Department of Mathematics and Statistics
Spring 2020

A. COURSE INFORMATION
Course number/section: SMTE 3352.003
Class meeting time: R 7-9:30 PM
Class location: CS-107
Course Website: https://bb9.tamucc.edu

B. INSTRUCTOR INFORMATION
Instructor: Dr. Debra Plowman
Office location: ECDC-219-I
Office hours: W 10:30am-12:00am or by appointment
Telephone: 361-825-3661
E-mail: Debra.Plowman@tamucc.edu
Appointments: Feel free to make an appointment with me via email if you are unable to attend my regularly scheduled office hours. I’m here to help.

C. COURSE DESCRIPTION
Catalog Course Description
The conceptual framework for understanding and applying properties, models and operations related to various geometric systems in problem solving settings.

Extended Course Description
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.

D. PREREQUISITES AND COREQUISITES
Prerequisites:
MATH 1314: College Algebra
SMTE 1350: Fundamentals of Math I
SMTE 1351: Fundamentals of Math II
E. REQUIRED TEXTBOOK(S), READINGS AND SUPPLIES

- MyLabsPlus Access is required for this class. The hard copy of the textbook is not required (MyLabsPlus will give you access to a digital copy of the textbook).
- We recommend the same textbook used for SMTE 1350 & 1351 Mathematical Reasoning for Elementary Teachers by Long, De Temple, and Millman 7th edition with MyMathLab Access, Custom Package for Texas A&M University Corpus Christi, Pearson Custom Publishing. Students will be required to have an access code for MyLabsPlus (needs to be purchased from our campus bookstore only if it is the first time students use it, otherwise the old access credentials used for SMTE 1350 and 1351 should work – if associated with Long’s 7th edition).
- The Website for MyLabsPlus is www.tamucc.mylabsplus.com. Students will use their Island ID as their username and either use a previous password or ask for a new one. The MyLabsPlus help line is 1 888-883-1299.

Other References
- Texas Essential Knowledge & Skills (free online)
- Principles and Standards for School Mathematics, NCTM, 2000 (free trial online)
- Khan Academy (instructional videos)

Supplies
Regular access to high speed internet and Microsoft Office applications (e.g., Word, PowerPoint), graphing calculator.

F. STUDENT LEARNING OUTCOMES AND ASSESSMENT

Assessment is a process used by instructors to help improve learning. Assessment is essential for effective learning because it provides feedback to both students and instructors. A critical step in this process is making clear the course’s student learning outcomes that describe what students are expected to learn to be successful in the course. The student learning outcomes for this course are listed below. By collecting data and sharing it with students on how well they are accomplishing these learning outcomes students can more efficiently and effectively focus their learning efforts. This information can also help instructors identify challenging areas for students and adjust their teaching approach to facilitate learning.

If the student meets the expectation of the instructor for completing assigned tasks, reflecting on the daily activities, studying the key concepts discussed during class, and getting additional help when needed, then the student will be able to:

1. Use, model and explain measurable attributes and appropriate strategies for making direct and indirect measurements of various attributes; model and explain the appropriate use of measurement tools and discuss the precision and accuracy of measurements made.
2. Identify, analyze, and classify shapes by their properties and relationships; use deductive reasoning to draw conclusions; and discuss the Van Hiele Level of Geometric Thinking of tasks.

3. Use inductive and deductive reasoning to develop, justify and use formulas to find length, angle measures, perimeter, area and volume of polygons, circles, and basic three-dimensional shapes.

4. Analyze and use the relationships between 3D and 2D representations of objects, including the use of nets, orthographic drawings, and isometric drawings.

5. Use, model and explain translations, rotations, reflections, and dilations/contractions and their relationship to congruence, similarity, symmetry, and tessellations. Relate these concepts to the mathematics in nature, art, architecture and society, including the art of M.C. Escher, circle-based art, quilting, and the Golden Ratio.

6. Identify correct and incorrect mathematical reasoning and analyze error patterns present in EC-6 student work and suggest remediation for these errors.

7. Write, and solve mathematical problems that involve geometric reasoning, and basic principles of mathematical modeling in a variety of mathematical or non-mathematical settings.

G. INSTRUCTIONAL METHODS AND ACTIVITIES

The course will be a combination of lectures, whole-class discussions, and individual investigations. Students will be required to give individual or group presentations. If needed, there will be alternative assignments in lieu of presentations or conference attendance. All participants are expected to engage in group and whole class activities by contributing knowledge and thoughtful evaluation of others’ contributions.

