonesty.

### **Assignment 1: Story of My Math Learning** (*Two pages of hand-drawing pictures*)

- **10 Points**

In this assignment, you will create a graphic novel with 8-12 pictures on two piece of regular printing papers. On page one, you will draw 4-6 pictures to describe and illustrate your experiences of learning “numbers” including whole number computation, fraction, and algebra ” in elementary, middle, and high school. On page two, you will draw 4-6 pictures about your experiences of learning “geometry” in elementary, middle, and high school. First, draw all pictures to show four key moments during your math class. Please color your pictures so that they illustrate the emotions felt during the experience. Underneath each picture you will write two or three sentences of narration or dialogue describing what is happening in that picture. **Bring a hard copy of your drawings to class during our second face to face meeting.**

### **Assignment 2: Standards Review—Number and Operations** (*No less than 400 words*)

- **10 Points**

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, in assignment 2 you will focus on the standards related with *Number and Operation* for elementary grade levels, and you will also identify and discuss the similarities and differences between the TEKS and the NCTM standards on the topic of Number and Operations.

**Assignment 3: Standards Review—Geometry and Measurement** (*No less than 400 words*)

- **10 Points**

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, in assignment 3 you will focus on the standards related with *Geometry and Measurement* for elementary grade levels, and you will also identify and discuss the similarities and differences between the TEKS and the NCTM standards on the topic of Geometry and Measurement.

**Assignment 4: Standards Review—Algebraic Reasoning** (*No less than 400 words*)

- **10 Points**

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, in assignment 4 you will focus on the standards related with *Algebraic Reasoning* for elementary grade levels, and you will also identify and discuss the similarities and differences between the TEKS and the NCTM standards on the topic of Algebraic Reasoning.

**Assignment 5: Standards Review—Other Math Contents** (*No less than 400 words*)

- **10 Points**

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, in assignment 5 you will focus on the standards related with any topics that we are not discussed in the previous assignments (such as probabilities, data analysis and beyond) for elementary grade levels, and you will also identify and discuss the similarities and differences between the TEKS and the NCTM standards on these topic.

**Assignment 6: Proposal of My Math Teaching** (*Two pages of hand-drawing pictures*)

- **10 Points**

In this assignment, you will create a graphic novel with 8-12 pictures on two piece of regular printing papers. On page one, you will draw 4-6 pictures to describe and illustrate your plan of teaching “numbers” including whole number computation, fraction, and algebra ” for your own students in the future. On page two, you will draw 4-6 pictures about your experiences of learning “geometry” for your own students in the future. First, draw four pictures to show four key moments during your math class. Please color your pictures so that they illustrate the emotions felt during the experience. Underneath each picture you will write two or three sentences of narration or dialogue describing what is happening in that picture. **Bring a hard copy of your drawings to class during our second face to face meeting.**

### General Calendar

*Changes may be made in this syllabus when judged appropriate by the instructor*

<b>Date &amp; Location</b>	<b>Class Topics/Activities</b>	<b>Assignments and Due dates</b>
Week 1 Aug 28	Chapter 1-4 Foundation of Math Teaching	
Week 2 Sep 4	<b>Online Discussion 1</b>	<b>Assignment 1</b> <b>Due Sep 11/12</b>
Week 3 Sep 11	Chapter 8-10 Number Concepts	
Week 4 Sep 18	<b>Online Discussion 2</b>	<b>Assignment 2</b> <b>Due Sep 24</b>
Week 5 Sep 25	<b>Online Discussion 3</b>	
Week 6 Oct 2	Chapter 11-13 Number Operation	
Week 7 Oct 9	Chapter 19-20 Geometry & Measurement 1	<b>Assignment 3</b> <b>Due Oct 15</b>
Week 8 Oct 16	<b>Online Discussion 4</b>	
Week 9 Oct 23	<b>Online Discussion 5</b>	
Week 10 Oct 30	Chapter 19-20 Geometry & Measurement 2	<b>Assignment 4</b> <b>Due Nov 5</b>
Week 11 Nov 6	Chapter 14 Algebra	
Week 12 Nov 13	<b>Online Discussion 6</b>	
Week 13 Nov 20	<b>Online Discussion 7</b>	<b>Assignment 5</b> <b>Due Nov 26</b>
Week 14 Nov 27	Chapter 21 & 22 Data Analysis & Probability	
Week 15 Dec 4	Chapter 15-18 Fraction, Ratio & Proportion	<b>Assignment 6</b> <b>Due Dec 4/5</b>
Week 16 Dec 11	Take Home Final Exam	
<b>Total 300 Pts</b>	Assignments Online Discussion Sign-in Passcode Final Exam	(10 Pts×6=60 Pts) (10 Pts×7=70 Pts) (15×8=120 Pts) (50 Pts)
Grade Distribution:	<b>A</b> 90% - 100 % of point total <b>C</b> 70% - 79.9 % of point total	<b>B</b> 80% - 89.9% of point total <b>D</b> 60% - 69.9% of point total

## Sign-In Passcode

- Put Your Name Here \_\_\_\_\_
- It is your responsibility to get my sign-in passcode on this sheet **BEFORE** each class meeting starts
- Please return this sheet to me in our last class meeting to receive your attendance credits

Week 1 Aug 28	
Week 3 Sep 11	
Week 6 Oct 2	
Week 7 Oct 9	
Week 8 Oct 16	
Week 11 Nov 6	
Week 14 Nov 27	
Week 15 Dec 4	