MATH-3312 COLLEGE GEOMETRY  
Department of Mathematics and Statistics  
Summer I 2020

A. COURSE INFORMATION

Course number/section: MATH-3312-001 (Lab MATH3312.201)  
Class meeting time: Online class session  
Course Website: www.bb9.tamucc.edu

B. INSTRUCTOR INFORMATION

Instructor: Dr. Abdullah Abu-Rqayiq  
Office location: CI-356  
Office hours: TR 4:00-5:00 and MW 9:00-10:30  
E-mail: Abdullah.aburqayiq@tamucc.edu  
Appointments: Via email

C. COURSE DESCRIPTION

Catalog Course Description  
A careful study of the foundations of Euclidean geometry by synthetic methods with an introduction to non-Euclidean geometries. An introduction to transformational geometry

D. PREREQUISITES AND COREQUISITES

Prerequisites: MATH 2413 and junior standing; MATH 3311 recommended.  
Co-requisites: Requires registration in lab.

E. REQUIRED TEXTBOOK(S), READINGS AND SUPPLIES


Supplemental References A central aim of this course is to help you learn to develop your own ideas about mathematical questions. You therefore are not expected to consult any reference materials outside of the provided course materials in developing your geometrical ideas during this course.  
• The First Six Books of the Elements of Euclid by John Casey and Euclid can be accessed from http://www.gutenberg.org/. Other references may be provided by instructor, as needed. It will be the students’ responsibility to find and access the recommended works. Visit http://rattler.tamucc.edu/asklib/ask.php for help.

Supplies You need to have your set of compass and ruler for constructions during the first weeks. Regular access to high speed internet and Microsoft Office applications (e.g., Word, Power Point). Software: GeoGebra (free- Download GeoGebra classic instead of cloud version.
to be able to work without internet using more features) or Geometer’s Sketchpad, Version 5: It can be purchased for $10.56 by calling McGraw-Hill at (800) 338-3987 and requesting to purchase the Student, 1-year license (ISBN 9780021408382) or https://www.mheducation.com/prek-12/program/MKTSP-HGA01M0.related.html?page=3&sortby=relevance&order=desc&bu=seg

Proctoring Fees: This Course may require additional fees for students to take tests and exams online, and those tests/exams might be monitored by third-party online exam-proctoring services.  
1. All costs for exams are the responsibility of the student and typically involve third party charges ranging from $1 - $50.00 per exam. Students may be required to schedule exams at least 24 hours in advance or incur late scheduling charges.  
2. Students may be responsible for providing webcams to be used in test proctoring.  
3. Students may be required to show to an online proctor via webcam 1) photo ID and 2) the interior of the room where the student is taking the test/exam.

F. STUDENT LEARNING OUTCOMES AND ASSESSMENT
Through whole-class instruction, cooperative learning groups, student to class presentations, and hands-on activities with concrete materials and computer software, by the end of this course, students will:

- Demonstrate genuine understanding of fundamental concepts of Euclidean and non-Euclidean geometries.
- Demonstrate knowledge of the roles of definitions, axioms, proofs in geometry.
- Demonstrate understanding of the fundamentals of solid, coordinate, and transformational geometries.
- Apply problem-solving skills to geometric situations including triangles, quadrilaterals and circles.
- Enhance spatial skills by constructing, transforming and modeling figures.
- Demonstrate the ability to formulate conjectures and to prove geometric generalizations.
- Use GeoGebra (2d and 3d) or Geometer’s SketchPad (GSP) for dynamics modeling, construction, experimentation with geometric objects and their relationships.

Process Goals (based on the Standards for Mathematical Practice from the Common Core State Standards): Students will

- make sense of problems and persevere in solving them.
- reason abstractly (representing quantities symbolically and manipulating those symbolic representations) and quantitatively (attending to the meaning of quantities).
- use appropriate tools (e.g. manipulatives, calculator, dynamic geometry softwares) strategically to solve mathematical problems in Euclidean and Non-Euclidean geometry.
- Students will develop and extend understanding through active communication (reading, writing, speaking, and listening) of mathematics, attending to precision of math language.
- Students will construct viable mathematical arguments and critique the reasoning of others.

