Math 178 Applied Calculus

COURSE DESCRIPTION

Presents a study of the techniques of calculus with emphasis placed on the application of these concepts to business and management related problems. The applications of derivatives and integrals of functions including polynomials, rational, exponential, and logarithmic functions are studied. Not open to students with credit in MATH 180.

PREREQUISITE: "C" grade or higher or "Pass" in MATH 110 or equivalent (MATH 103 does not meet the prerequisite)

STUDENT LEARNING OUTCOMES

Upon completion of Math 178, a student will be able to:

1) Use graphical, numerical, and analytical methods to solve multidisciplinary problems at the Calculus for business, social, and behavioral sciences level (especially from business or the natural/social sciences).

2) Use integration in business and economics applications.

CUYAMACA COLLEGE

Welcome

WHAT DO I NEED?

- Text: OpenStax Calculus

- Calculator: A TI-84 Plus graphing calculator is required The Mathematics Department of Cuyamaca College highly recommends and supports the use of Texas Instruments graphing calculators.

- Notebook paper, graph paper and a binder, pencil, big eraser, highlighter, ruler, pencils/pens, Desmos graphing application

WHAT HAPPENS OUTSIDE OF THE CLASSROOM?

(asynchronous learning opportunities)

EXPECTATIONS

You are expected to keep up-to-date with course readings, to study your notes, and to do the homework. The general rule of thumb for college courses is a minimum: Two hours of study out of class for every hour in class. Since we meet 4 hours per week, you should spend at least 8 hours studying and doing homework for this class each week.

HOMEWORK

Homework is a tool to help you succeed. Your homework is worth 15% of your grade. Keeping up with your homework will increase your grade significantly more than 15%.

GROUP QUIZZES

In class you will be working with your classmates on group quizzes. Having conversations with classmates about math is a powerful learning tool. Because the quizzes are completed in groups they cannot be made up, but I will drop your lowest 2 quiz grades. These quizzes are 15% of your grade.

> *"The essence of mathematics is not to make simple things complicated, but to make complicated things simple."*
> *– Stan Gudder, mathematician*

WHAT HAPPENS INSIDE OF THE CLASSROOM?

(synchronous learning opportunities)

Twice a week we will be meeting together in the classroom. You are expected to work actively with your peers, sharing, taking and giving, listening and explaining, questioning and answering. You are responsible for being prepared for participation in class discussions and in group work, and for assisting your peers to come to an understanding of mathematics. When you are in the classroom, you are expected to be courteous to each other and to the instructor.

GRADING

Group Quizzes	15%
Homework	15%
Exams (4 in total)	50%
Final Exam/Final Project	20%

This class is a 4-unit course. Your semester grade will be based on the different categories listed above.

Plus/Minus grading system will be used for final grades as follows:

A (Above 92%); A- (90% - 92%);
B+ (88% - 89.9%); B (82% - 87.9%);
B- (80% - 81.9%); C+ (78% -79.9%);
C (70% - 77.9%); D (60% - 69.9%);
F (below 60%)

HEADS UPS: You must earn at least a 60% on the final to earn a passing grade in this course. You cannot get a passing score in the class without getting an overall average score of at least 60% on the final AND at least 70% overall grade.

thank you

for not
using your
CELL
PHONE

📖 ATTENDANCE

You are expected to participate in class each week. Class engagement is highly correlated with class success. Please grant me the courtesy of letting me know at the beginning of the week if you will need to take a few days off. In the event that you must miss a class, please work with a classmate to copy their notes and get any class updates. When you are absent, group quizzes cannot be made up. For that reason I will drop your two lowest quiz scores.

The **official** college attendance policy can be found on the last page of this syllabus.

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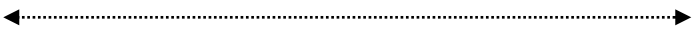
"Love challenges, be intrigued by mistakes, enjoy effort, and keep on learning."
– Carol Dweck

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📖 DATES TO REMEMBER

First Day of the Fall Semester	January 30
Last Day to Drop without a "W	February 12
Holiday (Presidents Day)	February 17
Spring Break	March 27 – April 2
Last Day to Drop with "W"	April 30
Holiday (Memorial Day)	May 31
Final Exam Week	May 30 – June 5
Last Day to Apply for P/NP	June 5
Math 178 Final Exam	**May 30th**

◀ INSTRUCTOR ▶

Alyssa Krauss, BS, MS, MEd
alyssa.krauss@gcccd.edu

Prefers to be called "professor" or "Ms Krauss"

Answers to "teacher", "Ms K", "hey you", etc.

Holds **student hours**
Tuesday 1:30 – 2:30 pm in H131, or by appointment on ZOOM:

https://cccconfer.zoom.us/my/professorkrauss

Meeting ID: 355 664 4470

◀ TIPS FOR SUCCESS ▶

- Cultivate a positive attitude; Make friends and do your homework together in groups.

