Math 217 — Business Calculus

Summer 2017

Instructor Information

Instructor:	Ben Salisbury, Assistant Professor
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Office:	Pearce 206H
Office Hours:	after class 11:30am-12:30pm

Course Information

Meeting Times:	MTWR 9–11:20am in Pearce 227
Course Text:	*Applied Calculus for Business, Management, Life and the Social Sciences*, custom sixth edition for Central Michigan University, by S. Waner and S. R. Costenoble

Description: Differentiation and integration of algebraic, exponential, and logarithmic functions, applications of differentiation and integration, partial derivatives. This amounts to Chapters 0–2, 9–14, and some of 15 in the course text.

Expectations: You are expected to work *very, very hard!* Mathematics is a challenging subject which is best learned through practice, practice, and more practice. You are expected to read the material to be covered in class *ahead of time* so you will be better equipped to ask and answer questions during the lecture. My lectures should serve as a guide and additional explanation, as well as a venue to ask questions and receive evaluation, as *you* learn the material. Additionally, homework exercises and practice, which are addressed below, may be even more beneficial if attempted after the first reading of the corresponding section but before the class in which they are covered. This way you have an opportunity to think about the problems ahead of time and form any coherent and well-thought-out questions to be asked during class. In my experience, one of the aspects that students struggle with most, in general, is how to form the question to which they need answering.

Suggestion: Given the difficulty of the topics being presented throughout this semester, I cannot stress how important it is not to let yourself fall behind. If at any point you feel that you are not understanding the material as well as you should, then you need to formulate thoughtful questions to be asked during class that address

your difficulties or, perhaps better, visit me during office hours or visit the Mathematics Assistance Center (MAC). (Details on the MAC for this semester will be given to you separately.) You are urged to take advantage of the MAC and office hours as often as you need!!

Course Outline

Date	Section	Title
5/15	2.1	Simple Interest
	2.2	Compound Interest
	2.3	Annuities, Loans, and Bonds
5/16	9.1	Quadratic Functions and Models
	9.2	Exponential Functions and Models
5/17	9.3	Logarithmic Functions and Models
	9.4	Logistic Functions and Models
5/18	10.1	Limits: Numerical and Graphical Viewpoints
	10.2	Limits and Continuity
5/22	10.3	Limits and Continuity: Algebraic Viewpoint
	10.4	Average Rate of Change
5/23	10.5	Derivatives: Numerical and Graphical Viewpoints
	10.6	Derivatives: Algebraic Viewpoint
5/24	Catch-up and review	
5/25	Review and **Exam 1**	
5/30	11.1	Derivatives of Powers, Sums, and Constant Multiples
	11.2	A First Application: Marginal Analysis
5/31	11.3	The Product and Quotient Rules
	11.4	The Chain Rule
6/1	11.5	Derivatives of Logarithmic and Exponential Functions
	11.6	Implicit Differentiation
6/2	12.1	Maxima and Minima
	12.2	Applications of Maxima and Minima
6/5	12.3	Higher Order Derivatives: Acceleration and Concavity
	12.4	Analyzing Graphs
6/6	12.5	Related Rates
	12.6	Elasticity

6/7	Catch-up and review	
6/8	Review and **Exam 2**	
6/12	13.1	The Indefinite Integral
	13.2	Substitution
6/13	13.3	The Definite Integral: Numerical and Graphical Viewpoints
	13.4	The Definite Integral: Algebraic Viewpoint and the Fundamental Theorem of Calculus
6/14	14.1	Integration by Parts
	14.2	Area between Two Curves and Applications
6/15	14.3	Averages and Moving Averages
	14.4	Applications to Business and Economics: Consumers' and Producers' Surplus and Continuous Income Streams
6/19	14.5	Improper Integrals and Applications
	14.6	Differential Equations
6/20	15.1	Functions of Several Variables from the Numerical, Algebraic, and Graphical Viewpoints
	15.2	Partial Derivatives
	15.3	Maxima and Minima
6/21	Catch-up and review	
6/22	Review and **Final Exam**	

Homework, Quizzes, and Exams

Homework. Homework will be completed online through WebAssign. There will be a handful of questions based on the questions given in the course text. Assignments will be given at the end of every class day and due by the start of the next class day.

Quizzes. There will be a quiz at the beginning of each class period. The quizzes will have one question, which will be taken exactly from the homework questions already completed.

Exams. Exams will reflect the material covered in class and practiced on the homework and quizzes.

Grading Breakdown

Homework	Daily	20%
Quizzes	Daily	20%
Exam 1	Thursday, May 25	20%
Exam 2	Thursday, June 8	20%
Final Exam	Thursday, June 22, 9–11:20am	20%

Important: There are no make-ups for quizzes nor exams. In the event of an extreme emergency, an exception to this policy may be made. However, this exception is at the discretion of the instructor.

Additional Notes

- No attendance will be taken in class *but* you are responsible for knowing the material, assignments, and anything else presented and announced in class. While attendance in class is (theoretically) optional, be advised that your grade will most assuredly suffer from repeated absence from the lectures.

- Calculators are allowed, and your particular choice of calculator brand and model is up to you. However, be aware that all work must be shown on homework, quizzes, and exams in order to receive full credit. Please also know that I am aware that there exist calculators in which entire collections of notes may be stored and retrieved upon command, which may not be used on quizzes nor exams. Moreover, you may not use an app on a cell phone, iPod, or any device which transmits or takes photographs. Violation of this calculator policy is a violation of the CMU Academic Integrity policy and will be dealt with accordingly.

- The *Mathematics Assistance Center* offers students free tutoring for our course. For information, please call (989) 774-2290, email `MathAC@cmich.edu`, or go to

  `https://www.cmich.edu/colleges/cst/math/Pages/Mathematics-Assistance-Center.aspx`.

- Blackboard will be incorporated to some extent in this course. If you have an technical issue related to Blackboard, please contact the OIT Help Desk at (989) 774-3662, `http://helpdesk.cmich.edu`, or `helpdesk@cmich.edu`.

- The last day to drop the class with a refund is May 16. The deadline for withdrawing from a full session class with an automatic "W" is June, 2, at 11:59pm. You can find a more detailed semester calendar at

  `https://www.cmich.edu/ess/registrar/RegistrarCalendars/Pages/default.aspx`.

- CMU provides students with disabilities reasonable accommodation to participate in educational programs, activities, or services. Students with disabilities requiring accommodation to participate in class activities or meet course requirements should first register with the office of Student Disability Services (120 Park Library, telephone: 989-774-3018, TDD 989-774-2568), and then contact me as soon as possible.