I. COURSE INFORMATION

Meeting Time & Place
Lectures MW 9:15-11:45 IH 157
Lab MW 12:00-1:50

Professor Dr. Jose H. Giraldo
Office CI 317
Phone 825-5827
e-mail jose.giraldo@tamucc.edu
Office Hours TR 8:00-9:00 am or by appointment

II. COURSE DESCRIPTION
Integration, applications of integration, especially to differential equations, sequences, series, Taylor polynomials, Taylor series and power series. Contains a one-hour lab component.

III. PREREQUISITES FOR THE COURSE
MATH 2413 (Calculus I), or instructor’s Consent.

IV. TEXT and OTHER SUPPLIES REQUIRED
The required textbook for the course is Calculus, Early Transcendentals, 7th edition by Stewart.
Technology: A graphing calculator is required for this class. The mathematics department supports the TI-83 plus, but in general you can use any graphing calculator. I will support either TI-83 plus or TI-89.

V. STUDENT LEARNING OUTCOMES
At the end of the course the student should be able to:
1. Evaluate integrals by
   - the Fundamental Theorem of calculus
   - substitution
   - integration by parts
   - trigonometric substitution
- by using trigonometric identities to simplify an integrand

2. Use integrals to determine volumes
   - by using washers (slicing)
   - by using cylindrical shells

3. Use integrals to determine surface areas or curve lengths

4. Determine whether an integral is an improper integral and determine whether an improper integral converges

5. Determine convergence/divergence of a sequence

6. Determine convergence/divergence of an infinite series
   - by the integral test
   - by a comparison test
   - by the root or ratio test

7. Determine the radius and interval of convergence of a power series

8. Find the Taylor or Maclaurin series for elementary functions

VI. INSTRUCTIONAL METHODS AND ACTIVITIES

The concepts in the course will be learned emphasizing a numerical, graphical, algebraic and verbal approach. It is expected that you come to class prepared to discuss the assignments.

In class the instructor will present key concepts and/or examples. After this the students will work in groups doing activities or solving problems related to the class presentation. Group work is an essential component of this class and a key part for you to understand the concepts and to your success.

Throughout the course the student will be an active participant in the learning process. *I expect you to be a scholar, not a spectator.*

*Keep in mind that you CAN ONLY REMEMBER*

<table>
<thead>
<tr>
<th>Percentage</th>
<th>What You Remember</th>
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<tbody>
<tr>
<td>10%</td>
<td>of what you read</td>
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<tr>
<td>20%</td>
<td>of what you hear</td>
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<tr>
<td>30%</td>
<td>of what you see</td>
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<tr>
<td>50%</td>
<td>of what you see and hear</td>
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<tr>
<td>70%</td>
<td>of what you discuss with others</td>
</tr>
<tr>
<td>90%</td>
<td>of what you teach someone else</td>
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I strongly recommend forming groups of three or four people to work outside class. I will not assign any grades to the group as a whole, but my experience indicates that students who work in groups tend to be more successful. From participating actively in the activities/problems assigned, you will reach the level that enables you to discuss the concepts, or teach them to someone else. Some of the lab work may be collected as a group work or as individual work. 

_The only way to learn mathematics is with an active individual work. This implies to be prepared for each class and do as many problems as needed to reach the level desired._

_Don’t forget that making mistakes and correcting them is a wonderful learning tool._

VII. EVALUATION AND GRADE ASSIGNMENT

All the work to be done in the class will be part of your final grade. The table below shows the weight of each of the items considered to determine your grade.

During the first two weeks of the semester we will be reviewing basic concepts needed for this course: basic algebra skills, computation of limits, computations of derivatives. I expect a proficiency of at least 90% on these items. You will be assessed on those items.

<table>
<thead>
<tr>
<th>Item</th>
<th>Weight</th>
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<tbody>
<tr>
<td>Three formative assessments 100-200-200</td>
<td>50%</td>
</tr>
<tr>
<td>Labs</td>
<td>10%</td>
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<tr>
<td>Proficiency on basics and on Integration</td>
<td>10%</td>
</tr>
<tr>
<td>Final Exam (Comprehensive)</td>
<td>30%</td>
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FORMATIVE ASSESSMENTS (TESTS)

There will be three formative assessments before the final exam. Two of them are to be done in the lab period and the last one is a take home assessment. For each of the in class tests you are allowed to use your calculator, and a sheet of paper (notebook size) with any relevant information except examples or solutions to problems. That sheet of paper will be attached to your test when you turn it in.

