Methods of Teaching Elementary Mathematics

EDUC 5354.001 Spring 2020
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I attempt to reply to email and voicemails within 48 business hours.


**Texas Essential Knowledge and Skills Mathematics Curriculum**

**Other readings:** Throughout the semester, readings will be required, these will be uploaded to our Blackboard site in the appropriate module.

**This course will be delivered in modules on Blackboard. Each module will require various module activities. Modules will typically be open on the Monday of each week and activity due dates will be designated within the module or on Sunday at midnight.**

**Course Description:**

A course emphasizing the teaching of mathematics in Grades 1-8 using manipulatives in a problem-solving format. Instruction will build upon the following topics which will have been introduced in previous courses: the teaching-learning process, curriculum organization, use of instructional technology, instructional planning, and instructional and student evaluation. Each student will participate in field experiences.

**Course Goals:**

This course will help you think about teaching and learning mathematics in grades K-6. It will not provide a "recipe" for good elementary mathematics teaching. Rather, the course readings, outside assignments, class and field activities, and discussions will provide opportunities for you to think about the learning and teaching of mathematics in ways that enable you to make good instructional decisions. It is necessary to give careful consideration to the content and methods of mathematics instruction that will help your students be successful in today's world. The discipline of mathematics is growing and changing. Over half of all mathematics has been invented since World War II. It is impossible for any one person to know all there is to know or to be able to predict the specific mathematical content of problems that one might encounter, but it is important for people to be able to make sense of mathematical situations. Success in the 21st century will be available to students who possess more than a large number of facts and computational skills.

Teaching in Texas requires that you use the Standard Course of Study to guide your curriculum decisions. There are five math strands with problem solving permeating the entire curriculum: number and operations; measurement; geometry; algebra; data analysis and probability. At the end of each school year in grades 3-8, students take an end-of-grade test STAAR. In a single three-credit hour course, it is impossible to work adequately with everything that you need to know to be an elementary mathematics teacher and everything you will be responsible for regarding STAAR tests and other K-2 assessments. The strand focus for this course is number and operations.
Goals for the course span across several interrelated areas. You will probably notice that they are stated as areas you are "beginning to" learn about since these are areas that you will continue to work on during your elementary education program and ones that teachers work on improving across their careers.

**Understanding Mathematics to Teach:** You will begin to expand your understanding of mathematics as it relates to number and operations and expand your perspective about what mathematics is and what it means to learn mathematics to teach.

**Understanding Yourself as a Learner of Mathematics:** You will begin to examine yourself as a learner of mathematics. This will enable you to compare and contrast the kinds of instruction you experienced throughout your schooling and the approach to teaching you want to develop across your career. Learning to pay attention to your prior learning experiences as a learner of mathematics will help you articulate, challenge, and revise assumptions about teaching and learning mathematics.

**Understanding Children as Learners:** You will begin to learn how children's mathematical knowledge, skills, and disposition develop over time. You will learn to think about ways to adapt planning and instructional strategies to the learning needs of diverse individuals and groups.

**Developing Knowledge of Curriculum and Planning:** You will begin to construct knowledge of mathematics curriculum and how to select and organize content, skills, and strategies. This will include exploring the number and operations strand from the North Carolina Standard Course of Study.

**Establishing and Managing an Equitable Community of Mathematics Learners:** You will begin to explore what it means to create a mathematical learning community that fosters mathematical learning for all students, taking into account their gender, race, ethnicity, socioeconomic status, language use, special needs, and personal qualities. You will examine ways in which particular classroom discourse patterns and particular tasks influence diverse learners as they learn mathematics.

**Understanding Yourself as a Colleague:** You will have many opportunities to work with peers throughout this course. Collaborating in a variety of professional activities and reflecting on your participation will initiate you in collaboration with colleagues across your career.

**Course Themes and Central Questions**

In the contexts of teaching and learning mathematics, we will explore three major themes to help us work toward the course goals.

**MYSELF AS A LEARNER:** How did/do I learn mathematics? How do my own past and present experiences compare with what I want for learners in my own classroom? What kind of learning in mathematics will I need to continue to pursue across my career?

**SOCIAL CONSTRUCTIVISM:** How do diverse students learn mathematics? What role does social interaction play in their learning? How do learners construct understanding? In what ways am I similar to or different from the learners I will teach (e.g., race, ethnicity, culture, socio-economic, ability linguistic, gender)? What implications do these comparisons have for my teaching and my students’ learning?

**ALTERNATIVE IMAGES OF PRACTICE:** What do classroom practices that draw on recent research and theories look like? How can I create the kind of classroom I envision? What goals, materials, discourse patterns, and tasks will facilitate learning in mathematics? How should I plan for the kind of instruction I envision?
Grading Policies and Assignments

Grading: Grading expectations will be made clear prior to the due date for each assignment. You are strongly encouraged to meet with me to discuss questions about the assignments. Your final grade for the semester will be based on a series of written assignments, tests, and class participation. Specific guidelines and grading criteria will be given over the course of the semester. Late assignments will not be accepted. Your final grade will be determined as follows:

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Weekly Assignments and Participation</td>
<td>20%</td>
</tr>
<tr>
<td>Module Quizzes (6 total)</td>
<td>20%</td>
</tr>
<tr>
<td>Article Critique</td>
<td>10%</td>
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<tr>
<td>Investigating Resources</td>
<td>10%</td>
</tr>
<tr>
<td>Lesson Plan</td>
<td>20%</td>
</tr>
<tr>
<td>Student Interview</td>
<td>20%</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td><strong>100%</strong></td>
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Grading Scale:

- A = 94-100%
- A- = 90-93%
- B+ = 87-89%
- B = 83-86%
- B- = 80-82%
- C+ = 78-79%
- C = 76-77%
- C- = 74-75%
- D = 69-73%

**Weekly Assignments and Participation:** These assignments could include but are not limited to in-class activities, problems, responses to class readings, and lesson plans. You also will be asked to write reflections about the work we do during class. Writing can help you to clarify and stretch your thinking about teaching. Throughout the semester, I will collect your writing and reflections. Reflections consist of more than descriptions and involve in-depth analysis. In addition, you will be asked to do short (almost) weekly assignments. These assignments will range in difficulty.