Topics for discussion includes but not limited to:
- Undefined terms, definitions, postulates, axioms, and theorems as they relate to Euclidean and non-Euclidean geometries.
- The formulation of generalizations: Proofs using formal and informal methods.
- Concepts involving congruency and similarity.
· Measurement involving two- and three-dimensional shapes.
· Constructions with compass, straightedge, MIRA, and Geometer's Sketchpad

**G. INSTRUCTIONAL METHODS AND ACTIVITIES**

The course will be a combination of lectures, whole-class discussions, and many individual investigations of geometry. The heart of the instructional method for this course is student activity. Students will be challenged to solve many problems from the text, and communicate their solutions. Students will be required to give individual or group presentations. If needed, there will be alternative assignments in lieu of presentations. All participants are expected to engage in group and whole class activities by contributing knowledge and thoughtful evaluation of others’ contributions.

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<thead>
<tr>
<th>Activity</th>
<th>Weight</th>
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<tbody>
<tr>
<td>Online participation</td>
<td>10%</td>
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<tr>
<td>Two Midterm Exams</td>
<td>30%</td>
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<tr>
<td>Projects</td>
<td>10%</td>
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<tr>
<td>Homework</td>
<td>20%</td>
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<tr>
<td>Final Exam</td>
<td>30%</td>
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Grades will be assigned according to the following scale

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>A</td>
<td>90%-100%</td>
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<tr>
<td>B</td>
<td>80%-89.99%</td>
</tr>
<tr>
<td>C</td>
<td>70%-79.99%</td>
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<tr>
<td>D</td>
<td>60%-69.99%</td>
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<tr>
<td>F</td>
<td>below 60%</td>
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**DATE (BY WEEK) | TOPIC**

1 | Introduction to Geometry and GeoGebra/ Geometry Sketchpad Syllabus, Introductions, Definitions, Axiomatics and Proofs, and Models, What is Geometry Axiomatic Systems: Straightness Exploring, Axiomatic Systems: Chapter 1 Exploring Lines and Distance Geometry
3 | Transformational Geometry, Euclidean Geometry, Transformations, Similarity and Area
4 | Review Exam2, Exam2, Non-Euclidean Geometry
5 | Review, Final Exam
J. COURSE POLICIES
You are expected to do all online assignments, attend all required online class meetings, do worksheets that will be posted regularly on the Blackboard, watch the videos that will be uploaded regularly. You also need to do assignment on time and contact me whenever help is needed.

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 quizzes, exams, or in-class activities.

Cell Phone Use
Cell phone during exams is prohibited in any circumstances. Students using their cell phones during exams will get automatic zero on that assignments.

Semester Exams and Final Exam
• Two semester online tests will be administered during class times. The dates will be announced in class. These dates may be changed with due notice announced during class time. You can use your own calculators and it cannot be shared.
• The final exam will be a comprehensive examination over all materials covered during the semester. Absolutely no early final examination, so make travel arrangements accordingly. Without taking final exam, it will be an “F” for the semester grade regardless.

Participation
Students are encouraged to participate in class discussions on Blackboard and ask questions. There will be 10% on online class 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 online class. This prohibition applies to all instructional forums, including class, 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 represssion. 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.C0.03, 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 required 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.C0.03, Student Grade Appeal Procedures. These documents are accessible through the University Rules website at http://academicaffairs.tamucc.edu/rules_procedures/assets/13.02.99.c0.03_student_grade_appeals.pdf. 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.

Civil Rights

Texas A&M University-Corpus Christi is committed to fostering a culture of caring and respect that is free from discrimination, relationship violence and sexual misconduct, and ensuring that all affected students have access to services. For information on reporting Civil Rights complaints, options and support resources (including pregnancy support accommodations) or university policies and procedures, please contact the University Title IX Coordinator, Sam Ramirez (Samuel.ramirez@tamucc.edu) or Deputy Title IX Coordinator, Rosie Ruiz (Rosie.Ruiz@tamucc.edu) x5826, or visit website at Title IX/Sexual Assault/Pregnancy.

Limits to confidentiality. Essays, journals, and other materials submitted for this class are generally considered confidential pursuant to the University’s student record policies. However, students should be aware that University employees, including instructors, are not able to maintain confidentiality when it conflicts with their responsibility to report alleged or suspected civil rights discrimination that is observed by or made known to an employee in the course and scope of their employment. As the instructor, I must report allegations of civil rights discrimination, including sexual assault, relationship violence, stalking, or sexual harassment to the Title IX Coordinator if you share it with me. These reports will trigger contact with you from the Civil Rights/Title IX Compliance office who will inform you of your options and resources regarding the incident that you have shared. If you would like to talk about these incidents in a confidential setting, you are encouraged to make an appointment with counselors in the University Counseling Center.

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.