I. COURSE INFORMATION

Instructor: Dr. Ping-Jung “Charlene” Tintera
Office Phone: 825-3483
Office Address: CI-368
Office Hours: MW: 10 ~ 12 noon      TR 2 ~ 3pm      (1 hour by appointment)
E-Mail address: ptintera@tamucc.edu
Class meetings: TR 10 ~ 11:50 AM      CI-109
Final Exam: 7/24      Time: class hours      CI-109

II. COURSE DESCRIPTION

This course 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.

III. PREREQUISITES FOR THE COURSE

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

IV. TEXT AND OTHER SUPPLIES REQUIRED

The required textbook for the course is University Calculus, by Hass, Weir, and Thomas. Published by Addison Wesley. A graphing utility is required for the class.

V. COURSE OBJECTIVES and GOALS:

The student learning outcomes are:

1. Understand and use the concept of the limit of a function
   a. use properties of limits and other techniques, like L’Hopital’s rule, to determine the existence or not of the limit of a function at a given value;
   b. understand the definition of continuity of functions from a function given in a graph determine the discontinuity point indicating which properties of continuity fail and from a given piece-wise function defined by formulas determine the points at which the function is discontinuous.

2. Be able to provide examples and counterexamples dealing with important results discussed in this course, and especially to understand the necessity of the conditions for some of them:
   a. give an example of a function which does not satisfy the Intermediate Value Theorem (IVT),
   b. give an example of a function which does not satisfy the Mean Value Theorem (MVT),
   c. give an example of a discontinuous function with a removable/non-removable discontinuity;
   d. give an example of a function whose limit does not exist at a point,
   e. give an example of a function that is continuous but not differentiable at a point.

3. Understand and interpret the concept of the derivative:
   a. graphically, as the slope of the tangent line at a point;
   b. analytical, as the instantaneous rate of change of the function;
   c. use information about the first and second derivative to obtain information about the original function; interpret the units of the derivative.
   d. points where the function is increasing the fastest, where it is constant, etc.
   e. from a given graph determine all the critical points and indicate at which the function is not differentiable.
   f. from a function defined piecewise determine whether or not the function is differentiable at the point(s) where the pieces join.

4. Find the linear approximation of a function at a differentiable point and use it to estimate the function.
a. they will produce the linear approximation from a graph and determine if in a neighborhood of the point it will give an overestimate or underestimate,
b. from a function defined by an algebraic expression the student will find the linear approximation at a given point and use it to estimate the original function. The students has to justify whether it is an overestimate or underestimate.
(5) Sketch the graph of a function or its derivative function:
a. from the graph of a function, they produce the graphs of the first and second derivative functions,
b. from the graph, or information, about the first and second derivative of a function they will generate the graph of the function,
c. from a function defined by a formula they will find the information to sketch its graph (domain, continuity points, increasing/decreasing, concave up/down, end behavior, asymptotes).
(6) Use calculus techniques to find the solution of problems:
a. optimization problems. Given an optimization problem the student will find the mathematical model for it, and will proceed to solve it using calculus techniques (for some they may need to use technology),
b. related rates problems.
(7) Use implicit differentiation properly:
a. calculate derivatives using implicit differentiation
b. determine the equation of tangent lines to graphs obtained form expressions where one variable is given implicitly as a function of other.
(8) Understand the concept of the integral
a. interpret the units of the integral in the solution of problems,
b. evaluate basic definite integrals,
c. calculate the area of regions by using integration,
d. interpret integrals as area to evaluate them,
e. estimate integrals using Riemann Sums,
f. use the Fundamental Theorem of Calculus so that the student understands the relationship between integration and differentiation.

VI. INSTRUCTIONAL METHODS AND ACTIVITIES
Methods and activities for instruction include lecture by the instructor and participation by the students by doing problems in class.

VII. EVALUATION AND GRADE ASSIGNMENT
The methods of evaluation and the criteria for grade assignments are:
| Attendance | MANDATORY |
| Labs       | 10%        |
| Gateway Test | 10%       |
| Tests      | 60% (top 3 scores out of 4 tests, you may drop the test if you missed the scheduled test) |
| Final      | 20% (Comprehensive, calculator is allowed) |

Grading Scale: Rounded up from > 0.5
A = 90 – 100, B = 80 – 89, C = 70 – 79, D = 60 – 69, F = 59 or below.