About 40% of the questions in the test will come from the review questions for the test. To receive credit in the test for those problems you need to show evidence that you have worked them out during your preparation for the test. You will submit the solutions to the review questions for the test at the beginning of each test. Keep a copy for your records. The last test is a take home test. For this test 80% of your grade comes from the solution
to the test and 20% is from an interview on the test. This is a 10-minute interview where I would ask about any of the problems you solved in the test. In other words, in the interview you will show you understand how to solve those problems.

Proficiency on Basics and Integration
By the end of the second week of the semester, you should show proficiency on:

• Solving equations
• Calculating limits
• Calculating derivatives of functions

A set of questions dealing with these topics will be available at the beginning of the semester. You will take a quiz on these topics. You need to present proof that you have work on all the problems posted for review before the quiz.

Proficiency on integration will be assessed through the semester in different stages.

• Level 1: Specific to the technique learned. The technique is indicated and you have to apply it.
• Level 2: A set where you have to identify the technique to be used to calculate it
• Level 3: Improper integrals

LAB COMPONENT
The lab period will be devoted to discussion of problems dealing with key concepts, reinforcement of concepts discussed in class, and specific lab activities aimed to learn calculus related concepts. You will be working in groups of three or four people.

It is important for your to understand that the way you discuss the problems will help us determine your understanding of the concepts and that way we can give you proper feedback.

Submissions of any lab work will be done through Black Board

IT IS EXPECTED THAT YOU SHOW EVIDENCE OF THE WORK ON ANY OF THE ASSIGNED PROBLEMS IN THE COURSE. BE PREPARED TO SHOW YOUR WORK WHENEVER WE ARE HAVING DISCUSSIONS. BE ORGANIZED!!

In addition to the grade for each the activities assigned in the lab, your participation will be assessed according to the table below

| 1. Attendance                              | 2 |
| 2. Willingness to help others              | 2 |
| 3. Asking/Answering questions              | 2 |
| 4. Evidence of work prior to lab (WebWork, Notebook with solutions to problems) | 4 |

A complete grading scheme for the lab will be available at the beginning of the semester.
HOMEWORK

*Homework is probably the most important part in your learning process*

*It is mandatory to have a notebook dedicated only to homework assignments*

This notebook is different than the class notes. I will make available a sample of the way I expect you to write the solution to problems. Turn in your notebook at the beginning of each lab for the TA to check your work.

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.

CLASS PARTICIPATION

You should be an active participant in your learning process. As part of your class participation I expect you to present at the beginning of class, through the webcam, a solution to one of the homework problems. Your questions, group work, help to others, etc., will also be taken into consideration for your grade in participation.

**Final Exam**

The final exam will assess the students’ learning outcomes set for this course. Although those outcomes will be assessed throughout the semester, this is the time to reaffirm your understanding of them, or your progress to learn them.

**Grading Scale**

Grades will be based on the following percentages:

A = 90.00 - 100%, B = 80.00 - 89.99%, C = 70.00 - 79.99%, D = 60.00 - 69.99%, F = below 60%

**NOTE:** In many instances a learning outcome will be assessed at different stages. I will keep track of your performance on individual learning outcomes to determine the progress on those. It may affect your final grade. I want to make sure that the “actual” learning that happens throughout the course is shown in your final grade. More information about this topic in Blackboard.

**VIII. POLICIES AND OTHER INFORMATION**

- Use the resources you have available: your classmates, the STEP mentors, the Teaching Assistant, 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.

