

EED 434 (Mathematics in the Elementary and Middle School)

A required course for EC-4 Generalist, EC-8 math , 4-8 Math Certification



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Office Hours: MW 8:00 am - 9:00 am, 1:00 pm - 2:00 pm, Lynn Lucas Campus
T 12:15 pm - 3:15 pm, and TH 1:00 – 3:00 pm at SHSU
By appointment -when field experience begins

Meeting Times: Section 03: Tuesday/Thursday 9:00 am - 10:50 am

Place/Room: Lynn Lucas Middle School in Willis, Texas, Room 127

Required Textbook:

Hands-On Teaching Strategies for Using Math Manipulatives--Grades 6-9 Kit: ETA Cuisenaire, item number INP1009.

Course Description:

This is a teaching methodology course designed to help teacher candidates gain competencies in planning, implementing, assessing, and modifying mathematics instruction that meets the needs of diverse learners. This course also addresses the national mathematics standards, the Texas mathematics curriculum (EC-4), and student assessment program (TAKS).

Field experience is a mandatory component of the method courses. It takes place in the established schools. Your last week in the field is week 14, the week before Thanksgiving holidays. The field experience entails being in the school for a portion of the teacher day. You will have a variety of assignments to complete that are directly related to this methods course and will make connections between pedagogy, practice, and mathematics as a subject.

Field experience provides a unique opportunity for teacher candidates to:

- begin the transition from student to teacher,
- familiarize themselves with the culture of the mathematics classroom in elementary schools,
- observe and put into practice the concepts and skills learned in the course,
- better understand the learners, the processes involved in developing conceptual understanding in students, and multiple approaches to facilitate learning, and,
- gain an understanding of the teacher roles and responsibilities that are part of a daily teaching routine.

Standard Matrix

<p style="text-align: center;">Objectives/Learning Outcomes</p> <p>The teacher candidate:</p>	<p style="text-align: center;">Activities (* indicates field-based activity)</p>	<p style="text-align: center;">Performance Assessment</p>	<p style="text-align: center;">Standards:</p> <ul style="list-style-type: none"> • <u>State Standards</u> • <i>Specialty Organization Standards</i>
<p>1. Applies knowledge about how children learn mathematics to develop age-appropriate lessons.</p>	<p>*Design and teach a detailed math lesson in the field.</p> <p>*Small group re-teach</p> <p>Resource file—a collection of 15 quality lesson plans to teach the 5 content standards.</p> <p>View, analyze math teaching and assessment videos (Best Practice)</p>	<p>Rubrics</p> <p>Synopsis, reflection</p> <p>Rubrics</p> <p>Class discussion</p>	<p>PPR Domain 01- Designing instruction and assessment to promote student learning</p> <p>Standard 1 1.2k-1.4k 1.1s-1.5s 1.7s</p> <p><i>NMSA Standard 1 Standard 3 Standard 4 Standard 5 NCTM Standard 8 Standard 14</i></p>
<p>2. Plans and demonstrates appropriate use of different strategies to teach and assess diverse students.</p>	<p>*Differentiated instruction- follow up one student with special need and observe accommodations the mentor teacher is implementing.</p> <p>*Interaction synopsis – a written reflection of the impact of a re-teach session to a group of students.</p> <p>Resource file - a collection of 15 quality lesson plans to teach the 5 content standards.</p> <p>One Week Unit – planning a 5-day unit along with the assessment plan (pre, post, and formative assessment)</p>	<p>Rubrics</p> <p>Rubrics</p> <p>Rubrics</p> <p>Rubrics</p>	<p>PPR Domain 03 – Implementing effective, responsive instruction and assessment</p> <p>Standard 1</p> <p>Competency 002 – The teacher understands student diversity and knows how to plan learning experiences among students and that promote all students’ learning.</p> <p><i>NMSA Standard 1 Standard 4 Standard 5 NCTM Standard 7 Standard 8 Standard 14</i></p>