VIII. TENTATIVE COURSE SCHEDULE
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<thead>
<tr>
<th>Week</th>
<th>Chapter/Section</th>
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<tbody>
<tr>
<td>1</td>
<td>Ch. 1 and Ch. 2-1, 2-2,</td>
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<tr>
<td>2</td>
<td>Ch. 2, Ch. 3 and Test 1</td>
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<td>3</td>
<td>Ch. 3</td>
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<tr>
<td>4</td>
<td>Ch. 4 and Test 2</td>
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<td>5</td>
<td>Ch. 4</td>
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<td>6</td>
<td>Ch. 5 and Test 3</td>
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<tr>
<td>7</td>
<td>Ch. 5 and Test 4</td>
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<tr>
<td>8</td>
<td>Final Exam</td>
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Summer I, 2013
VIII. Class policies:

- Attendance is mandatory. Attendance will be checked each class period and each absence after 3 times (4th, 5th, and 6th) will result in one letter grade lower. Please save absences for emergencies.
- Homework will be given each class period and discussed at the beginning of next class period.
- Cell phone using and texting are prohibited in any circumstances and you will be asked to leave the classroom. If you were using cell during the test, I will treat it as cheating.
- “Cheating” is strongly prohibited. If I caught someone cheating during any test, students may drop the class without my permission. If not, normally it is an “F” for the semester grade.
- You are the only person responsible to drop the class and responsible to stay informed for any changes for tests and room changes. All the changes will be announced in the class.
- You may email me for help any time but not the night before the scheduled test neither the possible chance to postpone the test.
- I respect your request by email and I will answer it in my best convenient time. Please do not eat nor drink in the class in anytime.
- Makeup test will be given once per student with appropriate documentation provided. Please save the opportunity for the emergencies.
- There is no makeup final exam. It will be an “F” for the semester grade regardless if you do not take final on the final date. You must take the final exam on the official scheduled date (not a day early neither late). Otherwise, it will be counted as “zero” on the final regardless.
- This syllabus is a contract between students and the instructor. If you have no any question regarding to this class, this syllabus will be activated from now and through this semester.

New State Law regarding course drops

The State of Texas has enacted a statute that applies to students who enroll in public institutions of higher education as first-time freshmen in Fall 2007 or later. Under section 51.907 of the Texas Education Code, “an institution of higher education may not permit a student to drop more than six courses, including any course a transfer student has dropped at another institution of higher education.” Any course a student drops after the census date published in the class schedule or academic calendar (which for Fall 2007 is Sept 7th) is counted toward the six-course limit unless specifically identified as being exempt. If you have any questions please send an email with phone number to admisstamucc.edu and a representative of the Office of Admissions & Records will contact you.

*Help:*

Tutoring and Learning Center has many quality tutors to help you while you need someone beside my office hours. Welcome to visit those tutors at the Glasscock building. Please find out their schedule first before you make a plan to go for this semester. I will be happy to work with you anytime during my office hours and also email me for your special needs. Good luck to everyone in the class.

*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.

**Grade Appeal Process.** As stated in University Rule 13.02.99.C2, Student Grade Appeals, 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 Rule 13.02.99.C2, Student Grade Appeals, and University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures. These documents are accessible through the University Rules Web site at http://www.tamucc.edu/provost/university_rules/index.html. For assistance and/or guidance in the grade appeal process, students may contact the Office of Student Affairs.
## About the Family Educational Rights and Privacy Act (FERPA)

Under FERPA, a student has the right to:

1. **Inspect and review their education records**  
   Students can inspect and review their education records within 45 days of the day the University receives a request for access. A student should submit to the registrar, dean, head of the academic department, or other appropriate official, a written request that identifies the record(s) they wish to inspect. The University official will make arrangements for access and notify the student of the time and place where the records may be inspected. If the records are not maintained by the University official to whom the request was submitted, that official shall advise the student of the correct official to whom the request should be addressed.

2. **Request to amend their education records**  
   Students can request to amend any of their education records that they believe are inaccurate, misleading, or otherwise in violation of the student’s privacy rights under FERPA. A student who wishes to ask the University to amend a record should write the University official responsible for the record, clearly identify the part of the record the student wants changed, and specify why it should be changed. If the University decides not to amend the record as requested, the University will notify the student in writing of the decision and the student’s right to a hearing regarding the request for amendment. Additional information regarding the hearing procedures will be provided to the student when notified of the right to a hearing.

3. **Some control over the disclosure of their education records**  
   Students have the right to provide written consent before the University discloses personally identifiable information from their education records, except to the extent that FERPA authorizes disclosure without consent. The University discloses education records without a student’s prior written consent under the FERPA exception for disclosure to school officials with legitimate educational interests. A school official is:
   - A person employed by the University in an administrative, supervisory, academic or research, or support staff position (including law enforcement unit personnel and health staff)
   - A person or company with whom the University has contracted as its agent to provide a service instead of using University employees or officials (such as an attorney, auditor, or collection agent)
   - A person serving on the Board of Trustees; or a student serving on an official committee, such as a disciplinary or grievance committee, or assisting another school official in performing his or her tasks.
   - A school official has a legitimate educational interest if the official needs to review an education record in order to fulfill his or her professional responsibilities for the University.

   Upon request, the University also discloses education records without consent to officials of another school in which a student seeks or intends to enroll.

4. **File a complaint if they feel any of these rights have been violated**  
   Students can file a complaint with the U.S. Department of Education concerning alleged failures by the University to comply with the requirements of FERPA. The name and address of the Office that administers FERPA is:

   Family Policy Compliance Office  
   U.S. Department of Education  
   400 Maryland Avenue, SW  
   Washington, DC 20202-5901