I. Course Information
Meetings: TR 2:00-3:15 pm IH 163
Instructor: Dr. Jose H. Giraldo
E-MAIL: jose.giraldo@tamucc.edu
Office Address: CI 317
Phone: (361) 825-5827
Office hours: TR 11:30 am-1:00 pm W 11:00 am-12:00 or by appointment.

II. Course Description
This course is designed for students who wish to understand and master the basic mathematical concepts that help them succeed in Calculus I. In this class, mostly every topic will be studied geometrically, numerically, and algebraically, and communicated back to the instructor in a literate fashion (The rule of four). Less emphasis will be put on manual algebraic manipulation, more on concepts and cooperative learning. Topics include: data analysis, functions, graphs, limits, trigonometry, exponential & logarithmic functions, other functions, and math modeling.

III. Prerequisites: MATH 1314 (College Algebra) or placement into MATH 2312.

IV. Text and Other Supplies Required
Calculator: TI-83 plus or TI-89 is the most commonly used graphing calculator at this university. The calculator will serve as a tool for understanding and solving problems encountered in this course.

V. Student Learning Outcomes
This course is designed to prepare the student to use the tools of college mathematics in a variety of applications in physical and life sciences. At the end of the course the student should be able to:

X. Manipulate basic expressions:
   a. multiply and factor polynomials
   b. work with rational expressions
   c. simplify rational exponents
   d. rationalize fractions

XI. Solve standard equations and inequalities:
   a. solve linear equations
   b. solve quadratic equations
   c. determine and graph the solution set of an inequality
   d. solve absolute value equations
   e. solve exponential and logarithmic equations
   f. solve trigonometric equations
g. solve systems of linear equations

XII. Determine features of graphs of functions and circles, create graphs, and transform graphs
   a. graph circles whose equation needs to be simplified first
   b. determine whether a given graph is the graph of a function
   c. graph linear functions
   d. recognize the graphs of some basic functions
   e. use graphing techniques, such as shifts and stretches
   f. determine from a polynomial how its graph will look
   g. find axis-intersects for polynomials
   h. be able to graph trigonometric functions and their translations

XIII. Determine if given functions have inverses, find inverse functions, and know properties of standard invertible functions
   a. determine from the graph of a function whether it has an inverse
   b. check whether two functions are inverses of each other
   c. find the equation of the inverse of a function
   d. use continuous compounding and exponential functions
   e. use logarithms as inverse functions of exponential functions
   f. simplify logarithmic expressions
   g. graph and find values for the inverse circular functions

XIV. Know and apply the trigonometry of triangles and trigonometric functions and identities convert between degrees and radians
   a. know the values of the basic trig functions for special angles
      solve right triangles
   b. use the circular functions to find coordinates of points on the unit circle
   c. have the fundamental trigonometric identities memorized
   d. be able to verify trigonometric identities
   e. simplify trig expressions using the double angle identities

VI. Instructional methods and activities
   The course will be a combination of instructional presentation of new material and concepts, whole-class discussion, individual investigations of mathematics, and optional one-on-one discussion time between students and the instructor outside of class. Students may be required to give individual or group presentations. All students are expected to actively engage in group and whole class activities with respect and perseverance.

VII. Evaluation, grade assignment, and other issues
   The methods of evaluation and the criteria for grade assignments are:
   Homework/Classwork 15%
   Quizzes 10%
   Class Project 15%
   Exams 40%
   Final Exam 20%

   Grading Scale -
   A = 90 – 100,  B = 80 – 89.99,  C = 70 – 79.99,  D = 60 – 69.99,  F = 59.99 or below
HOMEWORK

*Homework is probably the most important part in your learning process.* Homework problems are coming from two different sources: the textbook, and WebWork.

The homework assigned from the *textbook* is critical for the class discussions. This is the material you need to be on top to understand and participate in the class conversations. The homework will not be collected. It will be discussed and assessed daily, and for that reason you are expected to work on it on daily bases. Each class meeting should start with discussion of any homework assignments. The homework assigned from the workbooks will be assessed using TopHat.

