CIEE 3334 - Mathematics in the Elementary & Middle School
Fall 2017
[This course is required for Interdisciplinary Studies and EC-6 teacher certification]

College of Education, Department of Curriculum & Instruction

Instructor: Dr. Sylvia Taube
Garrett TEC 237 & TWC 310
P.O. Box 2119 SHSU Huntsville, TX 77341
(O) 936-294-3751
Email: edu_srt@shsu.edu

Office hours:

Monday– usually reserved for faculty meetings at SHSU.
Monday - 9:00 am -11:00 am – Main Campus, TEC 237
Wednesday– 8:30-11:30 –TWC 310
Thursday - 8:00-11:00 – TWC 310
Friday -- The instructor is available on-line (email, chat)

Course Format:

This course will be taught using multiple approaches (e.g., project-based learning) in which teacher candidates use critical thinking to formulate solutions to real classroom-related challenges in collaboration with peers. Weekly meetings in this course will consist of modeling the most effective and research-based practices in teaching mathematics that foster and support candidates' active participation and reflections. Learner-centered pedagogy, cooperative learning, group projects, use of literature/writing, integrated curriculum, and instructional technology will be emphasized. Candidates will participate in hands-on activities associated with planning, teaching, and assessing mathematics learning *for all learners* using the Texas state curriculum. Teacher reflection, peer evaluation, and self-evaluation will be required in all phases of the course. Field experience (120 hours at least) in a public school is required.

**Field Experience* is a mandatory component of method courses. It takes place in established public schools with strong mentors and diverse students. During field experience days (at least 120 hours), candidates will have a variety of assignments that are directly related to this course and allow candidates to see connections among pedagogy, practice, and mathematics.

Day/Time the class meets: **Section 01 – Tuesday, 9:00 am -11:50 am**
Section 02 – Tuesday, 1:00 pm-3:50 pm

Location of class: The Woodlands Center, Room 251

Course Description:

This course emphasizes the teaching of meaningful mathematics to children in grades K thru 6. Teacher candidates develop lesson plans of acceptable quality, produce practical teaching aids, and design integrated instructional units appropriate to a specific grade level. Experience is provided in the selection and evaluation of teaching methods, unit and lesson planning, using curriculum and audio visual materials, technology, and the preparation of instructional materials appropriate for mathematics content and skills at different elementary and middle school grade levels. Teacher candidates observe and teach mathematics lessons in an elementary (K-6) classroom during their field experience.

Textbook: No specific textbook is required.

Course Objectives (See first column of Standard Matrix, pages 2-4)

STANDARD MATRIX

Course Objectives Teacher candidates in this course will demonstrate the following competencies at the *application or performance level:*	**Activities/Assignments** **[*field-based activities]**	**Measurement (performance-based assessment)**	**Standards Alignment** **TS—**Texas Educator Standards/Competencies InTASC Standards **NETS*S** – ISTE NETS Technology Standards for Students
1. Design, implement, and evaluate learning experiences (lessons) that utilize different teaching strategies such as, direct teaching, indirect teaching, and Project based learning (PBL) that meet the needs of diverse students.	*Design and teach at least one mathematics lesson using high technology, manipulatives, and other culturally rich materials. *Plan an integrated unit (Science, Math, SS, RLA) focusing on appropriate assessment plan (pre, post, and formative assessment). *Design and teach short lessons in the real classroom; Write a self-reflection Math learning centers	Peer teaching: Plan and teach an Inquiry Math lesson. Analysis of TX assessment test items (STAAR) and target objectives. Integrated Learning Plan Evaluation of Teaching in real classroom by field supervisor and/or mentor; Written reflection on one lesson taught in the real classroom. Teacher Portfolio	TS -- Standard 1 1.19s-1.22s 1.2s, 1.3s-1.5s 1.6s-11.11s InTASC Standard 5 **NETS – 1, 2, 3, 4**

