

Lamar University

Department of Mathematics

MATH 1325-XX Calculus for Business Applications (3 hour course)

Term Syllabus

Days and Times

Instructor: Instructor
Office: Office, Building
Phone: 409-880-XXXX
Office Hours: Days and Times
Other times by appointment?
Text: Applied Calculus for the Managerial, Life, and Social Sciences: A Brief Approach, Tan, 9th edition, **Required?**
Prerequisites: C or better in MATH 1314 or its equivalent. This course prepares for: MATH 2305, 2413.

Catalog Description: An introduction to calculus. The derivative, applications of the derivative, techniques of differentiation, exponential and natural logarithmic functions, an introduction to integral calculus.

MATH 1325 Learning Outcomes:

1. Apply the definition of limits to derivatives and integrals.
2. Use various differentiation techniques, especially the product, quotient, and chain rules, and apply them to marginal functions.
3. Work with concepts of functions, with special regard to the first and second derivative, graphs of functions, and how these connections are used in optimization.
4. Understand the relationship between exponential and logarithmic functions, how to differentiate them, and how they are used in mathematical modeling.
5. Use a number of integration techniques.

Lectures/Discussions: Please see the attached list of text sections, topics, and problems.

Core Curriculum Outcomes: Upon completion of this course, the student will demonstrate his or her abilities to think critically, communicate quantitative information, and apply mathematical concepts:

1. **Critical Thinking:** Develop a logical, consistent plan to solve a problem, recognize consequences of the solution, and articulate a reason for choosing solution method.
2. **Communication Skills:** Use and present quantitative information in connection with an argument or problem solution and explicate it in an effective format.
3. **Empirical and Quantitative:** Construct and present a detailed problem statement with evidence of relevant contextual factors and possible approaches for solving the problem, then implement a solution and review the results.

Major Course Components: Briefly describe each major course requirement, including major assignments and tests. Are there any required or recommended readings?

Grading Policies: Attendance is required and a record will be kept. Students are warned that failure to attend for the full class period may result in a lower than expected grade. The final grade will be computed using total points earned divided by total points available. Points will be available for tests, quizzes, and homework. There will be no makeup tests or quizzes and late work will not be accepted for credit. Grades will be assigned according to the following scale: 90% to 100% - A, 80% to 89% - B, 70% to 79% - C, 60% to 69% - D, below 60% - F.

Final Exam: Date, Day, Time and Exemption Policy (if any)

General Information:

Lamar University expressly prohibits intimidation and harassment of students, faculty, staff, or applicants. <http://dept.lamar.edu/studentaffairs/handbook.htm>

Lamar University expects all students to engage in academic pursuits in a manner that is above reproach. Students are expected to maintain complete honesty and integrity in their academic experiences both in and out of the classroom. Any student found guilty of dishonesty in any phase of academic work will be subject to disciplinary action. <http://dept.lamar.edu/studentaffairs/handbook.htm>

Any student with disabilities, who needs reasonable modifications to complete assignments successfully, is encouraged to meet with me as early in the term as possible to identify and plan specific accommodations. The student will be asked to provide an accommodation memorandum from the Office of Services for Students with Disabilities. Web: <http://dept.lamar.edu/sfswd/> Telephone: 409-880-8026 Location: Communication Building, Rm.105, P.O. Box 10087, Beaumont, TX 77710 Director: Callie Trahan

You will have an opportunity to evaluate all aspect of this course in a formal process to be completed online near the end of the term.

While I have made a sincere effort to ensure that this syllabus is correct, changes may be required. I will announce any substantive changes during a regularly scheduled class. If you find an error or omission, please advise me at once so that the other members of the class may be advised.

NOTE: The sections in red are completed or corrected by individual instructors.

Math 1325

Applied Calculus by Tan 9th edition

<u>Assn.</u>	<u>Section</u>	<u>Topic</u>	<u>Page/Problems</u>
0	1.1	Precalculus Review	13/1-67 odd
	1.2		23/1-63 odd
	1.3		30/1-49 odd
1	2.1	Functions and Graphs	57/1, 5, 9, 13, 15, 17, 21, 25, 29, 31, 39, 43, 47
2	2.2	Algebra of Functions	72/1, 5, 11, 17, 21, 27, 33, 43
3	2.3	Math Models	85/1, 3, 5, 7, 11, 15, 19
4	2.4	Limits	111/1-8, 11, 13, 15, 17, 27, 33, 47, 51, 55, 59
5	2.5	Limits and Continuity	126/1-8, 11, 19, 27, 33, 43, 51
6	2.6	The Derivative	145/5, 9, 13, 15, 21, 27
7	3.1	Rules of Differentiation	164/1, 3, 5, 11, 15, 19, 23, 29, 31, 37, 39
8	3.2	Product and Quotient Rules	177/1, 5, 11, 15, 23, 29, 35, 37
9	3.3	The Chain Rule	189/1, 9, 19, 21, 23, 25, 29, 35, 43, 49, 51
10	3.4	Marginal Functions	205/1, 3, 6, 9, 11, 29
11	3.5	Higher Order Derivatives	213/1, 5, 11, 17, 23, 29, 31
	3.6	Implicit Differentiation	225/1, 7, 11, 17, 23, 29, 31
12	3.6	Related Rates	26/39-47 odd, 50, 54
	3.7	Differentials	235/1, 5, 9, 13, 17, 19, 23, 29
13	4.1	First Derivative	257/1, 5, 11, 23, 33, 43, 47, 61, 67
14	4.2	Second Derivative	276/1, 5, 13, 17, 21, 25, 29, 33
15/16	4.3	Curve Sketching	292/1, 5, 9, 13, 17, 23, 27, 41
17	4.4	Optimization I	306/1, 5, 9, 13, 17, 23, 27, 35
18	4.5	Optimization II	319/1, 3, 5, 9, 12, 14, 23
19	5.1	Exponential Functions	334/1, 5, 9, 13, 17, 21, 25, 29
20	5.2	Logarithmic Functions	343/1, 5, 9, 13, 17, 21, 27, 31, 33, 37, 41
21	5.4	Dif. Of Exponential Functions	365/1, 9, 13, 17, 21, 27, 29, 33
22	5.5	Dif. Of Logarithmic Functions	377/1, 5, 9, 17, 21, 29, 35, 37, 40, 43, 44, 47
23	5.6	Exp. Functions as Math Models	387/1, 3, 4, 7, 11, 12
24	6.1	Antiderivatives & Int.	406/1, 7, 9, 11, 13, 15, 21, 25, 29, 33, 35, 37, 41, 45, 49, 51, 57
25	6.2	Int. by Substitution	418/1, 5, 9, 13, 17, 21, 27, 29, 35, 39, 51, 53
26	6.3	Area & Define Integral	428/1, 5, 13
	6.4	Fund. Theorem of Calc.	439/3, 7, 11, 15, 19, 23, 29, 37
27	6.5	Eval. Definite Integral	449/1, 5, 9, 13, 15, 21, 23, 31, 35
28	6.6	Area Between Two Curves	460/1-9, 13, 15, 19, 23, 29, 37
29	7.1	Integration by Parts	490/1, 5, 9, 13, 15, 19, 27, 29
30	7.3	Numerical Integration	510/1, 5, 9, 13, 15, 19, 23
31	7.4	Improper Integrals	520/1, 5, 9, 13, 17, 21, 25, 37