MATH 2413 Calculus I
Department of Mathematics and Statistics
Fall 2015

A. COURSE INFORMATION

Course number/section: CRN 61086, MATH 2413.W01
Class meeting time: ONLINE, except for the Midterm and Final Exam
Class location: N/A
Course Website: TAMU-CC Blackboard https://bb9.tamucc.edu

B. INSTRUCTOR INFORMATION

Instructor: Valentina Postelnicu
Office location: CI-357
Office hours: Tuesday 11:00am-12:15pm, 2:00pm-3:00pm
            Wednesday 6:30pm-8:00pm (online)
            Thursday 11:00am-12:15pm, and by appointment
Telephone: (361) 825-3023 (office)
           (480) 220-4961 (cell, for text and emergency only)
e-mail: Valentina.Postelnicu@tamucc.edu
Appointments: Please email me, and include information about your availability during the
week you would like to meet with me.

C. COURSE DESCRIPTION

Catalog Description
Limits, continuity, derivatives, applications of the derivative, and an introduction to integrals.
Contains a laboratory component. Counts as the mathematics component of the University
Core Curriculum.

D. PREREQUISITES/COREQUISITES

Prerequisites: Math 1314 (College Algebra) and Math 1316 (Trigonometry), or Math 2312
(Pre-calculus), or placement beyond Math 2312.
Corequisites: Enrollment in lab MATH 2413.W21.

E. REQUIRED TEXTBOOK(S), READINGS AND SUPPLIES

Textbook
Calculus: Early Transcendentals, 8th edition by James Stewart, published by Cengage+ Enhanced
WebAssign Access Card for Calculus, Multi-Term Courses.
Supplies
A graphic calculator TI 83, TI 84 or TI 84 Plus, regular access to high speed internet and Microsoft Office applications (e.g., Word, Power Point).

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.

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 course will be a combination of virtual lectures (videos, ppts), group and whole class online discussions, and individual investigations. All participants are expected to engage in group and whole class online 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>
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<tbody>
<tr>
<td>Online Homework (WebAssign)</td>
<td>20%</td>
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<tr>
<td>Midterm Exam</td>
<td>20%</td>
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<tr>
<td>Project (written paper and ppt presentation)</td>
<td>10%</td>
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<tr>
<td>Lab Quizzes</td>
<td>10%</td>
</tr>
<tr>
<td>Final Exam (comprehensive)</td>
<td>40%</td>
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Information about how to access the resources for this course, and the online homework at http://www.webassign.net/ will be provided on TAMUCC-Blackboard at https://bb9.tamucc.edu/. Should you need help to access TAMUCC-Blackboard, please email me. The Online Homework (WebAssign at http://www.webassign.net/), Quizzes, and Exams will be graded based on the number of correct answers. The **Midterm and Final Exam will be proctored exams, and you need to take them on campus, on the day and time specified in the course schedule.** Specific directions for course activities/assignments (e.g., content, format, submission, deadlines, feedback) and proctored exams will be posted on TAMUCC-Blackboard, at https://bb9.tamucc.edu/. The first draft of the Project will be reviewed both by the instructor and two peers, and the final draft of the Project will be peer-graded, using the following **Grading Rubric:**

<table>
<thead>
<tr>
<th>Category</th>
<th>4 Exemplary</th>
<th>3 Good</th>
<th>2 Satisfactory</th>
<th>1 Unsatisfactory</th>
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<tr>
<td><strong>Subject knowledge 50%</strong></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>
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<tr>
<td><strong>Organization 30%</strong></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>
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<td><strong>Communication (written paper, and/or ppt and)</strong></td>
<td>Excellent written communication of ideas/ excellent</td>
<td>Good written communication of ideas, most of the</td>
<td>Some parts are well written, and ideas are communicated</td>
<td>The written paper is hard to follow, ideas are not</td>
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oral presentation)  
20%