2. Implement learner-centered lesson plans that utilize and support the five math process standards: problem solving, logic, connection, communication, and representation.	*Teach math lessons in the real classroom using math processes. Analyze, use trade books with strong math connection Develop plan for integrating technology in math lessons	PBL Integrated Learning Unit (rubric); Rubric for scoring lesson plan; Digital Stories Interview a person who has a job outside of the teaching profession.	TS-- Standard I, II 1.19s-1.22s 1.23s-1.29s 3.73-3.9s InTASC Standards 5 & 7 **NETS – 1, 2, 3, 4**
3. Design an integrated instructional unit plan with strong emphasis on equity, literacy, social justice, and service learning within mathematics content, science, social studies, Reading/LA), and technology.	*Plan a 5-day unit along with an assessment plan (pre, post, and formative assessment). Present unit plan and receive feedback. Research: Equity and mathematics learning (includes social justice) Participate in a workshop on integrating lessons using the environment as a context (Project Learning Tree)	Integrated Learning Unit (see rubric) Written Reflection on the process of developing a unit and what competencies have been learned. Project Based Learning (PBL) integrated unit Presentation: Integrating Math-Technology Peer teaching reflection	TS -- Standard I 1.7k, 1.19k 1.16s-1.18s 1.19s-1.23s 1.6s -1.11s InTASC Standards 5 & 7 **NETS** – 2, 3, 4
4. Utilize varied and appropriate hands-on materials, web-based manipulatives, trade books, centers, games, and “high” technology to support and enhance students’ mathematics understanding and learning.	Interview lay persons for math applications *Plan lessons for formal observation during field experience using “high” technology. Prepare hands-on math learning centers: includes games, learning centers, hands-on activities Plan and teach a math lesson using hands-on materials and technology as well.	PBL Integrated Learning Unit; Detailed lesson plans, each using learner-centered teaching. (a common rubric for scoring lesson plan is used); Peer teaching evaluation Math learning centers Reflection on the teaching process and outcome. Digital Stories	TS--Standard I, II 1.24s-1.29s 1.6s-1.11s, 2.20s InTASC Standards 2 & 8 **NETS – 1, 2, 3, 4, 5**

5. Develop and implement different forms of assessments that foster higher-order thinking skills and supported by data about students on a specific elementary school campus.	*Plan and teach lessons employing higher-order thinking skills; Research and model formative assessment strategies. Design a thematic-integrated learning unit Research, class discussion, and reflection on: best practices, higher-order questions, high expectation, and diversity *Analyze campus data using (STAAR, TPR report)	Teach a mathematics lesson in the real classroom. Rubrics used: *Teaching Performance Evaluation Form.* *Common rubric for scoring lesson plan;* Integrated Learning Unit; Project Based Learning integrated unit; Peer teaching (peer evaluation) Analysis of standardized items (STAAR) and target objectives.	TS-- Standard I, III 1.8s 1.24s – 1.29s 3.1s -3.9s 3.10s-3.20s InTASC Standard 6 **NETS – 2, 5**
6. Model consistently, professional behavior, dispositions, collaboration, communication, and fulfill responsibilities including participating in professional development events.	Work in teams, model cooperation; *Interaction with instructors, mentors, peers; planning with partner and mentors; *Disposition in class and in the real classroom. Plan to communicate with parents about curriculum. Peer teaching and evaluation	Evaluation Instrument to assess collaboration; Instructor's and mentor's *appraisal of professionalism checklist*; Project based Learning Solution/Defense/ Presentation; Information Flyer for parents on Texas Math Curriculum (TEKS)	TS - Standard IV 4.3k-4.8k 4.9k- 4.12k 4.5s – 4.11s InTASC Standard 9 **NETS – 4, 5**
7. Practice "*habits of mind"* that emulate behaviors of highly effective teachers (e.g., constant reflection of one's teaching practice, reading research in math teaching and learning, connecting mathematics with culture and other social issues.	Observing mentor teacher's daily classroom chores; Peer evaluation of teaching and other outcomes; Written reflection of one's teaching in a real math classroom; Self-assessment based on state/national standards.	Reflections of processes and events occurring in the real math classroom. Project based Learning Project: Solution/Defense/ Presentation; Self-reflection based on a mathematics lesson taught in the real classroom.	TS -Standard IV 4.12s-4.15s InTASC Standard 9 **NETS – 5**

State Standards: http://www.tea.state.tx.us/index2.aspx?id=5938

IDEA Objectives: In this course our focus will be on these major objectives (that will be assessed in the IDEA course evaluation system, administered on-line):

Essential:

Develop specific skills, competencies, and points of view needed by professionals in the field most closely related to this course (teaching/learning mathematics).

Important:

1. Learn to apply course materials to improve thinking, problems solving, and decisions.
2. Acquire skills in working with others as a team member.

Course/Instructor Requirements

Field Experience provides opportunities for the teacher candidate to achieve the following:

- Begin the transition from a college student to a teacher;
- Familiarize him/herself with the culture of the mathematics classroom in elementary schools;
- Observe, reflect, and put into practice the concepts and skills learned in the course;
- Interact with learners, observe how students gain understanding of mathematics concepts and use of multiple approaches to facilitate learning;
- Observe, experience, and understand the complexity of teacher roles and responsibilities on a daily basis; and
- Develop, apply, and model good dispositions.

