Course Description
This course provides the conceptual framework for exploring EC-6 mathematics integrated with engineering for deeper understanding, connections, and communication. Formal and informal geometry and measurement concepts and skills will be developed through problem-solving scenarios in collaborative groups. Manipulatives and technology will support the problem-solving approach. This course is designed to emphasize in-depth basic understandings of geometry and measurement, which is a core idea in the EC-6 mathematics curriculum. Communicating concepts, processes or solutions effectively, in oral and written forms, will be emphasized.

Prerequisites: MATH 1314: College Algebra, SMTE 1350: Fundamentals of Math I, and SMTE 1351: Fundamentals of Math II

Rationale
This course provides students with a research-based perspective on the teaching and learning of elementary mathematics. This course is designed to have students experience and learn mathematics through a process of inquiry which differs in significant ways from traditional mathematics classes. Students will work together to do mathematics, which involves solving problems, making claims and conjectures, justifying and critiquing claims and conjectures, and modifying or rejecting claims and conjectures as needed.

Generalist, EC-6 Standards, Chapter 149, Standards
A link to these can be found in Blackboard under the “Syllabus” link.

Course Objectives and Learning Outcomes
Students will:
1. Reflect upon their own background in mathematics education and analyze their commitment and outlook toward being a mathematics education professional.
2. Examine research gathered from various educational journals concerning topics being taught at their chosen grade level for the purposes of a) evaluating the research and b) incorporating the better ideas from the research into their planning/teaching.
3. Become proficient in the use of various manipulatives in the teaching of mathematics
4. Develop and teach two small group lessons on measurement and geometry
5. Conduct a diagnostic interview of an elementary student

Course Topics
The major topics to be considered are:
Building Measurement Concepts
Developing Geometric Thinking and Concepts

**Instructional Methods and Activities**
Methods and activities for instruction include:
- traditional Experiences (lecture, discussion, demonstration), and
- clinical Experiences (simulations, cooperative groups, student demonstrations and presentations, and experiences working with elementary learners).

**Evaluation and Assignments**
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, a test, class attendance and participation. Specific guidelines and grading criteria will be given over the course of the semester. I reserve the right to reduce the grade on late assignments. Your final grade will be determined as follows:

**Grade Assignment**
Grades will be assigned according to the professional level of the final assignment submissions.

**Percentages**
- Weekly Assignments and Participation: 20%
- Tests: 20%
- Article Summaries: 10%
- Resource File: 10%
- Micro Teaching (2 lessons): 20%
- Diagnostic Interview: 15%
- Service requirement: Science Fair Feb. 6 – 8: 5%

**TOTAL**: 100%

**Weekly Assignments and Participation**: (20%) These assignments could include but are not limited to in-class activities, homework problems, responses to class readings, postings on our Blackboard, and lesson plans. You will read and/or complete reading responses as scheduled. 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 attendance and active participation. Prompt attendance is expected at all class and field experiences. This class will involve much student participation. Your attendance and participation in our class activities and discussions is important not only for your learning but also for the learning of others.

**Tests**: (20%) We will explore and develop our understanding about the geometry and measurement strand in elementary mathematics. We also will explore children's understanding about this strand. You will have two tests. The test will include all course readings, activities, & discussions. The test will provide an opportunity for you to demonstrate your understanding about geometry and measurement from a teacher’s perspective.
**Article summaries (10%)** - In addition to assigned readings from the textbook, we will be reading several articles from the national journal *Teaching Children Mathematics*. After reading each article and reflecting upon its important issues it addresses, you will write a 2 or 3 sentence summary and 3-5 bullets reflecting what you want to remember from this article that you think are important, or it may be things you want to do back in the classroom. You will also have an "AHA!!" which is something that just strikes you! At the top of the page will be the bibliographical information written in APA format. This must be typed in a 12 pt font Times New Roman. Points will be deducted for spelling, grammar, etc. Do not write more than one page per article.

**Resource File** (10%) You are going to explore a variety of resources and choose 20 lesson plan ideas to put in your resource file. You should choose to focus your file on grades K-2 or 3-5. Your resources may come in different forms such as activities, games, or actual lesson plans. Each idea should be carefully labeled with the following information: (1) grade, (2) objectives from the TEKS that relate to the idea (written out), (3) type of resource or reference, and (4) a rationale describing the potential for the activity to be a worthwhile mathematical task.

