SMTE 3352.001, Fundamentals of Mathematics III – Geometry & Measurement
Department of Mathematics and Statistics

Summer II 2018

A. COURSE INFORMATION

Course number/section: CRN 65031, SMTE 3352.001
Class meeting time: MTWR 10:00 -11:53 AM.
Final Exam will be Friday, August 3
Class location: CS-107
Course Website: TAMU-CC Blackboard https://bb9.tamucc.edu
Homework site: www.tamucc.mylabsplus.com

B. INSTRUCTOR INFORMATION

Instructor: George Tintera
Office location: CI 303
Office hours: MTWR 9:00-10:00 AM, TW 1-2 PM
Telephone: 361-825-6028
E-mail: george.tintera@tamucc.edu only
Appointments: Appointments outside of office hours are available by request.

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/COREQUISITES

Prerequisite: 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](http://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), 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. 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 (MyLabsPlus)</td>
<td>10%</td>
</tr>
<tr>
<td>HW Presentations and Analyses</td>
<td>10%</td>
</tr>
<tr>
<td>Midterm Exams 1 and 2</td>
<td>30%</td>
</tr>
<tr>
<td>In Class Activities and Analyses</td>
<td>15%</td>
</tr>
<tr>
<td>Professional Journal Reviews</td>
<td>15%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>20%</td>
</tr>
</tbody>
</table>

- Online Homework. You will need to complete the (approximately 134) exercises in the online homework system by their respective deadlines.
- HW Presentations and Analyses. For 9 exercises assigned to you, you will identify which grade level, TEKS, and TExES competencies are related to the exercises. You will also need to elaborate on selected exercises to demonstrate your facility with them.
- Midterm Exams. There will be two exams for 15% each.
- In Class Activities and Analyses. There will be activities introduced and completed in class to support your learning the material. You will be graded on completion of the activity. Also, you will need to analyze and make a brief presentation on at least two of the activities.
- Professional Journal Reviews. You will make an annotated bibliography of at least 5 articles or books. You will write a review for your classmates for one of the articles or books.
Final Exam. The final exam
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/. The
presentations and/or papers will be graded using the following Grading Rubric:

<table>
<thead>
<tr>
<th>Category</th>
<th>4 Exemplary (100%-90%)</th>
<th>3 Good (89%-75%)</th>
<th>2 Satisfactory (74%-60%)</th>
<th>1 Unsatisfactory (59%-0%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject knowledge</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>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</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>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</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>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>
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</tbody>
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Final grades will be assigned according to the following table:

**Percentage Grade**
- \(\geq 90.0\%\)  A
- \(\geq 80.0\%\)  B
- \(\geq 70.0\%\)  C
- \(\geq 60.0\%\)  D
- Below 60\%  F

### I. COURSE CONTENT/SCHEDULE

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Assignments</th>
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<tbody>
<tr>
<td>7/2</td>
<td>Course Introduction, 9.1 Figures in the Plane</td>
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<tr>
<td>7/3</td>
<td>9.1 Figures in the Plane, continued</td>
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<tr>
<td>7/5</td>
<td>9.2 Curves and Polygons in the Plane</td>
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<td>7/9</td>
<td>9.3 Figures in Space</td>
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<tr>
<td>7/10</td>
<td>9.3 Figures in Space, continued</td>
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</tbody>
</table>
| 7/11 | Midterm Exam 1  
Van Hiele Levels of Geometric Thinking |  |
| 7/12 | 10.1 The Measurement Process |  |
| 7/16 | 10.2 Area and Perimeter |  |
| 7/17 | 10.3 The Pythagorean Theorem |  |
| 7/18 | 10.3 The Pythagorean Theorem, continued |  |
| 7/19 | 10.4 Volume |  |
| 7/23 | 10.5 Surface Area |  |
| 7/24 | 10.5 Surface Area |  |
| 7/25 | Midterm Exam 2 |  |
| 7/26 | 11.1 Rigid Motions and Similarity Transformations |  |
| 7/30 | 11.2 Patterns and Symmetries |  |
| 7/31 | 11.2 Patterns and Symmetries, continued |  |
| 8/1  | 11.3 Tilings and Escher-like Designs |  |
| 8/2  | Final Exam Review, Presentations |  |
| 8/3* | Final Exam, Final Presentations | Final Exam |

*This is a one-time Friday meeting. Plan to be there. Automatic score of 0 for any absence.

Note: Changes in this course schedule may be necessary and will be announced in 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 attend every class session, and arrive on time. There is no make up for class activities, you need to be present to participate. All the absences will be considered “unexcused” unless you have an exceptional situation (e.g., documented illness, family situation) acceptable to the instructor or under university policies and information is provided in a timely manner (ahead of time or when first possible.)

   **Late Work and Make-up Exams:** Late assignments will not be accepted, unless exceptional circumstances prevent you from completing them. Extension of deadlines will be at the instructor’s discretion. Late assignments may result in partial or total loss of credit. There are NO make-ups for exams or in-class activities.

   **Extra Credit:** There may be extra credit offered for this course. This possibility will be announced and discussed in class.

   **Cell Phone Use:** Please silence phones and put them in a backpack or purse before arriving to class. There should be no texting in class. Let the instructor know if there are special circumstances in which you need to receive notification.

   **Laptop Use:** In general, you cannot use your laptops during class activities or exams. For special circumstances (e.g., presentations), or special needs, please talk with the instructor.

   **Food in Class:** Refrain from bringing food to class. For special needs or occasions, please talk with the instructor.

   **Missed Exam:** Exceptional circumstances (e.g., documented illness, family situations) may be considered at the instructor’s discretion.

   **Participation:** You are expected to come to class prepared every time, and participate in class activities.

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.