Don’t worry if you struggle with a problem. Struggle solving mathematical problems is part of the learning process. Struggling means that you need to (and should) work more on that concept. The lab period will be devoted to the discussion of problems dealing with key concepts that need to be explored or emphasized. The way you discuss the homework will help us determine your understanding of the concepts and give you proper feedback. You are welcome to ask questions about homework at the beginning of each class period.

*You need to have a binder exclusively dedicated to the homework.*

**Quizzes:** Weekly individual/group quizzes will be administered in class. A few quizzes will be dropped at the end of the semester.

**Project:** There will be a project associated with this course. The project will split the class into small groups and have each group research two topics related to Calculus 1. See the project handout for more information.

**Exams:** There will be two individual assessment exams given during the course of the semester. The exams will be worth 40% of the course grade.

**Final Exam:** The final exam will be an individual assessment covering ALL material presented in the course. The final exam is worth 20% of the course grade.

No special options, assignments, or alternative grading schemes will be considered for individual students. All graded materials returned to the student are the sole responsibility of the student and must be resubmitted to the professor to receive consideration in grading disputes. *The sharing of calculators and other materials during exams is not permitted.*

Favorite Data Sets: [http://courses.ncssm.edu/math/CPTA/data/datalong.htm](http://courses.ncssm.edu/math/CPTA/data/datalong.htm)

**VIII. CLASS POLICIES AND OTHER INFORMATION**
Use the resources you have available: your classmates, the mentors, the professor, the Center for Academic Student Achievement (CASA). All of this will lead to our main objective, which is YOUR LEARNING.

The course requires a solid and continuous effort. Since this is a four-credit course, you are expected to devote for each hour of class between two and three hours outside the class working on the subject. Some people need more time than others. Each individual has a different way to learn. All of us are different.

I do expect that you come to each class prepare to talk about any assigned work and readings. One of the best ways to learn any subject and specially mathematics is by talking to others about a problem after you have read and attempted the problems on you own. Listening to a solution without attempting to solve it and struggling through the process will not benefit you very much. Be aware that reading the solutions and be able to follow the explanation does not mean that you know how to do the problem and understand all what is involved in it.

At the beginning of each class you have the opportunity to ask questions about the homework. Use that time wisely. Remember that making a serious attempt to solve a problem and later discuss your solution or to clarify doubts is key in the learning process.

Feel absolutely free to ask any questions. Your question will benefit you and most likely others around you. One of the driving forces of mathematics is the questioning part. Why? Why? Why? Rote memorization is not a great help here but is needed too at some point.

Do not hesitate to contact me in case you want to discuss your performance in the class. I am here to lead your learning but you are the one responsible for it. I AM THE COACH AND YOU ARE THE PLAYER.

After you receive your grades you have up to the next class meeting to dispute it. I am the only person you can dispute your grade with. After the two days I assume that you accepted your grade. NO EXCEPTIONS. Grades are posted on the web immediately after I return a graded paper.

You are expected to be on time for class. Arriving late or leaving the classroom before the end of the period will be considered impolite, and rude to your classmates and professor. BE ON TIME FOR EACH MEETING. Your attendance will be monitored. The attendance sheet will be in the front of the classroom for each meeting. Make sure you check it on daily basis.

If at any point in the semester you are considering to drop the class, talk to me before you do it. I am here to help you in your learning experience and to help you to succeed in your college career.

Do not be late in the work you have to turn in. For any work to be collected this is the policy on tardiness: For your late work to be accepted you need to present an excuse to the professor. If the professor accepts to take the work, it will be graded over 80% of the initial grade. Work ahead of schedule. Do not wait for last minute surprises.

The most basic rule to work as part of a group is to respect others. I will appreciate all your effort to make it the golden rule. Refer to others with respect.