**Microteaching** (20%) The purpose of this assignment is to design and deliver a lesson on measurement and geometry topic to your classmates.

**Diagnostic Interview** (15%) As a teacher, you will need to learn to pay attention to your students’ understandings of the concepts studied in your class and be able to adjust your instruction accordingly. This assignment assesses your ability to follow a student’s thinking as he or she works through mathematics activities.

**Community Service Project** (5%) Volunteer for Valero and TAMU-CC Coastal Bend Regional Science Fair Feb.6-8 and write reflection. (If you cannot volunteer at the Science Fair, you must find your own substitution service project with prior permission from professor.)

A. **Class Participation and Professionalism.** Being fully present and active during all class sessions cannot be emphasized enough. How you interact with your professor and your peers will be closely observed and monitored. The highest grades for this part of your grade are earned by those students who are respectful and engaged 100% of the time.

B. **Extra Credit** for each Student Council of Math and Science Teachers (SCMS) meeting you attend.

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Grade</th>
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<tbody>
<tr>
<td>90-100</td>
<td>A</td>
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<td>80-89</td>
<td>B</td>
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<td>70-79</td>
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<td>60-69</td>
<td>D</td>
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<tr>
<td>Below 68</td>
<td>F</td>
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### Class Schedule (TBA)

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topic</th>
<th>Content &amp; Activity/Homework</th>
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<tbody>
<tr>
<td>1</td>
<td>1/21-23</td>
<td>Syllabus &amp; Introduction</td>
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<tr>
<td></td>
<td></td>
<td>Meaning &amp; Estimation of Measurement</td>
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<tr>
<td>2</td>
<td>1/28-30</td>
<td>Length</td>
<td></td>
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<tr>
<td>3</td>
<td>2/4-6</td>
<td>Area</td>
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<td></td>
<td></td>
<td>Perimeter</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>2/11-13</td>
<td>Volume</td>
<td><strong>No class Feb. 13</strong></td>
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<tr>
<td>5</td>
<td>2/18-20</td>
<td>Weight</td>
<td><strong>Reflection Paper Science Fair Due</strong></td>
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<td></td>
<td></td>
<td>Time</td>
<td></td>
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<tr>
<td>6</td>
<td>2/25-27</td>
<td>Money</td>
<td><strong>Chapter Test</strong></td>
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<tr>
<td>7</td>
<td>3/3-5</td>
<td>Teach small group lesson</td>
<td></td>
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<tr>
<td></td>
<td>3/10-12</td>
<td><strong>SPRING BREAK-NO CLASS</strong></td>
<td></td>
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<tr>
<td>8</td>
<td>3/17-19</td>
<td>Developing Geometric Thinking</td>
<td><strong>No class March 19</strong></td>
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<tr>
<td>9</td>
<td>3/24-26</td>
<td>Shapes and Properties</td>
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<tr>
<td>10</td>
<td>3/31 4/2</td>
<td>Sorting and Classifying</td>
<td></td>
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<tr>
<td>11</td>
<td>4/7-9</td>
<td>3-Dimensional Shapes</td>
<td><strong>No Class April 9</strong></td>
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<tr>
<td>12</td>
<td>4/14-16</td>
<td>Transformations</td>
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<tr>
<td>13</td>
<td>4/21-23</td>
<td>Locations</td>
<td></td>
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<tr>
<td>14</td>
<td>4/28-30</td>
<td>Visualizations</td>
<td></td>
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<tr>
<td>15</td>
<td>5/6</td>
<td>Teach small group lesson</td>
<td><strong>Final Exam (Comprehensive)</strong></td>
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<td><strong>See University Official Schedule</strong></td>
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**Required Texts:**
Additional Resources

- TEKS: Mathematics
  http://ritter.tea.state.tx.us/rules/tac/chapter111/ch111a.html
- Mathematics Generalist EC-6 Standards
  https://tea.texas.gov/sites/default/files/EC_6%20Mathfinal%20%283%29_0.pdf

Bibliography of Selected References:


Additional Policies

Attendance/tardiness

Due to the nature of this course, active student participation is essential to overall successful class performance. Because this course is concerned primarily with helping prospective teachers develop mathematics literacy and learning strategies, it is very important that students attend class regularly. It is not enough to rely on others’ notes to make up for class activities and experiences. In addition, the reflections will be based on the text and lectures. Failure to include information from the lectures will result in a lower grade.