<p>3. Uses a variety of resources to design lessons aligned with the national, state standards (TEKS), and assessment (TAKS).</p>	<p>*Small group re-teach –revise original lesson to meet the needs of specific students. Then re-teach</p> <p>Resource file- a collection of 15 quality lesson plans to teach the 5 content standards.</p> <p>One Week Unit- planning a 5-day unit along with the assessment plan (pre, post, and formative assessment)</p>	<p>Reflections, lesson plan, Mentor and/or professor evaluation</p> <p>Rubrics</p> <p>Rubric</p>	<p>PPR Domain 03 - Implementing effective, responsive instruction and assessment</p> <p>Standard 1</p> <p>Competency 003 – The teacher understands procedures for effective and coherent instruction and assessment based on appropriate learning goals objectives.</p> <p>1.7k, 1.19k 1.16s-1.18s 1.19s-1.23s 1.6s -1.11s</p> <p><i>NMSA Standard 3 Standard 4 NCTM Standard 14</i></p>
<p>4. Make connections within mathematics and other disciplines to motivate students in learning meaningful mathematics.</p>	<p>*Lesson taught in field</p> <p>Review of math-literature books- Analyze trade books with strong math connection and plan for integrating in math lessons.</p> <p>Resource file - a collection of 15 quality lesson plans to teach the 5 content standards.</p>	<p>Rubric Reflection</p> <p>Class Discussion, presentation</p> <p>Rubrics</p>	<p>PPR Domain 03 - Implementing effective, responsive instruction and assessment</p> <p>Standard I, II</p> <p>Competency 003 – The teacher understands procedures for effective and coherent instruction and assessment based on appropriate learning goals objectives.</p> <p>1.8k-1.11k 1.10s-1.11s 1.23k, 1.23s 3.8s – 3.14s</p> <p><i>NMSA Standard 3 Standard 4 NCTM Standard 4</i></p>

<p>5. Selects and uses appropriate manipulatives (including web-based) and technology (Calculator & Computer) to enhance math understanding.</p>	<p>Lesson plan for field experience</p> <p>Review web-based mathematical sites - locate and describe web resources to help teachers make math lessons interesting and meaningful.</p>	<p>Rubric</p> <p>Post on Blackboard, section in Resource File</p>	<p>PPR Domain 03 - Implementing effective, responsive instruction and assessment</p> <p>Standard I, II</p> <p>Competency 004 – The teacher understands learning processes and factors that impact student learning and demonstrates this knowledge by planning effective, engaging instruction and appropriate assessments.</p> <p>1.10k 1.19k-1.24k 1.6s-1.11s 2.20s</p> <p>NMSA Standard 4 Standard 5 NCTM Standard 4 Standard 5 Standard 6</p>
<p>6. Plans learning and assessment that fosters higher-order thinking skills, critical thinking.</p>	<p>*Lesson Plan that utilizes higher-order thinking skills</p> <p>One Week Unit – planning a 5-day unit along with the assessment plan (pre, post, and formative assessment)</p> <p>Watch and reflect tape: Ms. Toliver in conjunction with PDAS Form</p>	<p>Rubric</p> <p>Rubric</p> <p>Class discussion</p>	<p>PPR Domain 03 Standard I, III</p> <p>Competency 007 – The teacher understands and applies principles and strategies for communicating effectively in varied teaching and learning contexts.</p> <p>1.12k - 1.18k 1.20k 1.11s – 1.22s 3.4s -3.6s</p> <p>NMSA Standard 3 Standard 5 NCTM Standard 3 Standard 4 Standard 5 Standard 8</p>

<p>7. Utilizes a variety of assessment methods while integrating assessment throughout the instructional delivery.</p>	<p>*Interaction synopsis – a written reflection of the impact of a re-teach session to a group of students.</p> <p>One Week Unit – planning a 5-day unit along with the assessment plan (pre, post, and formative assessment)</p> <p>TAKS in-class analysis and exploration of teaching and review strategies</p>	<p>Rubric</p> <p>Rubric</p> <p>Written analysis and oral presentation</p>	<p>PPR Domain 03 - Implementing effective, responsive instruction and assessment</p> <p>Standard 1</p> <p>Competency 003 – The teacher understands procedures for effective and coherent instruction and assessment based on appropriate learning goals objectives.</p> <p>1.7k, 1.19k 1.16s-1.18s 1.19s-1.23s 1.6s -1.11s NMSA Standard 5 NCTM Standard 5 Standard 8 Standard 14</p>
<p>8. Demonstrates, models professionalism and fulfills responsibilities.</p>	<p>*Collaborative work; Working in team – students will be assessed based on their cooperation as a team member.</p> <p>*Interaction with instructors, mentors, peers; planning with partner and mentors;</p> <p>Disposition in class and in the field.</p>	<p>Observation, mentor’s appraisal checklist; peer evaluation</p> <p>Dispositions checklist; field experience participation; self-appraisal checklist</p> <p>Checklist</p>	<p>PPR Domain 04 – Fulfilling professional roles and responsibilities.</p> <p>Standard IV</p> <p>Competency 12 – The teacher enhances professional knowledge and skills by effectively interacting with other members of the educational community and participating in varied types of professional activities.</p> <p>3.1s – 3.3s 4.5s-4.15s 4.9k-4.12k NMSA Standard 2 Standard 6 Standard 7 NCTM Standard 2 Standard 7</p>

*All directions, details and assessment tools will be provided to you on BlackBoard as well as are given in class.