The learning that I aim for in this course (clarifying, testing, and justifying ideas) depends largely on your active participation. Prompt attendance is expected at all class and field experiences. This class will involve much student participation. Your participation in our class activities and online discussions is important not only for your learning but also for the learning of others.

**Article Critique:** You will be asked to write one critique related to the teaching and learning of Number and operations from *Teaching Children Mathematics or Mathematics Teaching in the Middle School*. Your critique will be two to three pages. Details pertaining to the completion of these critiques will be given on a separate handout.

**Investigating Resources:** You will create a resource file that will contain activities on number and operations at the lower or upper elementary level.

**Lesson Plan:** You will be required to write a lesson plan on number and operations in mathematics using a specific format and appropriate lesson activities and pedagogical strategies.
**Student Interview:** You will create or be given an interview protocol to investigate an elementary student’s mathematics understanding.

*Assignment sheets and rubrics will be added to Blackboard as appropriate.*

**Final Note**

I want to help you become the best elementary mathematics teacher that you can be. Activities and assignments that are interesting and informative for one student are not always appropriate for another. Although I try to provide class activities and assignments that are useful to all students, let me know if you feel you are not getting as much out of this course or the assignments as you think you should. To the extent that requests for alternative assignments seem appropriate and feasible, I will modify activities and assignments to make them more meaningful for you.

In line with the above comment, be assured that you are encouraged to meet with me about the course and about any issues related to the profession of teaching. With respect to the course, I am willing to discuss the readings or course assignments, your grades on assignments, and to provide samples of the types of questions you might see on a test. Note that I **am willing to react to drafts of papers and assignments as long as I get those drafts far enough in advance to make comments that you can incorporate into your final draft**. If you have a concern, let's talk about it! I look forward to working with you this semester.

**Academic Policies**

**Late work/Extra Credit**
N/A

**Cell Phone/Electronic Device Usage**
Vigorously discouraged! Cell phone usage is prohibited during class unless special prior permission has been granted by Dr. Bruun. This includes text messaging, talking, vibrating phones, checking email, responding to email, and/or all other uses to which such devices may be employed. EDCI 6303 is a professional development course in the Department of Curriculum and Instruction at TAMU-CC. You are expected to demonstrate a high level of professionalism.

**Academic Integrity/Plagiarism**
University students are expected to conduct themselves in accordance with the highest standards of academic honesty. Academic misconduct for which a student is subject to penalty includes all forms of cheating, such as illicit possession of examinations or examination materials, falsification, forgery, complicity or plagiarism. (Plagiarism is the presentation of the work of another as one’s own work.) In this class, academic misconduct or complicity in an act of academic misconduct on an assignment or test will result in a failing grade. See website [http://judicialaffairs.tamucc.edu/](http://judicialaffairs.tamucc.edu/).

**Dropping a Class**
I hope that you never find it necessary to drop this or any other class. However, events can sometimes occur that make dropping a course necessary or wise. Please consult with me before you decide to drop to be sure it is the best thing to do. Should dropping the course be the best course of action, you must initiate the process to drop the course by going to the
Student Services Center and filling out a course drop form. Just stopping attendance and participation WILL NOT automatically result in your being dropped from the class. See website http://www.tamucc.edu/academics/academic_cal.html.

Classroom/Professional behavior
All students are expected to act in a responsible manner with consideration of fellow students and toward TAMU-CC faculty and staff members. Specific rules and information is available in the TAMU-CC Student Handbook and available through the website http://judicialaffairs.tamucc.edu/studentcofc.html.

Grade Appeals
As stated in University Rule 13.02.99.C2, Student Grade Appeals, a student who believes that he or she has not been held to appropriate academic standards as outlined in the class syllabus, equitable evaluation procedures, or appropriate grading, may appeal the final grade given in the course. The burden of proof is upon the student to demonstrate the appropriateness of the appeal. A student with a complaint about a grade is encouraged to first discuss the matter with the instructor. For complete details, including the responsibilities of the parties involved in the process and the number of days allowed for completing the steps in the process, see University Rule 13.02.99.C2, Student Grade Appeals, and University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures. These documents are accessible through the University Rules Web site at http://www.tamucc.edu/provost/university_rules/index.html. For assistance and/or guidance in the grade appeal process, students may contact the Office of Student Affairs.

Disabilities Accommodations
The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please call or visit Disability Services at (361) 825-5816 in Driftwood 101.

Veterans
If you are a returning veteran and are experiencing cognitive and/or physical access issues in the classroom or on campus, please contact the Disability Services office for assistance at (361) 825-5816.

Statement of Academic Continuity
In the event of an unforeseen adverse event, such as a major hurricane and classes could not be held on the campus of Texas A&M University–Corpus Christi; this course would continue through the use of Blackboard and/or email. In addition, the syllabus and class activities may be modified to allow continuation of the course. Ideally, University facilities (i.e., emails, web sites, and Blackboard) will be operational within two days of the closing of the physical campus. However, students need to make certain that the course instructor has a primary and a secondary means of contacting each student.