H. MAJOR COURSE REQUIREMENTS AND GRADING

Grades will be based on the percentage of total points the student earns. There will be points given on the following:

<table>
<thead>
<tr>
<th>ACTIVITY/ASSIGNMENT</th>
<th>% of FINAL GRADE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Online Homework</td>
<td>20%</td>
</tr>
<tr>
<td>Midterm Exams 1 and 2</td>
<td>20%</td>
</tr>
<tr>
<td>Quizzes (in-class, the quiz with the lowest grade will be dropped)</td>
<td>15%</td>
</tr>
<tr>
<td>Class Attendance &amp; Participation</td>
<td>10%</td>
</tr>
<tr>
<td>Paper (TBA)</td>
<td>5%</td>
</tr>
<tr>
<td>Coastal Bend Regional Science Fair*</td>
<td>5%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>15%</td>
</tr>
<tr>
<td>Final Project and presentation</td>
<td>10%</td>
</tr>
</tbody>
</table>
*Coastal Bend Regional Science Fair:* Attendance will contribute 5% of your final grade (Thursday, Friday and Saturday, February 6-8, 2020).

Final grades will be assigned according to the following table:

<table>
<thead>
<tr>
<th>Percentage Grade</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>≥90.0%</td>
<td>A</td>
</tr>
<tr>
<td>≥80.0%</td>
<td>B</td>
</tr>
<tr>
<td>≥70.0%</td>
<td>C</td>
</tr>
<tr>
<td>≥60.0%</td>
<td>D</td>
</tr>
<tr>
<td>Below 60%</td>
<td>F</td>
</tr>
</tbody>
</table>

Coming to class prepared and actively participating in class activities, learning each lesson and doing the homework on time will contribute to your success in this class. Specific directions for course activities/assignments (e.g., content, format, submission, deadlines, feedback) will be announced in class and/or posted on TAMUCC-Blackboard, at [https://bb9.tamucc.edu/](https://bb9.tamucc.edu/). The presentations and/or papers will be graded using the following Grading Rubric:

<table>
<thead>
<tr>
<th>Category</th>
<th>4 Exemplary</th>
<th>3 Good</th>
<th>2 Satisfactory</th>
<th>1 Unsatisfactory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject Matter Knowledge 50%</td>
<td>Demonstrates subject knowledge throughout the entire assignment. All information is clear, appropriate, and accurate. The solutions to all problems are correct.</td>
<td>Demonstrates subject knowledge most of the time. Most of the information is clear, appropriate, and accurate. Most of the solutions to problems are correct, some solutions have minor errors.</td>
<td>Demonstrates some subject knowledge. Some information is clear, appropriate, and accurate. Some solutions to problems are correct.</td>
<td>Subject knowledge is not demonstrated. Information is confusing, insufficient, inappropriate, and inaccurate. Most of the problems have incorrect solutions.</td>
</tr>
<tr>
<td>Organization 30%</td>
<td>The sequence of information/proof is logical and well organized.</td>
<td>The sequence of information/proof is well organized.</td>
<td>Some parts of the sequence of information/proof is organized.</td>
<td>The sequence of information/proof is disorganized.</td>
</tr>
<tr>
<td>Communication (written paper, and/or ppt and oral presentation) 20%</td>
<td>Excellent written communication of ideas/ excellent integration of spoken and visual presentation.</td>
<td>Good written communication of ideas, most of the time/good integration of spoken and visual presentation, most of the time.</td>
<td>Some parts are well written, and ideas are communicated effectively / some parts of the presentation are coordinated orally and visually.</td>
<td>The written paper is hard to follow, ideas are not communicated effectively / the presentation is hard to follow, the spoken and visual presentation are not integrated.</td>
</tr>
</tbody>
</table>
### I. COURSE CONTENT/SCHEDULE

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topic</th>
<th>Content &amp; Activity/Homework</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1/23</td>
<td>Syllabus &amp; Introduction 9.1 Figures in the Plane</td>
<td>Tangram Activity</td>
</tr>
<tr>
<td>2</td>
<td>1/30</td>
<td>9.2 Curves and Polygons in the Plane 9.3 Figures in Space</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>2/6</td>
<td>COASTAL BEND REGIONAL SCIENCE FAIR</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>2/13</td>
<td>10.1 The Measurement Process 10.2 Area and Perimeter 10.3 The Pythagorean Theorem</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>2/20</td>
<td>10.4 Volume 10.5 Surface Area</td>
<td>Reflection Paper Science Fair Due</td>
</tr>
<tr>
<td>6</td>
<td>2/27</td>
<td><strong>Exam 1</strong></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>3/5</td>
<td>Van Hiele Levels, Geometric Thinking</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3/12</td>
<td>SPRING BREAK-NO CLASS</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>3/19</td>
<td>11.1 Rigid Motions and Similarity Transformations</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>3/26</td>
<td>11.2 Patterns and Symmetries</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>4/2</td>
<td>11.3 Tiling and Escher-like Designs</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>4/9</td>
<td><strong>Exam 2</strong></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>4/16</td>
<td>Final Project Workshop</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>4/23</td>
<td>Final Project &amp; Presentations</td>
<td>Final Project due</td>
</tr>
<tr>
<td>14</td>
<td>4/30</td>
<td>Lesson Planning</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>5/6</td>
<td>Final Review</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Final Exam (Comprehensive)</td>
<td>See University Official Schedule</td>
</tr>
</tbody>
</table>

Note: Changes in this course schedule may be necessary and will be announced to the class by the Instructor. The assignments and exams shown are directly related to the Student Learning Outcomes described in Section F.

