Math 2134 - 002:
Calculus for Business and Social Science

Fall 2017
Tuesday, Thursday 10:00 AM - 11:50 AM
BIC 1H08

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Office Hours: Monday: 4:30 PM - 5:00 PM, 6:30 PM - 7:00 PM;
Tuesday: 2:00 PM - 7:00 PM;
Wednesday: 1:00 PM - 2:00 PM, 4:30 PM - 5:00 PM, 6:30 PM - 7:00 PM;
Thursday: 12:00 PM - 1:00 PM, 6:00 PM - 7:00 PM

Text and Materials:
Applied Calculus for the Managerial, Life, and Social Sciences, 10th ed., by Tan

Course Content: Designed primarily for students planning to major in business, or behavioral, social, or biological sciences. The basic concepts of differential and integral calculus are taught with emphasis on a wide variety of applications.

Course Goals:

1. Solve exponential, polynomial, rational, and logarithmic equations
2. Identify, analyze, classify, and graph functions
3. Construct mathematical models
4. Apply limit theorems and algebraic techniques to evaluate limits
5. Differentiate functions and equations
6. Analyze properties of functions using derivatives
7. Solve application problems using derivatives
8. Determine extrema of functions of several variables
9. Determine antiderivatives using the rules of integration
10. Solve application problems using the fundamental theorem of calculus

Topical Outline:
Optional topics are indicated by*

1. Functions: Power and exponential functions, Polynomial functions, Rational functions and asymptotes, Natural logarithms, Graphing
2. Differential calculus: Limits and continuity, Derivative process, Derivative rules for products and quotients, the chain rule, Higher order derivatives, Maxima and minima of functions of one variable
3. Functions of more than one variable: Maxima and minima for functions of more than one variable, Maxima and minima using, Lagrange multipliers
4. Applications from business, biology, and other areas
5. Integral calculus: Anti-derivatives including substitution and parts, Area and the definite integral, Fundamental theorem of calculus, Improper integrals, Numerical integration*, Applications

Classes: Students are expected to attend class and PARTICIPATE. Students are responsible for all material covered in each class. Quizzes and exams will be held during class time.

A good rule of thumb to follow is that you should spend twice as much time studying outside the class studying as you do in class. This means, since this class meets for 4 hours each week, you need to be studying at least 8 hours per week outside of class to be successful.

Quizzes: Quizzes will only consist of two problems. They should take no more than 20 minutes and are intended as a "spot check" for students to know how well they understand the material without relying on the book or notes. They may be administered at the beginning, middle or end of class and might be on any class day, though if not told otherwise, they will be given on the last lecture day of the week. Calculators are not allowed on quizzes.

Homework: Homework will be assigned for every lecture. On specified weeks, instead of a quiz the instructor will collect the homework assigned in the previous week. Two (2) problems on the homework will be graded using the same rubric as quizzes. Students will not be told which problems are grades, so they are encouraged to complete every homework problem and seek help on difficulties they may have. Sufficient work MUST be shown on the homework to receive full credit. Just writing down the answers to a homework problem is not enough.

From the combined homework and quiz grades, the lowest two (2) will be dropped when computing the final grade.

Exams: There will be three (3) midterms and a final exam given in the course. All exams will be comprehensive and students should expect to be asked about all material leading up to that exam. The midterms will be taken in-class. No new material will be covered on exam days. No cell phones will be allowed at all at a student's desk during the exam. Calculators will not be allowed on exams. Further instruction will be given on exam days.

Any conflicts of exam dates must be discussed with the instructor at least one full day prior to the exam date with follow-up emails documenting what we discussed. Any exam missed without consulting the instructor beforehand will receive 0 points.

Grading:

Quizzes & Homework	100 Points
Exams	100 Points Each
Final Exam	150 Points
Total	550 Points

In general,

Grade	A	B	C	D	F
Points	495 and up	$440 - 494$	$385 - 439$	$330 - 384$	Below 330

Written Style: Student should practice and use good style when answering problems. That means that any answer which requires an explanation should be written in complete sentences, all mathematical notation should be consistent and make sense, and anybody reading the solutions for the first time (namely, the grader) should have no confusion as to both the final answer and the work involved to get there. For example, "$1 + 1 = 2$" is a complete sentence. It has a subject $(1 + 1)$, a verb $(=)$ and an object (2).