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<tr>
<th>integration of spoken and visual presentation.</th>
<th>time/good integration of spoken and visual presentation, most of the time.</th>
<th>effectively / some parts of the presentation are coordinated orally and visually.</th>
<th>communicated effectively / the presentation is hard to follow, the spoken and visual presentation are not integrated.</th>
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Final grades will be assigned according to the following table:

**Percentage Grade**
- ≥90.0% A
- ≥80.0% B
- ≥70.0% C
- ≥60.0% D
- Below 60% F

## I. COURSE CONTENT/SCHEDULE

<table>
<thead>
<tr>
<th>DATE</th>
<th>Topics</th>
<th>Chapters/Sections</th>
<th>ASSIGNMENTS</th>
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<tbody>
<tr>
<td>Week of 8/26</td>
<td>Introduction to Calculus</td>
<td></td>
<td>Review Functions Offline Homework 1</td>
</tr>
<tr>
<td>Week of 8/31</td>
<td>Limits</td>
<td>2.1-2.3</td>
<td>Online Homework 2</td>
</tr>
<tr>
<td>Week of 9/7</td>
<td>Continuity, Limits at Infinity, Asymptotes</td>
<td>2.4-2.6</td>
<td>Online Homework 3</td>
</tr>
<tr>
<td>Week of 9/14</td>
<td>Derivatives</td>
<td>2.7-2.8</td>
<td>Online Homework 4</td>
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<tr>
<td>Week of 9/21</td>
<td>Differentiation Rules</td>
<td>3.1-3.3</td>
<td>Online Homework 5</td>
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<tr>
<td>Week of 9/28</td>
<td>Chain Rule, Implicit Differentiation</td>
<td>3.4-3.5, Review</td>
<td>Online Homework 6</td>
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<tr>
<td>Week of 10/5</td>
<td>Differentiating Exponential and Logarithmic Functions</td>
<td>3.6-3.7</td>
<td>Midterm Exam Oct 6, time TBD Online Homework 7</td>
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<tr>
<td>Week of 10/12</td>
<td>Related Rates, Linear Approx</td>
<td>3.8-3.10</td>
<td>Online Homework 8</td>
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<td>Week of 10/19</td>
<td>Role of Derivatives</td>
<td>4.1-4.3</td>
<td>Online Homework 9</td>
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<tr>
<td>Week of 10/26</td>
<td>L’Hospital Rule, Graphing Functions</td>
<td>4.4-4.6</td>
<td>Online Homework 10</td>
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<tr>
<td>Week of 11/2</td>
<td>Optimization, Newton’s Method, Antiderivatives</td>
<td>4.7-4.9</td>
<td>Online Homework 11 First Draft Project due Nov 5</td>
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<td>Week of 11/9</td>
<td>Areas, Definite Integral, The Fundamental Th. of Calculus</td>
<td>5.1-5.3</td>
<td>Online Homework 12 First Review Project due Nov 12</td>
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<tr>
<td>Week of 11/16</td>
<td>Indefinite Integrals, Substitution Rule</td>
<td>5.4-5.5</td>
<td>Online Homework 13 Final Draft Project due Nov 19</td>
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Week of 11/23 | Review | Chapters 2-5 | Online Homework 14
|----------------|--------|-------------|
11/30-12/1 Last day of classes Dec 1 | Review | Chapters 2-5 | Final Review
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12/3-12/8 | Final Exam (comprehensive) | Chapters 2-5 | Common Final Exam Friday, Dec 4 2:00PM-4:30PM

Note: Changes in this course schedule may be necessary and will be announced 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
This is an online class, and you may manage your time as you wish. You are expected to meet all the deadlines. If you have an exceptional situation (e.g., documented illness, family situation), please email the instructor about it.

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 online quizzes/exams or time-sensitive online activities.

Extra Credit
There will be no extra credit for this course.

Missed Exam
You are expected to take the proctored exams within the timeframe indicated. Exceptional circumstances (e.g., documented illness, family situations) may be considered at the instructor’s discretion.

Participation
You are expected to prepare for this class regularly, and participate in all the online activities.

K. COLLEGE AND UNIVERSITIY 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)
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 (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/](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