CALCULUS I - MATH 2413.003
Department of Mathematics & Statistics
Spring 2016

A. COURSE INFORMATION

Course number/section: MATH 2413.003 (Lab: MATH 2413.231)
Class meeting time: TR 5:30 - 6:45 pm (Lab: M 7 - 8:50 pm)
Class location: CS112 (Lab: CI 222)
Course Website: bb9.tamucc.edu

B. INSTRUCTOR INFORMATION

Instructor: Melina Wijaya
Office location: CI 351
Office hours: MW 12:30 - 1:45 pm, TR 2 - 3:15 pm, or by an appointment
Telephone: (361) 825-3373
e-mail: melina.wijaya@tamucc.edu
Appointments: Additional times available by appointment

C. COURSE DESCRIPTION

Catalog Course Description
In this course we will deal with derivatives and integrals of functions in one variable. The course begins with limits, and uses them to define the derivative of a function. Then differentiation rules are discussed, followed by applications of differentiation. Finally, integrals are introduced followed by some applications of integrals.

D. PREREQUISITES FOR THE COURSE

Prerequisites
MATH 1314 (College Algebra) and MATH 1316 (Trigonometry), or MATH 2312 (Pre-calculus), or placement beyond MATH 2312.

E. REQUIRED TEXTBOOK(S), READINGS AND SUPPLIES

Required Textbook(s)
WebAssign access code. You will need to purchase it as a bundle with the textbook or separately as a standalone access code at the bookstore or log on to WebAssign through BlackBoard (bb9.tamucc.edu) and purchase it online.

Optional Textbook(s) or Other References

Supplies
In addition, you will need a graphing calculator. Any graphing calculator other than a TI-Nspire is allowed.
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 courses 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.

By the end of this course, students should be able to:

1. Calculate and determine the existence of limits using the definition of limit, basic properties, and l'Hospital's Rule. Use calculations of limits to determine local and end behavior of functions.
2. Calculate derivatives of functions from the definition, by applying appropriate rules, and by using implicit and logarithmic differentiation.
3. Interpret derivatives as slopes of tangent lines and instantaneous rates of change. Relate units of a derivative to the units of the dependent and independent variable.
4. Apply derivatives of functions appropriately to: create linearization and differentials of functions; determine and apply related rates of change to solve problems; solve optimization problems; and determine geometric features of graphs of functions.
5. Determine if functions meet hypotheses of theorems and draw appropriate conclusions. Give examples and counterexamples.
6. Use Riemann sums to approximate areas and to estimate accumulations of rates.
7. Use anti-derivatives, the Fundamental Theorem of Calculus, and appropriate \( u \ du \) substitutions to evaluate integrals. Then interpret the results of integration as either a signed area under a curve, or as a function.
8. Recognize and determine the relationships between the graphs of a function, its derivatives and its integral.

G. INSTRUCTIONAL METHODS AND ACTIVITIES

The instructional method is a combination of lectures and student activities. Students are expected to participate through in-class activities, preparation for class meetings, homework, and quizzes.
H. MAJOR COURSE REQUIREMENTS AND GRADING

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>% of FINAL GRADE</th>
<th>Grading Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homework</td>
<td>10%</td>
<td>90-100%</td>
</tr>
<tr>
<td>Labs</td>
<td>10%</td>
<td>80-89.99%</td>
</tr>
<tr>
<td>Quizzes</td>
<td>15%</td>
<td>70-79.99%</td>
</tr>
<tr>
<td>Exams</td>
<td>45%</td>
<td>60-69.99%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>20%</td>
<td>0-59.99%</td>
</tr>
</tbody>
</table>

**Homework (10%)** – Homework will be assigned online every Thursday through WebAssign. Homework will be available for a week. At the end of the semester the two lowest homework grades get dropped. Office hours are a great opportunity to ask questions about homework. On-campus free tutoring in the CASA is another way to getting help with the homework.

**Labs (10%)** – The lab part of the course is graded by the TA.

**Quizzes (15%)** – The weekly quizzes are given online every Thursday through WebAssign. You can take them anytime between midnight and midnight of the Thursday. You have two attempts to do each quiz. The quizzes are similar to the homework but have no help options available. Of course you may not get any help with the quizzes. Missed quizzes cannot be made up, but the lowest two quizzes get dropped at the end of the semester.

**Exams (45%)** – There will be three exams, which will be given in class. Calculators will be allowed unless otherwise instructed. Exam dates will be announced at least one week in advance, but a tentative exam scheduled is given. No exam grades get dropped.