Course Requirements and Expectations:

- Each major assignment is treated as a mini Project Based Learning (PBL) to engage the teacher candidates in processes that nurture and support critical thinking;
- Check Blackboard regularly for assignments, announcements, grades, & uploaded files;
- Communicate with your course instructor for any concerns that could affect your learning, attendance, and participation in class;
- Observe regular attendance and prepare to actively participate in class and in the field;
- Engage in team collaboration and active listening and participation;
- Upload in TK20 required assessments (Field Experience log, lesson plan, Teacher Portfolio);
- Engage in thoughtful reflections on teaching practices and learning opportunities; and
- Relate or make cognitive connections between and among readings, discussions, activities, assignments and the NCATE/CAEP, NCTM, DDPs and PPR standards and competencies.

Course Outline

Assignments

All assessments are performance-based; reflection, self- and peer-evaluations are required. These consist of *In-class* and *field experience-based* (real classroom) assessments. Team collaboration and professionalism are also evaluated. Additionally, you will have assignments (common assessments) that will be credited in all three content methods courses as part of the teacher preparation program requirements. Each assignment requires elaborate (scholarly) writing and must demonstrate the quality of work expected of well-prepared teacher candidates.

Late submission of major assignments: In the event that you may not be ready to turn in assignment/s on due dates, late assignments will be accepted only on extenuating circumstances (e.g., death or illness in the family). If an assignment must be turned in late, 10 points **per day** will be deducted from the total points for that assignment. A zero will be posted on grade book until your late assignment has been graded and appropriate points deducted.

Grades: A total of 1,000 points maybe earned in this course.

Grade Distribution: A= 900-1,000 points B = 800-899 points C = 700-799 points
(NOTE: You need a final grade of C or better to qualify for student teaching)

[All major assessments listed below (green/red fonts) have scoring rubrics]

- **Attendance + collaboration + active participation in class = 200 points**
- **Synthesis of 1-on-1 interview with a "Specialist" individual = 50 points**
- **Technology Integration (*Digital story telling*) = 50 points**
- **Peer teaching in class (3-4 members only)+ peer and self-evaluation = 50 points**
- **STAAR Item analysis (choose a grade level) + TEKS Flyer for parents = 50 points**
- **3 detailed mathematics lesson plans: (20+30+50) = 100 points**
- **Math learning centers/interactive games + peer assessment/rubric design = 50 points**
- **Reflection of math teaching in the real classroom + Teaching evaluation =50 points**

Common Assessments=400 points: Four major assessments that will be counted in your Science, Social Studies, & Mathematics methods courses will include the following:

- **Professionalism: 100 points= Mentor (50) + Field Supervisor (50)**
- **Project Based Learning (PBL) Integrated Learning Unit = 100 points**
- **PBL Team Presentation = 100 points**
- **Teacher Website/E-portfolio = 100 points (for submitting on time)**

Schedule:
You will be provided a tentative course calendar outlining course activities and due dates on the first day of class. NOTE, this calendar will remain "tentative" because minor changes are expected as the semester progresses.
So… be flexible like a pretzel.

Student Guidelines

University Policies

- SHSU Academic Policy Manual-Students
  - Procedures in Cases of Academic Dishonesty #810213
  - Disabled Student Policy #811006
  - Student Absences on Religious Holy Days #861001
  - Academic Grievance Procedures for Students #900823

- SHSU Academic Policy Manual-Curriculum and Instruction
  - Use of Telephones and Text Messagers in Academic Classrooms and Facilities #100728
  - Technology during instruction: students will be allowed to use their cellphones, and other technology only when needed during instruction or when small groups are working.
  - Technology during exams: NA
  - Technology in emergencies: Students may check their cellphones on when there is family-related emergency OR you or your peer has an emergency situation during class.

- Visitors in the Classroom- Only registered students may attend class. Exceptions can be made on a case-by-case basis by the professor. In all cases, visitors must not present a disruption to the class by their attendance.

Attendance

This class meets once a week only (2 hours and 50 min). Therefore, attendance is strictly monitored and 10 points per meeting will be earned. A student is allowed only 1 absence with reasonable excuse. The second absence will be dealt by having a student-instructor conference or a meeting with the department's Concerns Committee.