### J. COURSE POLICIES
Attendance/Tardiness
You are expected to be regular and punctual in your class attendance. You are responsible for all notes, assignments and announcements made in class. Students who have more than 4 absences without proper documentation may have their grades affected. Specifically, After your first 4 absences (excused or otherwise), each additional absence will reduce your grade by 5% point.

Late Work and Make-up Exams
Late work and Make-up Exams are only tolerated under reasonable circumstances with proper documentations.

Extra Credit: None

Cell Phone Use
There is a zero tolerance policy for texting or any other cell phone use in class. Cell phones may be left on vibrate for emergency notification purposes. If you expect an important phone call, please inform me before class and quietly excuse yourself when you receive it. For every instance of texting or other cell phone use that the instructor observes during lecture, 2% will be deducted from the final grade.

Laptop Use
Laptops, I-Pads, Kindles, and other electronic devices must be turned off and put away during class. In fact, don’t even use your laptop for taking notes. Once your laptop is on, it becomes too tempting to try to multitask. The only electronic device you can use in this classroom is a calculator -- a real calculator, not a cell phone that doubles as a calculator. For every instance of electronic use that the instructor observes during lectures, 2% will be deducted from the final grade.

Food in Class: There will be no eating during class time.

Missed Exam
Students who miss Exams and have a documented excuse for that absence (doctor's note, pre-arranged athletic department absence, etc.) will be given the opportunity to make up that Exam. Upon your return to class you are required to present your documentation to me and we arrange to make up your exam.

Participation
An important aspect of learning to teach is, in part, a function of being a member of a community of learners that interacts to build knowledge about teaching and children’s learning. Another important aspect of learning to teach is engagement and collaborative work. Effective teachers are committed to professional growth through participation and collaboration to improve their practice. You are, therefore, expected to actively participate in class, as this course is designed to draw upon the experiences and insights of your peers and your participation makes for a richer experience for all. Simply attending class does not constitute participation.
K. COLLEGE AND UNIVERSITY POLICIES

- **Academic Integrity (University)**
  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.

- **Classroom/Professional Behavior**
  Texas A&M University-Corpus Christi, as an academic community, requires that each individual respect the needs of others to study and learn in a peaceful atmosphere. Under Article III of the Student Code of Conduct, classroom behavior that interferes with either (a) the instructor’s ability to conduct the class or (b) the ability of other students to profit from the instructional program may be considered a breach of the peace and is subject to disciplinary sanction outlined in article VII of the Student Code of Conduct. Students engaging in unacceptable behavior may be instructed to leave the classroom. This prohibition applies to all instructional forums, including classrooms, electronic classrooms, labs, discussion groups, field trips, etc.

- **Statement of Civility**
  Texas A&M University-Corpus Christi has a diverse student population that represents the population of the state. Our goal is to provide you with a high quality educational experience that is free from repression. You are responsible for following the rules of the University, city, state and federal government. We expect that you will behave in a manner that is dignified, respectful and courteous to all people, regardless of sex, ethnic/racial origin, religious background, sexual orientation or disability. Behaviors that infringe on the rights of another individual will not be tolerated.

- **Deadline for Dropping a Course with a Grade of W (University)**
  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 your academic advisor, the Financial Aid Office, and me, before you decide to drop this course. 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. Please consult the Academic Calendar (http://www.tamucc.edu/academics/calendar/) for the last day to drop a course.
Grade Appeals (College of Science and Engineering)
As stated in University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures, 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 Procedure 13.02.99.C2.01, Student Grade Appeal Procedures. These documents are accessible through the University Rules website at http://www.tamucc.edu/provost/university_rules/index.html, and the College of Science and Engineering Grade Appeals webpage at http://sci.tamucc.edu/students/GradeAppeal.html. For assistance and/or guidance in the grade appeal process, students may contact the chair or director of the appropriate department or school, the Office of the College of Science and Engineering Dean, or the Office of the Provost.

Disability Services
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 (361) 825-5816 or visit Disability Services in Corpus Christi Hall 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 Disability Services office for assistance at (361) 825-5816.

http://disabilityservices.tamucc.edu/

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.

L. OTHER INFORMATION
• Academic Advising
  The College of Science & Engineering requires that students meet with an Academic
  Advisor as soon as they are ready to declare a major. The Academic Advisor will set
  up a degree plan, which must be signed by the student, a faculty mentor, and the
  department chair. Meetings are by appointment only; advisors do not take walk-ins.
  Please call or stop by the Advising Center to check availability and schedule an
  appointment. The College’s Academic Advising Center is located in Center for
  Instruction 350 or can be reached at (361) 825-3928.

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.