**DEPARTMENT OF MATHEMATICS**
**California State University, Bakersfield**
**MATH 231 – Calculus I for Engineering**

**Instructor:** Charles Lam
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**Class times:** MW 10-11:40 (SCI 3-102), F 10-12:30 (SCI 3-105)

**Office Hours:** M 3-5, T 10-12, W 1-2 or drop by when I am in.

**Course Description:** This is the First course in calculus, we will discuss limits, single variable differentiation and their applications.

**Course Objectives:**

**(1)** Learn the concept of limits. Use graphical and numerical methods to identify situations where limits may not exist. Apply algebraic methods to evaluate limits.
**(2)** Introduction to the concept of continuity using limits.
**(3)** Study of the derivative from the limit definition. Understand the geometric meaning of the derivative. Interpret the derivative as a rate of change.
**(4)** Learn the derivatives of basic functions, including trigonometric, logarithmic and exponential functions.
**(5)** Learn the rules of differentiation, including the chain rule and implicit differentiation.
**(6)** Applications of the derivative in linear approximation, rates of change, graphing functions, optimization problems, roots of functions through Newtons method, and L'Hôpital's Rule.
**(7)** Introduction to the concept of antiderivatives.
**(8)** Applications to Engineering and Physics.

**Text:** Calculus – Concepts and Contexts, 4th ed., by James Stewart. Please note that if you do not plan to take Calculus 3 or above, the text *Single Variable Calculus, Concepts and Contexts, 4th ed* will be sufficient.

**Topics covered:** Sections 1.7, 2.1-2.7, 3.1-3.7, 3.9, 4.1-4.3, 4.5-4.8

**Web page:** The web page for the course is at http://www.csub.edu/∼clam/math231f13.html

**Student Activity:** Student Activity are conducted on every Friday. Attendance is required. You are required to work in groups of 3-5 on assigned problems and hand in the lab reports **individually** at the end of Student Activity. One lab will be graded at random from each group, and every group member will be assigned the same grade.

**Homework:** Weekly homework will be given, you will have one week to finish homework.

**Grading:** In addition to student activity and homework, there will be two tests, and a final exam (cumulative). A pass (50%) in the final exam is required to obtain a final grade of D- or better. A 60% in the final exam is required to obtain a final grade of C- or better.

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| Student Activity ..... | 10% |
| Homework ..... | 15% |
| Test 1 ..... | 20% |
| Test 2 ..... | 25% |
| Final Exam ..... | 30% |

**Test Dates:**

- First Test: October 18, Friday (tentative)
- Second Test: November 15, Friday (tentative)
- Final Exam: November 25, Monday, 11am-1:30pm

**Remarks:**

- There will be no make-up exams or tests. If you know in advance that you are going to miss an exam, please make your arrangements with me at least one week ahead.
- Please hand in labs and homework on time. Late labs and homework will be accepted up to the beginning of next class for 50% of credit.

**Academic Dishonesty:**

You are encouraged to work with your classmates in labs and homework. However, YOU ARE REQUIRED TO HAND IN WORK WRITTEN BY YOURSELF. A rule of thumb is to destroy any evidence of discussion before writing up the solutions yourself.

If you collaborated with anyone, ACKNOWLEDGE COLLABORATORS. Please also note that, ACKNOWLEDGING YOUR FRIENDS ON THE CONTRIBUTION DOES NOT MEAN YOU HAVE THE RIGHT TO COPY OTHERS' WORK. YOU MUST WRITE THE SOLUTIONS IN YOUR OWN WORDS.

If you are caught cheating, the policy for this class is -10% to the final grade on the first offense, -20% for the second, and -50% thereafter.