- Every time - come on time and stay the whole time.

- Read the new material **before** it is presented in class.

- Take responsibility for your own learning.

- Ask questions – lots of questions – to yourself, to classmates, to tutors and to the instructor.

Lastly, when life happens…send me an email. I will help you get through it…no matter what it is.

All Right (all right, all right), Let's Have a Great Semester!

COLLEGE POLICIES, "FINE PRINT", AND OTHER USEFUL INFORMATION

ATTENDENCE POLICY: You **may** be dropped from the class if you are "absent" more than 4 days (12 hours of class)**.** If attendance becomes a problem, please come and speak with me. I may decide to work with you if you convince me of your motivation to stay. If you are dropped you will receive a "W" or an "F", depending on the date dropped. However, do not assume that you will be dropped if you stop attending class. To ensure that you are withdrawn, you must officially withdraw online, in person, or by telephone. Failing to drop a class in a timely manner may earn you a failing grade in the class.

You are responsible for getting class notes from other classmates and getting any schedule changes or other class announcements from classmates on days missed from the class. Any changes and class announcements will be made known in class. It is not acceptable to return to class following an absence and claim that you did not know.

ACCOMODATIONS: If you have a documented disability and need accommodations for this class, please send me your DSPS Academic Accommodation form as early as possible. You must complete the online Test Accommodations Registration form on the Test Proctor Website.

TUTORING: To support your efforts to succeed in this class, it is highly recommended that you utilize the free tutoring services available. The hours are Monday & Thursday 9:00 am – 6:00 pm; Tuesday & Wednesday 9:00 am – 7:00 pm; Friday 10:00 am – 2:00 pm. To make an appointment, please either call 619-800-2407 or email cuyamacatutors@gmail.com with the course and time you would like to meet with a tutor. The college also offers additional online tutoring through NetTutor which can be accessed 24/7 through your Canvas course

CUYAMACA CARES: Cuyamaca Cares is a program that offers many opportunities for help with food, housing, and personal counseling. Since the food bank on campus is currently closed, there will be drive through opportunities coming soon which will be shared. If you have a specific need, please email Kaylin Rosal (cuyamaca.cares@gcccd.edu)

EXAMS: There will be 4 exams plus one final exam during the semester. Students who have a legitimate reason for being absent on an exam day, need to contact me **before** the test date to schedule another time, otherwise there are no make-up exams. A no show without contacting me will result in getting a zero for that test. Cell phones, or other communication devices, are not allowed during exams. Your lowest exam grade (out of the 4) can be replaced with your final exam score, if it is higher.

FINAL ASSESSMENT: A comprehensive final exam and a final project will be given at the end of the course. The final assessment is worth 20% of your overall grade. The final exam is mandatory and may not be dropped. If you do not take the final, you will receive a failing grade in the course.

<center>**Your final exam is Tuesday, May 30 from 9:30am – 1:30am.**</center>

ACADEMIC DISHONETY: If you are caught cheating or plagiarizing, you will earn a 0 on that assignment/test. If it happens a second time, you will earn a 'O' on that assignment and I will report it; this could result in sanctions which include removal from the class.

Tentative Schedule (subject to change)

Week Of:	Material Covered
January 30	Introduction to the Class; Domain and Range; Relations and Functions; Finding and Graphing Linear Functions; Interpretations of Linear Equations.
February 6	Applications of Cost and Revenue Functions; and Logarithmic Functions; Evaluating, Solving, Writing, Graphing, and the Applications of Exponential Functions with base e.
February 13	Quadratic Functions, the Parabola, and Graphs of Basic Functions; Piecewise-Defined Functions, Polynomials: Polynomials-End Behavior, local Behavior, Rational Functions Graphs and Applications
February 20	Finding Limits (Finite or Infinite) by using three methods **EXAM #1**
February 27	Secant and Tangent Lines; Instantaneous Velocity; The Power, Sum, and Difference Formulas and Their Explorations on the Tangent Line
March 6	Derivatives of Exponential Functions with base e; Derivative of the Logarithmic Functions
March 13	The Product and Quotient Rules; The Chain Rule
March 20	Logarithmic Differentiation; **EXAM #2**
March 27	**SPRING BREAK – no classes**
April 3	The First and Second Derivative Tests
April 10	Optimization Problems; Relative Rate of Change; Elasticity of Demand
April 17	Marginal Average Cost, and Revenue; Related Rates
April 21	Business Applications of Derivatives; **EXAM #3**
May 1	Left and Right Reimann Sums and Defining the Definite Integral; Calculating Definite Integrals Geometrically
May 8	Areas of Compound Regions, and Applications for Finding the Area Between Curves
May 15	Antiderivatives and the Integral; Evaluating Integrals, Using the Fundamental Theorem of Calculus;
May 22	The substitution rule; **EXAM #4**
May 29	**FINAL EXAM, May 30 9:30am – 11:30am**