**Final Exam (20%)** – The final exam will be comprehensive.
I. COURSE CONTENT/SCHEDULE

Tentative course schedule:

<table>
<thead>
<tr>
<th>DATE</th>
<th>TOPIC</th>
<th>DATE</th>
<th>TOPIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>January 21</td>
<td>2.1</td>
<td>March 24</td>
<td>Review</td>
</tr>
<tr>
<td>January 26</td>
<td>2.2</td>
<td></td>
<td>Exam 2 (Chapter 3)</td>
</tr>
<tr>
<td>January 28</td>
<td>2.3</td>
<td>March 29</td>
<td>4.1</td>
</tr>
<tr>
<td>February 2</td>
<td>2.5</td>
<td>March 31</td>
<td>4.2</td>
</tr>
<tr>
<td>February 4</td>
<td>2.6</td>
<td>April 5</td>
<td>4.3</td>
</tr>
<tr>
<td>February 9</td>
<td>2.7</td>
<td>April 7</td>
<td>4.4</td>
</tr>
<tr>
<td>February 11</td>
<td>2.8</td>
<td>April 12</td>
<td>4.5</td>
</tr>
<tr>
<td>February 16</td>
<td>3.1</td>
<td>April 14</td>
<td>4.7</td>
</tr>
<tr>
<td>February 18</td>
<td>Review</td>
<td>April 19</td>
<td>4.9</td>
</tr>
<tr>
<td></td>
<td>Exam 1 (Chapter 2)</td>
<td>April 21</td>
<td>Review</td>
</tr>
<tr>
<td>March 22</td>
<td>3.10</td>
<td>March 24</td>
<td>Exam 3 (Chapter 4)</td>
</tr>
<tr>
<td>March 23</td>
<td>3.2</td>
<td></td>
<td>Monday, April 25 in the lab</td>
</tr>
<tr>
<td>March 25</td>
<td>3.3, 3.4</td>
<td>April 26</td>
<td>5.1</td>
</tr>
<tr>
<td>March 1</td>
<td>3.4, 3.5</td>
<td>April 28</td>
<td>5.2, 5.3</td>
</tr>
<tr>
<td>March 3</td>
<td>3.6</td>
<td>May 3</td>
<td>5.4, 5.5</td>
</tr>
<tr>
<td>March 8</td>
<td>3.7</td>
<td>May 6</td>
<td>Final Exam</td>
</tr>
<tr>
<td>March 10</td>
<td>3.9</td>
<td></td>
<td>2 - 4:30 pm</td>
</tr>
<tr>
<td>March 14-18</td>
<td>Spring Break</td>
<td></td>
<td></td>
</tr>
<tr>
<td>March 18</td>
<td>3.10</td>
<td></td>
<td></td>
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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.

IMPORTANT DATES

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
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<tbody>
<tr>
<td>Wednesday, January 20</td>
<td>Classes begin</td>
</tr>
<tr>
<td>Monday-Friday, March 14-18</td>
<td>Spring Break</td>
</tr>
<tr>
<td>Friday, April 8</td>
<td>Last day to drop a class</td>
</tr>
<tr>
<td>Monday, May 2</td>
<td>Last day to withdraw from the University</td>
</tr>
<tr>
<td>Tuesday, May 3</td>
<td>Last day of classes</td>
</tr>
</tbody>
</table>

J. COURSE POLICIES

Attendance/Tardiness

- Attendance will be taken each class.
- For most students attending class is a faster way of learning the material than trying to catch up on missed material solely from the book.
• Tardiness is often disruptive to the whole class and is not appreciated. If you are
delayed and arrive late for class please do so quietly.

Cell Phone Use

• Cell phones and such must be turned off before class.

Missed Exam

• If you have to miss an exam, it is your responsibility to contact me no later than
the day of the exam. One make-up exam will be scheduled for each exam.
• Failure to contact me on or before the exam day results in a grade of zero points
for the exam.
• Only extreme emergencies or official university business are acceptable reasons to
miss exams and documentation will be required. Car trouble, routine doctor’s
appointments, family reunions or graduations of siblings etc are not valid reasons
to miss exams. If your reason to miss the exam is not a valid one, your exam
score is 0 points. Be sure to check before missing an exam whether your reason is
acceptable.
• If you miss the date of the final exam you will receive a ZERO. There are no
make-ups for the final exam. PLAN AHEAD!!!

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 ex-
aminations or examination materials, falsification, forgery, complicity or plagiarism.
(Plagiarism is the presentation of the work of another as ones 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 at-
tmosphere. Under Article III of the Student Code of Conduct, classroom behavior
that interferes with either (a) the instructors 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)
The grade of W will be assigned to any student officially dropping a course. Please consult with the instructor before you decide to drop to be sure it is the best thing to do. Just stopping attendance and participation WILL NOT automatically result in your being dropped from the class. Should dropping the course be the best course of action, visit the Office of the University Registrar for the Course Drop Form that must submitted. No student is eligible to receive a W without completing the official drop process by this deadline. Please consult the Academic Calendar for the last day to drop a course.

http://www.tamucc.edu/academics/calendar/

• Grade Appeals 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.