I. Course Information:

Instructor: Dr. Ping-Jung “Charlene” Tintera
Office: CI-368
Phone: 825-3483
Class meeting: MTWRF 12 to 3:45 pm
Office hours: MTWRF 11 am to 12 noon
Email: ptintera@tamucc.edu
Final Exam: January 16, 2015

II. Course description: (follow the university catalog)

This class is intended to develop the fundamentals of calculus and optimization using technology. The topics to discuss include Graphing Functions, Trend Lines, Demand, Revenue, Cost and Profit, Differentiation (Rate of Change) and its applications, Using Solver, Integration (Area under the curve) and its applications, Normal Distributions, Simulating Normal Random Variables, Hospital Administration. Counts as the mathematics component of the University Core Curriculum. Prerequisite: MATH 1324. Fall, Spring, Summer.

III. Prerequisites for the course:
Math 1324 Business Mathematics or placement into Math 1325.

IV. Text and other supplies required:


V. Student Learning Outcomes & Assessment:

Upon successful completion of this course, students will:
1. Apply calculus to solve business, economics, and social sciences problems.
2. Apply appropriate differentiation techniques to obtain derivatives of various functions, including logarithmic and exponential functions.
3. Solve application problems involving implicit differentiation and related rates.
4. Solve optimization problems with emphasis on business and social sciences applications.
5. Determine appropriate technique(s) of integration.
6. Integrate functions using the method of integration by parts or substitution, as appropriate.
7. Solve business, economics, and social sciences applications problems using integration techniques.

VI. Instructional methods and activities:

Methods and activities for instruction include:
- Instructional presentation of new material and concepts,
- Class discussion and problem solving analysis using critical thinking techniques,
- Individual written assignments to enhance understanding of new concepts,
- Discovery method techniques supported by a graphing utility to view the effects of shifting and translation concepts on the functions,
VII. Evaluation and grading policies:

- **Attendance**: MANDATORY
- **Tests**
  - 75% (3 tests, 25% each)
  - Test 1: Day 1, 2, 3 materials (see tentative schedule below)
  - Test 2: Day 4, 5, 6 materials
  - Test 3: Day 7, 8, 9 materials
- **Final exam**: 25% (comprehensive)
  - Final exam: all 10 days’ materials
- **Grading scale**:

VIII. Class policies:

- Attendance is mandatory. Attendance will be checked each class period and each absence after 2 times will result in one letter grade lower (3rd absence will result in two-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 is prohibited in any circumstances.
- 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.
- Makeup test will be given once per student with appropriate documentation provided. Please save the opportunity for the emergencies.
- **There is no makeup for any test which includes the final exam.** Without taking final exam, it will be an “F” for the semester grade regardless.
- Help: CASA has many quality tutors to help you while you need someone beside my office hours. Welcome to visit those tutors at the second floor of library. 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.
- **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.**

IX. Tentative schedule:

<table>
<thead>
<tr>
<th>Days</th>
<th>Work/Assignment</th>
<th>January 2015</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Identify basic functions and their properties. Construct graphs and evaluate piece-wise defined functions, find cost, revenue, and profit function and applications to determine a company’s Break-Even points</td>
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<tr>
<td>2</td>
<td>Understand exponential and logarithmic functions. Understand the limit definition of the derivative and calculate derivatives of various functions using the limit definition and differentiation formulas</td>
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<tr>
<td>3</td>
<td>Algebraically calculate by hand to determine the average rate of change and explain how it relates to the business and TEST 1</td>
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<tr>
<td>4</td>
<td>Algebraically determine where a function is increasing or decreasing has relative extremes, is concave upward/downward</td>
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<tr>
<td>5</td>
<td>Find Inflection points by interpreting its first and second derivatives. Find the relative/absolute extremes of functions including optimization applications</td>
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<tr>
<td>6</td>
<td>Find the relative/absolute extremes of functions including optimization applications, TEST 2</td>
<td></td>
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</tbody>
</table>
Compute anti-derivatives and understand the concept of integration as it relates to area
Use Fundamental Theorem of Calculus to evaluate integrals, including the method of substitution

Introducing the upper and lower bounds and apply integration as it relates to area between curves and accumulated change, and the average value of a function

Introducing the average value of a function by using the definite integral and applications in the business and TEST 3

Applications to business such as consumers’ and producers’ surplus. Understand functions of two variables and their application in business

Review and Final exam

Suggested Chapter and Topics for the Textbook

Chapters/sections topics
10.1 Introduction to Limits & 10.2 Infinite Limits and Limits at Infinity
10.3 Continuity
10.4 The Derivative
10.5 Basic Differentiation Properties
10.6 Differentials
10.7 Marginal Analysis in Business and Economics
11.2 Derivatives of Exponential and Logarithmic Functions
11.3 Derivatives of Products and Quotients
11.4 The Chain Rule
11.5 Implicit Differentiation
11.6 Related Rates
12.1 First Derivative and Graphs
12.2 Second Derivative and Graphs
12.3 L’Hopital’s Rule
12.5 Absolute Maxima and Minima
12.6 Optimization
13.1 Antiderivatives and Indefinite Integrals
13.2 Integration by Substitution
13.3 Differential Equations; Growth and Decay
13.4 The Definite Integral
13.5 The Fundamental Theorem of Calculus
14.1 Area Between Curves
14.2 Applications in Business and Economics
14.3 Integration by Parts
14.4 Other Integration Methods

*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 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 on 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 on the process, including the responsibilities of the parties involved in the process and the number of days allowed for completing the steps in the process, consult Texas A&M University-Corpus Christi University Procedure 13.02.99.C2.01 Student Grade Appeal Procedures (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 or the College of Science and Engineering Dean’s Office.

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**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