You are always on your honor.
IX. Tentative course schedule

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Resource</th>
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<tbody>
<tr>
<td>Sept 4</td>
<td>Introduction to the Course, WeBWork Introduction</td>
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<tr>
<td>2</td>
<td>Data Analysis I</td>
<td>1.1-1.2</td>
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<td>3</td>
<td>Data Analysis II</td>
<td>1.3-1.6</td>
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<td>4</td>
<td>Data Analysis III</td>
<td>1.7-1.8</td>
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<td>5</td>
<td>Relations, Functions, and Graphs I</td>
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<td>6</td>
<td>Relations, Functions, and Graphs II</td>
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<td>7</td>
<td>Relations, Functions, and Graphs III</td>
<td>2.8-2.10</td>
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<tr>
<td>8</td>
<td>Relations, Functions, and Graphs IV</td>
<td>2.12-2.1</td>
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<tr>
<td>9</td>
<td><strong>Reflection on Data Analysis &amp; Relations, Functions, and Graphs</strong></td>
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<td>10</td>
<td><strong>Test # 1</strong></td>
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<td>11</td>
<td>Exponential and Logarithmic Functions I</td>
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<td>12</td>
<td>Exponential and Logarithmic Functions II</td>
<td>3.1-3.2</td>
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<td>13</td>
<td>Exponential and Logarithmic Functions III</td>
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<td>Exponential and Logarithmic Functions IV</td>
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<td>15</td>
<td>Exponential and Logarithmic Functions V</td>
<td>3.9-3.10</td>
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<td>16</td>
<td>Circular Functions &amp; Trigonometry I</td>
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<td>Circular Functions &amp; Trigonometry II</td>
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<td>Circular Functions &amp; Trigonometry III</td>
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<td>Circular Functions &amp; Trigonometry IV</td>
<td>5.6-5.7</td>
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<td>20</td>
<td>Circular Functions &amp; Trigonometry V</td>
<td>5.12-5.13</td>
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<tr>
<td>21</td>
<td><strong>Reflection on Exponential and Logarithmic Functions &amp; Circular Functions and Trigonometry</strong></td>
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<td>22</td>
<td><strong>Test # 2</strong></td>
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<td>23</td>
<td>Combinations of Functions I</td>
<td>6.1, 6.3</td>
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<tr>
<td>24</td>
<td>Combinations of Functions II</td>
<td>6.6, 6.8</td>
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<td>25</td>
<td>Combinations of Functions III.</td>
<td>6.9-6.10</td>
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<tr>
<td>26</td>
<td>Matrices I</td>
<td>7.1-7.2</td>
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<tr>
<td>27</td>
<td>Reflection on Combinations of Functions &amp; Matrices</td>
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</tbody>
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**General Review**

**Final Exam Dec. 4, 2:00-4:30 pm IH 163**

X. 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. June 19, 2015 is the last day to drop a class with an automatic grade of “W” this term.
XI. ACADEMIC HONESTY

Academic Honesty: 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, forgery or plagiarism.

XII. 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 or visit Disability Services at (361) 825-5816 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.

XIII. GRADE APPEALS PROCESS

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 (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.

**ACADEMIC ADVISING

The College of Science and Technology 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. The College's Academic Advising Center is located in Center for Instruction, Room 350, and can be reached at (361) 825-3928.
MISSING FINAL EXAM. Any student missing the final exam for any reason will get a score of zero. If you have a reason to miss the final exam, you need to apply for an Incomplete Grade (I). If the application for an incomplete grade is approved you can then take the final exam the next semester to complete your work. In those cases a grade of I will be temporarily assigned.

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 (F).

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 (can be in place of classroom/professional behavior)**

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.

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.
LIABILITY STATEMENT

A student is responsible and has to abide by any information given in class and through the web page of the course. It may include changes on dates for tests, format of the test, and so on. Hence, if you miss class, make sure you get the information from somebody else or from the web page.