***It is imperative that you attend ALL class sessions, are on time, and stay for the entire duration of the class. Please do not ask me if you can leave class early, unless it is a dire case.

Missing a class session or even part of a class session will mean that you are missing valuable information that is quite difficult to make up by using a peer’s notes.

Each class session you miss will result in points deducted from your final grade.

Arriving 15+ minutes late and leaving 15+ minutes early (either on the same or separate days) will result in one absence. ***

Late work and Make-up Exams

Full credit will not be given for late assignments. For each day an assignment is late, one letter grade will be dropped from the total score earned.

Cell Phone/Electronic Device Usage

Cell phones, text messaging, and checking your cell phone, email, and text messages during class are all strictly prohibited. Come to class prepared to focus on class. I will ask you to leave class if you violate this policy and this will result in an absence. Violations may result in being asked to withdraw from the course and/or failure of course. If there is a potential rising emergency, then prior notification of such possibility must be made known to me before the start of class and the phone set on vibrate. Absolutely NO phones are allowed during class unless instructed to use by them without prior approval of instructor.
Laptop and iPad usage will not be allowed during class sessions. See below for disabilities accommodations if using a device is necessary for your success in this course.

**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 level of discipline appropriate to the misconduct. This may include a requirement to re-do work in question; requirement to submit additional work; lowering of grade on work in question; assigning grade of ‘F’ to work in question; assigning grade of ‘F’ for course; recommendation for more severe punishment, such as suspension or dismissal from the University. The procedure for Academic Misconduct cases is posted on BlackBoard.

Learning and teaching take place in an atmosphere of intellectual freedom and openness. All members of the academic community are responsible for supporting freedom and openness through rigorous personal standards of honesty and fairness. Plagiarism and other forms of academic dishonesty undermine the very purpose of the university and diminish the value of an education.

Plagiarism is wholly unacceptable and, for the purposes of this course, is defined as using in part or in whole any material written or designed by someone other than the student, unless specific credit is given to the person or resource material used. This includes, but is not limited to: lesson plans found on the Internet and/or provided by classroom teachers, or found in any form of publication (e.g., books, magazines, Internet sites), book descriptions/reviews, course work done by previous students (or any other current or TAMU-CC student). Appropriate citation of resources is required.

**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 TAMU-CC online calendar for drop and other important dates. [https://www.tamucc.edu/academics/calendar/2020_spring.html](https://www.tamucc.edu/academics/calendar/2020_spring.html)

**Preferred methods of scholarly citations**

Scholarly paper organization and citations must follow the Association of American Psychologists Style Manual, 6th Edition. (See required textbook.)

**Classroom/professional behavior**

Professional decorum is expected.
**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](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 CCH 116.

If you are a returning veteran and are experiencing cognitive and/or physical access issues in the classroom or on campus, please contact the Office of Veteran’s Affairs for assistance at (361) 825-2331.

**Classroom Participation**
In accordance with US Department of Education guidance regarding class participation, The Texas A&M System requires that all students submit their required Week 1 assignments within each course(s) during the first 7 calendar days of class. The first calendar day of class is the official start date of the course as posted on your academic page.

Assignments submitted prior to the official start date will not count toward your participation.

Financial aid may be negatively affected if class participation as defined above is not met.

**Nonacademic misconduct**
The university respects the rights of instructors to teach and students to learn. Maintenance of these rights requires campus conditions that do not impede their exercise. Campus behavior that interferes with either

1. The instructor’s ability to conduct the class,
2. The inability of other students to profit from the instructional program, or
3. Campus behavior that interferes with the rights of others will not be tolerated. An individual engaging in such disruptive behavior may be subject to disciplinary action. Such incidents will be adjudicated by the Dean of Students under nonacademic procedures.
**Sexual misconduct**

Sexual harassment of students and employers at Texas A&M University-Corpus Christi is unacceptable and will not be tolerated. Any member of the university community violating this policy will be subject to disciplinary action.

**GENERAL DISCLAIMER**

I reserve the right to modify the information, schedule, assignments, deadlines, and course policies in this syllabus if and when necessary. I will announce such changes in a timely manner during regularly scheduled lecture periods.

**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, 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.