Web address for NCATE/NCTM Program Standards for initial preparation of mathematics teachers (Elem. Math Specialist) -- <http://www.nctm.org/ncate.aspx>
<http://www.ncate.org/ProgramStandards/NCTM/NCTMELEMSStandards.pdf>

Web address for TX state teaching standards: <http://www.sbec.state.tx.us>

Course Format:

The course will be taught by modeling the most current and effective practices in teaching mathematics that foster and support candidates' active participation and reflections.

Cooperative learning, group projects, use of literature, integration of subjects, and integration of current instructional technology will be emphasized. The candidate will be engaged in hands-on activities associated with planning, teaching, and assessing mathematics learning *for all learners* following the TEKS. Fifty percent of the course requirements will be completed in the real classroom during field experience.

Three-Part Course Content:

- A. Foundations of teaching mathematics with emphasis on the national and state mathematics curriculum and teaching standards; Research on student thinking; international assessment
- B. Planning, teaching, assessing, and modifying instruction for diverse learners
- C. Analysis of mathematics TEKS and state assessment system (TAKS).

In order to be responsive to the needs of the candidates at any given time, the instructor reserves the right to modify the schedule as deemed appropriate.

EVALUATION PROCEDURES AND GRADING POLICIES

*The difference between a student who succeeds and a student who excels is in the preparation.
-- Anonymous*

The evaluation system outlined below is an attempt to provide candidates with a significant role in determining their final grade for EED 434. This system is based on my belief that the most important variable involved in determining the candidate's final grade should be the quantity of high-quality work completed. My requirement is that all assignments submitted must demonstrate the quality of work expected of prospective elementary school teachers; you, in turn, have options regarding the amount of work you submit meeting these requirements.

Understanding that life occasionally places obstacles in the foreseen path, it is expected that there may be times that an assignment may not be ready at the established due date. Therefore, late assignments will be accepted. However, it is important to realize that as a student it is your responsibility to provide the highest possible quality work in a timely manner. If an assignment must be turned in late, 5 points **per day** will be deducted from the final grade of that assignment. Assignments **will not** be accepted more than one (1) week late.

Course Assessments: *[All major assignments can be used as artifacts for your PPR portfolio.]*

In-class (300 points)

1. One-week Unit (100 points)
2. Resource file (100 points)
3. Attendance (50 points)
4. Dispositions (participation, preparedness, collaboration, etc.) (50 points)

Field-based (300 points)

5. One Lesson plan (using standard template) taught to full class in the field (30 points)
6. Follow-up re-teach to small group in the field [completed after full-lesson has been taught] (30 points)
7. Interaction synopsis (20 points)
8. Differentiated instruction (30 points)
9. Participation (reflections/responses during discussions and field experience postings) (40 points)
10. Common Assignments in methods block (150 points)

Evaluation/Grading: A variety of evaluative processes are utilized including: rubrics, teacher evaluations, self-evaluations, and the professional dispositions. A total of 600 points may be accumulated in this course. The corresponding letter grades follow the distribution below.

A = 552 - 600 points

B = 492 - 551.99 points

C = 432- 491.99 points

D = 372 - 431.99 points

F = 372 points or below

Expectations:

- Regular attendance, prepared to actively participate in class and in the field.
- Team collaboration, active listening.
- Thoughtful reflections on teaching practices and learning opportunities.
- Relate or make cognitive connections between and among readings, discussions, activities, assignments and the PPR competencies.
- **Consistently demonstrate good disposition.**
- Check Blackboard regularly for assignments, announcements, and grades.

Attendance Policy

Regular and punctual attendance is required and will be documented every class period.

As per University policy, candidates will not be penalized for three (3) hours of absence during the semester. This class period absence should be used carefully for emergencies and illnesses. It is important that candidates notify the professor via email or phone call prior to, or on the day of, the absence regardless of the reason for the absence.

Upon the second absence, after the three (3) hours of absence allowed by the University, the Department of Curriculum and Instruction will be notified and a notation will be made in the candidate's file. After the third absence, the candidate will attend a conference with the course professor as well as the Chairperson of Curriculum and Instruction to discuss and evaluate reasons for the absences, and to determine if the candidate needs to continue in the program. Excessive absences can constitute reasons for lowering of semester grades, and possibly, removal from the course or block of courses.

It is the student's responsibility to obtain prior approval from the instructor for making up class assignments. Documentation from the student may be required for approval. Documentation is for approval to make up work, not an excusal for missing class. It is also the student's responsibility to retrieve handouts and materials from the missed class from classmates. Any missed group work may not be made up.

Tardies

All tardies are recorded. A student who shows a pattern of being a few minutes late (but less than 15) will be notified that continuation of that pattern will result in an absence. If a student is fifteen or more minutes late to class or leaves class fifteen minutes or more before class is over, an absence will be recorded.