Course Expectations

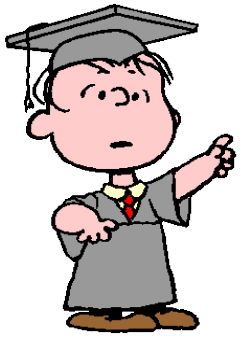
The student (teacher candidate) must model professionalism at all times, submit high-quality work on time, actively engage in class activities, and participate/collaborate well with peers, instructors, and mentors.

The student is responsible for reading, understanding, and agreeing to every expectation stated in our syllabus. Our syllabus serves as a *binding contract* between you (student) and the instructor.

* PROFESSIONALISM POLICY: 100 points will be earned for exemplary conduct and acceptable behavior and attitude expected of a professional. Loss of points can be the results of absences, tardiness, late work submission, unauthorized use of cell phone, negative attitude/dispositions, lack of initiative, involvement and collaboration. Impatience, rudeness, failure to communicate with the instructor and mentor, etc. are not acceptable. The instructor and mentor-teacher will determine the total points for professionalism based on a checklist given to the student on the first day of class.

Reminder and Motivation:

Hang in there!
You are only one semester away from Student Teaching!!



Bibliography:

NOTE: since there is no required textbook for this course, the instructor will assign you tasks that require visiting some of the following invaluable resources:

Ernst, K., & Ryan, S. (2014). *Your first years teaching elementary mathematics: Success from the start.* National Council of Teachers of Mathematics, Reston, VA.

Moynihan, C. (2012). *Math Sense: The look, sound, and feel of effective instruction*. Stenhouse, Portland, ME.

Reys, R., Lindquist, M., Lambdin, D., & Smith, N. (2014). *Helping children learn mathematics* (11th Ed). John Wiley & Sons. Hoboken, NJ.

Additional Resources:

Burns, M. (1988). *A collection of math lessons*. Math Solutions, Sausalito, CA.

Burns, M., & Silby, R. (2001). *So you have to teach math? Sound advice for K-6.* Math Solutions, Sausalito, CA.

www.nctm.org...the official website for the National Council of Teachers of Mathematics

http://nlvm.usu.edu/en/nav/vlibrary.html - The National Library of Virtual Manipulatives (NLVM) **[**Must use a computer with Java (Applets) application.

NCTM Journals: *Teaching Children Mathematics; Mathematics Teaching in the Middle School*

Math Teacher Resource: www.youtube.com/NCTMIlluminations - a channel that shares math resources for teachers' use in their classrooms every day.
www.edutopia.org

www.teachingchannel.org

Information on teacher preparation and mathematics standards:

http://www.tea.state.tx.us -- Texas Math Curriculum (TEKS Revised, 2014 full implementation)

http://www.thecb.state.tx.us/ ---Texas State Board of Educator Certification (SBEC)

Student Assessment in Texas:

http://lead4ward.com/ -- free STAAR resources and information for Texas teachers

http://www.tea.state.tx.us/student.assessment/ - --STAAR TX Assessment Program

College of Education Information

Accreditation

The programs within the SHSU College of Education have the distinction of receiving accreditation and national recognition from multiple accrediting bodies. All educator certification programs, including teaching and professional certifications, have received ongoing accreditation from the Texas Education Agency (TEA). Additionally, the educator preparation program has been accredited by the Council for the Accreditation of Educator Preparation (CAEP-formerly NCATE) since 1954. Many of the educator preparation concentration areas have also chosen to pursue national recognition from their respective Specialized Professional Associations (SPA), signifying the program is among the best in the nation. The programs within the Department of Counselor Education have also received accreditation from the Council for Accreditation of Counseling and Related Educational Programs (CACREP).

Course and Program Evaluation

Near the end of the semester, students are asked to take part in the University's adopted course evaluation system, IDEA. The assessments are completed online and instructions are emailed to each student. Students' assessments of courses are taken are systematically reviewed by the Dean, Associate Deans, Department Chairs, and individual faculty members. Only after the semester has completed are faculty members allowed to view aggregated results of non-personally-identifiable student responses.

The College of Education conducts ongoing research regarding the effectiveness of the programs. Students receive one survey in the final semester prior to graduation regarding the operations of the unit during their time here. A second survey occurs within one year following completion of a program, and is sent to students and their employers. This survey requests information related to students' quality of preparation while at SHSU. Students' responses to these surveys are critical to maintaining SHSU's programs' excellence.

~~~ End of Ten-Page Course Syllabus ~~~

"BE COOL; COME TO SCHOOL"

Have a highly successful Content Methods Semester!

Your instructors will be with you all the way!