IX.  TENTATIVE COURSE SCHEDULE

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<tbody>
<tr>
<td>1</td>
<td>4.9, 5.1</td>
<td>Antiderivatives, Areas and Distances</td>
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<tr>
<td>2</td>
<td>5.2, 5.3</td>
<td>The definite integral, The Fundamental Theorem of Calculus</td>
</tr>
<tr>
<td>3</td>
<td>5.4</td>
<td>Indefinite integrals and Net Change Theorem</td>
</tr>
<tr>
<td>4</td>
<td>5.5, 6.1</td>
<td>Substitution, Area between curves</td>
</tr>
<tr>
<td>5</td>
<td>6.2, 6.3</td>
<td>Volumes, Volumes by cylindrical shells</td>
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<tr>
<td>6</td>
<td>6.5</td>
<td>Average value of a function</td>
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<tr>
<td>7</td>
<td>7.1</td>
<td>Integration by parts</td>
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<tr>
<td>8</td>
<td>7.2</td>
<td>Trigonometric integrals</td>
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<tr>
<td></td>
<td></td>
<td><strong>TEST I</strong></td>
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<tr>
<td>9</td>
<td>7.3</td>
<td>Trigonometric substitution</td>
</tr>
<tr>
<td>10</td>
<td>7.4</td>
<td>Integration of rational functions by partial fractions</td>
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<tr>
<td>11</td>
<td>7.5, 7.8</td>
<td>Strategy of integration, Improper integrals</td>
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<tr>
<td>12</td>
<td>8.1</td>
<td>Arc length</td>
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<tr>
<td>13</td>
<td>8.2, 8.3</td>
<td>Areas of a surface of revolution, Applications to Physics and Engineering</td>
</tr>
<tr>
<td>14</td>
<td>11.1,</td>
<td>Sequences</td>
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<tr>
<td>15</td>
<td>11.2</td>
<td>Series</td>
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<tr>
<td>17</td>
<td>11.3, 11.4</td>
<td>The integral tests and Estimates of sums, The comparison tests</td>
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<tr>
<td></td>
<td></td>
<td><strong>TEST II</strong></td>
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<tr>
<td>18</td>
<td>11.5</td>
<td>Alternating series</td>
</tr>
<tr>
<td>20</td>
<td>11.6</td>
<td>Absolute convergence and the Ratio and Root tests</td>
</tr>
<tr>
<td>21</td>
<td>11.7</td>
<td>Strategy for testing series</td>
</tr>
<tr>
<td>22</td>
<td>11.8</td>
<td>Power series</td>
</tr>
<tr>
<td>23</td>
<td>11.9</td>
<td>Representations of functions as power series</td>
</tr>
<tr>
<td>24</td>
<td>11.10</td>
<td>Taylor and Maclaurin series</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>TEST III</strong></td>
</tr>
<tr>
<td>25</td>
<td>11.11</td>
<td>Applications of Taylor polynomials</td>
</tr>
</tbody>
</table>

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. Look at the calendar to find the last day to drop a class with an automatic grade of “W” this term. You are allowed to have only 6 W’s during your whole program. It means, drop the class if this is in your best interest.

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 reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact the Disability Services Office at (361) 825-5816 or go to the office at Driftwood 101.

XIII. GRADE APPEALS PROCESS

- Grade Appeals (College of Science and Engineering Version): 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](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](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.

- **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 Corpus Christi Hall 116.

- **Notice to Veterans:** 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.

- **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.

**XIV. CLASS POLICIES**

- Use the resources you have available such as your professor, the Teaching Assistant,
  the Tutoring and Learning Center, your class mates. 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)

- I do expect that you come to each class prepared to talk about any assigned work and
  readings. One of the best ways to learn any subject and specially mathematics is by
  talking to other people about it after you have tried the problems. Listening to a
  solution without trying and struggling through it 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 extremely beneficial in
  your 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
o 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 YOUR COACH, YOU ARE THE PLAYER.

o 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 after I return a graded paper.

o 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.

o 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.

o Attendance is mandatory. If you miss more than one week of classes (2 absences) your final grade will be reduce by one full grade. NO EXCEPTIONS.

o 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.

THERE ARE NOT EXCEPTIONS TO THE POLICY.

The Mathematics department complies with the Americans with Disabilities Act in making reasonable accommodations for qualified students with disabilities. If you need disability accommodations in this class, please see me as soon as possible. Please have your accommodation letter from TAMU-CC Services for Students with Disabilities Office with you when you come to see me. If you suspect that you may have a disability (physical impairment, learning disability, psychiatric disability, etc.), please contact the Services for Students with Disabilities Office (located in Driftwood 101) at 825-5816. It is important that you contact them in a timely fashion as it may take several days to review requests and prepare accommodations.

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.

*Notice to Students with Disabilities. Texas A&M University-Corpus Christi complies with the Americans with Disabilities Act in making reasonable accommodations for qualified students with disabilities. If you suspect that you may have a disability (physical impairment, learning disability, psychiatric disability, etc.), please contact the Services
for Students with Disabilities Office, located in Driftwood 101, at 825-5816. If you need disability accommodations in this class, please see me as soon as possible.

**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 Faculty Center 178, and can be reached at 825-6094.

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: You are assumed to be familiar with, and to abide by, all TAMUCC policies and procedures, particularly the Code of Academic Integrity and the Student Code of Conduct. Students found to be in violation of any of these policies will be appropriately sanctioned.

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.. Also, 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.