Following the initial absence, your *final* grade will be lowered by 10% per absence.

IF YOU KNOW YOU WILL BE ABSENT:

- Notify the professor via email or phone call prior to, or on the day of the absence before the assigned class time;
- Contact a student in the class in order to find out what work was completed in class and what homework is required of you for the next class meeting;
- Designate a student to collect handouts or materials received in class during your absence;
- Complete the assignments that are due and bring them to the next class meeting so you will stay current with the assignments. Any missed in-class group work may not be made up.

Professionalism

Methods students are expected to enthusiastically participate in all school-based activities and mentor's classroom activities. This includes your professionalism in all school-based and seminar activities. Respect for the instructors and other students will be demonstrated at all times. Lack of professionalism may warrant a review by the department and the college concerns committee. **It can also result in your dismissal from the program.**

Preparation and Enthusiastic Participation

Assignments are very important and are to be completed before class on the day the topic is introduced. Since classroom instruction will be based on learner-centered discussions and activities, each student has a commitment to the class and/or group to come to class prepared to actively participate and to apply the information acquired through the reading. If you are absent, it is **your** responsibility to get assignments and handouts from a fellow classmate.

Grading of Assignments

All assignments will be graded and returned to you in a timely manner. If an assignment is not done correctly, you will receive an incomplete and be asked to redo the assignment. The incomplete will remain until assignments are turned in with corrections. Points may be deducted for assignments that have to be redone.

ADDITIONAL COMMENTS

1. All assignments for EED 434 are designed to connect the classroom instruction you receive on campus with your field-based requirements. For best results, schedule the lessons you need to teach with your cooperating teacher as far in advance as possible.
2. Required assignments need to be word-processed and double spaced on standard-sized paper (similar to this sheet) using a font size between 12 and 14. Forms distributed in class that you complete for these assignments may be neatly written in ink. Because some papers will need editing or revising, save all files on a disk so that they can be easily retrieved.
3. Students are encouraged to submit all assignments early in the semester. Assignments turned in on time are allowed to be corrected. You are given one week to correct and resubmit any items that are to be corrected.

Student evaluation of the course and instructor (IDEA)

[The student will evaluate the course and instructor using the objectives listed below]

In addition to the objectives based on the PPR standards, this course will also help teacher candidates in the following:

1. Apply course materials to improve thinking, problems solving, and decisions. (E)
2. Acquire skills in working with others as a team member. (E)
3. Find and use resources for answering questions or solving problems. (I)
4. Develop specific skills, competencies, and points of view needed by professionals in the field most closely related to this course. (I)

References

- Van de Walle, J. (2007). *Elementary and Middle School Mathematics: Teaching Developmentally*. [6th Edition] Boston: Pearson Education, Inc. (ISBN: 0-205-48392-5).
- *Principles and Standards for School Mathematics [PSSM]* (on line- www.nctm.org)
- *Mathematics in the Early Years*, J. Copley, (Ed.)
- *The Young Child and Mathematics*, by J. Copley
- *Field Experience Guide for Elementary and Middle School Mathematics: Teaching Developmentally* by Jennifer M. Day-Williams published by Allyn & Bacon, 2007.
- *Helping Children Learn Mathematics*, National Research Council, 2002.
- UT-Dana Center – <http://www.utdanacenter.org/>
- www.utdanacenter.org/mathtoolkit - sample lessons to help clarify the TEKS.
- *2006 Curriculum Focal Points (PK-Gr. 8)*, published by NCTM
- NCTM Journal: Teaching Children Mathematics (12 issues per year)

Web sites for information on teacher preparation and mathematics standards:

<http://www.tea.state.tx.us> -- Texas Math Curriculum (TEKS) and Student Assessment (TAKS)
<http://www.nctm.org> --- PSSM, 2000, National standards for school mathematics (K-12) recommended by the National Council of Teachers of Mathematics (NCTM).
<http://www.texas.nesinc.com/> --- Preparation manual for the teacher examination [EC-4 Generalist, Pedagogy and Professional Responsibilities (PPR)].
<http://www.tenet.edu/teks/math/clarifying/> - sample lessons to help clarify the TEKS.
[http://www.learningthroughlistening.org/Classroom Teaching Tools/Lesson Plans/31/](http://www.learningthroughlistening.org/Classroom_Teaching_Tools/Lesson_Plans/31/)
<http://school.discovery.com/lessonplans/k-5.html>

Online Resources:

<http://www.Illuminations.nctm.org> [click on Lessons, Standards, Tools, or Web resources]

www.nctm.org/standards - information about national mathematics standards [Principles and Standards for School Mathematics (2000); Focal Points (2007)]