Academic Integrity: Students should be aware of the Code of Academic Conduct and know the consequences should the code be violated. The document can be found at *www.cod.edu/dept/boardpolicy/5050pr.doc*. Violations of academic integrity will result in a score of 0 for that assignment with further punishments possible.

Attendance Policy: While in class, students should be respectful of other students as well as the instructor. Students should not distract others with their computers or cell phones. Any distractible cell phone use should be done outside the classroom. All communication between instructor and students will be conducted either through Blackboard or via a COD email account. Make sure you check your COD email regularly.

Students are expected to attend every class and to understand material for classes they miss. Quizzes CANNOT be made up. NO exam will be given after the exam day. If the student has a valid excuse with a valid written note explaining the emergency (at the instructor's discretion) for missing an exam, then a grade on a future exam may count towards the missed exam as well or a different make-up exam will be administered. This is not an ideal situation and should be avoided. If a student has a valid excuse but does not maintain adequate communication (email/in-person conversations) to make a plan to recoup the missed points, then they will forfeit the missed points. Do not miss class!

This course is participating in the Early Alert system. If your progress in this course falls below course expectations, you may be referred to a counselor (in Counseling and Advising Services) to discuss how you can improve your performance in this course. If you are contacted by a counselor during the term, please make an appointment immediately.

Center for Access and Accommodations: Students who require any type of special accommodations for access and participation in this course must be registered with the Center for Access and Accommodations, SSC 3249.

Tentative Course Calendar

Monday	Tuesday	Wednesday	Thursday	Friday
Aug 21st	22nd Introduction, Precalculus Review, Cartesian Coordinates & Lines: §1.1-1.4	23rd	24th Functions, Graphs, Algebra of Functions: §2.1-2.2	25th
28th	29th Function Types, Limits: §2.3-2.4	30th	31st One-Sided Limits and Continuity, §2.5 Q	Sep 1st
4th Labor Day No Classes	5th The Derivative and Rules of Differentiation: §2.6, §3.1	6th	7th Product, Quotient, and Chain Rules: §3.2-3.3 HW	8th
11th	12th Derivatives in Economics, Higher Derivatives: §3.4-3.5	13th	14th **Exam 1**: §1.1-1.4, §2.1-2.6, §3.1-3.5	15th
18th	19th Implicit Differentiation and Related Rates: §3.6	20th	21st Differentials, Applications of First Derivative: §3.7, §4.1 Q	22nd
25th	26th Application of Second Derivative: §4.2	27th	28th Curve Sketching: §4.3 Q	29th
Oct 2nd	3rd Optimization: §4.4-4.5	4th	5th Exponential and Logarithmic Functions: §5.1-5.2 Q	6th
9th	10th Derivatives of Exponential and Log Functions: §5.4-5.5	11th	12th Compound Interest, Exponential Models: §5.3, §5.6 Q	13th

Monday	Tuesday	Wednesday	Thursday	Friday
16th	17th In-Service Day No Classes	18th	19th **Exam 2**: §3.6-3.7, §4.1-4.5, §5.1-5.6	20th
23rd	24th Antiderivatives and Rules of Integration: §6.1	25th	26th Integration by Substitution: §6.2 HW	27th
30th	31st Area and the Definite Integral: §6.3	Nov 1st	2nd FTC, Evaluating Definite Integrals: §6.4-6.5 Q	3rd
6th	7th Area Between Curves: §6.6	8th	9th Class Cancelled: Read §6.7	10th
13th *Last Day to Withdraw!!*	14th Integral Applications, Integration by Parts: §6.7, §7.1 Q	15th	16th Improper Integrals: §7.4 Q	17th
20th	21st Functions of Several Variables, Partial Derivatives: §8.1-8.2 HW	22nd Thanksgiving Break No Classes	23rd Thanksgiving Break No Classes	24th Thanksgiving Break No Classes
27th	28th Multivariable Maxima and Minima: §8.3, §8.5	29th	30th Constrained Maxima and Minima: §8.5 Q	Dec 1st
4th	5th **Exam 3:** §6.1-6.7, §7.1, §7.4, §8.1-8.3, §8.5	6th	7th Least Squares, Exam Review: §8.4	8th
11th	12th **Final Exam 10AM - 11:50AM BIC 1H08**	13th	14th	15th