MTH 131: Mathematical Analysis for Management, Fall 2017, Section T7A.

Instructor: Adam Cunningham
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Lecture: Monday-Wednesday 7:00-8:40 pm
Location: Clemens Hall 06
Office hours: Tuesday-Thursday 3:00-4:30 pm

Course Description

For students in Management. Limits, continuity, differentiation of algebraic and exponential functions. Applications, partial derivatives and applications. Introduces integration.

Prerequisities: NYS Regents Course B, or ULC 148, or MTH 115.

Course Materials

Textbook: R. Barnett, M. Ziegler, K. Byleen. *Calculus for Business, Economics, Life Sciences, and Social Sciences*. Third Custom Edition for University at Buffalo.

UBlearns: The course page on UBlearns will be used for posting grades.

MyMathLab: Follow these instructions to register for MyMathLab.

Website: `http://www.acsu.buffalo.edu/~adamcunn/fall2017/MTH131T7A.html`

Course Requirements

Class participation: Aspects include attending class, and asking and answering questions in class.

Homework: Homework assignments will be submitted every week via MyMathLab. The submission deadline will usually be 9:00 am on a Wednesday.

Grading Policy

Course grades: will be determined with the weightings:

Homework assignments	40%
Three midterm exams	20% each

Incompletes: Incompletes will be given only under extraordinary circumstances (such as surgery during the last week of class).

Expectations for this class

Attendance: You are expected to attend every class. If you miss a class you are responsible for getting the lecture notes and any other in-class information or materials from a classmate.

Cell phone policy: Absolutely no non-class-related computer or cell phone use during class. This includes texting, Facebook, emailing. If I see you on your cell phone during lecture I reserve the right to remove **a minimum of 1 percentage point** from your final course grade for each incident count. This is left up to the discretion of the instructor and is a non-negotiable policy.

Academic honesty: Students are expected to adhere to the university policy on academic honesty. Cheating or misrepresentation of your work will result in formal charges.

How to succeed: Sustained steady effort, starting from day one. Make full use of the resources available to you: the textbook, MyMathLab, Math Help Center, and each other. See me in office

hours, email me, or make an appointment to see me at some other time. Start homework assignments early - they often take more time than anticipated.

Other

Important dates:

Tuesday 5th September: Last day to drop the course - no record appears on transcript.

Friday 10th November: Last day to resign from the course - an R appears on the transcript.

Students with disabilities: If you have a diagnosed disability (physical, learning or psychological) which will make it difficult for you to carry out the course work as outlined, or requires accommodations such as recruiting note takers, readers or extended time on examinations, please advise me during the first two weeks of the course so that we may review possible arrangements for reasonable accommodations.

Student Learning Outcomes

Assessment measures: weekly homework assignments, 3 midterm exams.

At the end of this course, students will be able to:	Assessment
- recognize polynomial, rational, exponential and logarithmic functions, understand their basic properties and know how to evaluate them.	Midterm 1 HW 1-2
- compute limits of algebraic functions graphically, numerically, and algebraically.	Midterm 1 HW 3
- interpret the derivative graphically and as a rate of change in business applications. - demonstrate the understanding of the derivative in marginal function analysis by finding marginal cost, marginal revenue, and marginal profit at different rates of production.	Midterm 1 HW 4
- compute the first and higher order derivatives of basic algebra, exponential, and logarithmic functions using derivative rules, including the chain rule and implicit differentiation.	Midterm 2 HW 5-6
- use limits and derivatives to construct, analyze, and interpret the graph of a function.	Midterm 2 HW 7
- use derivatives to analyze and solve optimization problems, for instance optimizing cost, revenue and profit in business applications.	Midterm 2 HW 8
- compute partial derivatives of functions of more than one variable, and interpret these in economic applications. - solve basic optimization problems for functions of two variables using the second derivative test.	Midterm 3 HW 9
- compute indefinite and definite integrals of functions using anti-derivative rules and the fundamental theorem of calculus. - compute indefinite integrals using integration techniques including substitution, tables, and integration by parts. - represent area as a definite integral and interpret the results in business applications.	Midterm 3 HW 10-12

Class Schedule

Week	Monday	Wednesday
1	Functions Graphs and transformations	Linear and quadratic functions Polynomial and rational functions
2	Labor Day - no classes	Exponential functions Logarithmic functions
3	Introduction to limits	Infinite limits and limits at infinity Continuity
4	The derivative Basic differentiation properties	Differentials Marginal analysis
5	*Review*	**Midterm Exam 1**
6	The constant "e"/continuous compounding Derivatives of exponential and logarithmic functions	The product and quotient rules
7	The chain rule Implicit differentiation	Related rates Elasticity of demand
8	First derivatives and graphs	Second derivatives and graphs
9	L'Hôpital's Rule Curve sketching using derivatives	Absolute maxima and minima Optimization
10	*Review*	**Midterm Exam 2**
11	Functions of several variables Partial derivatives	Maxima and minima Lagrange multipliers
12	Antiderivatives and indefinite integrals Integration by substitution	Differential equations
13	Definite integrals The Fundamental Theorem of Calculus	Thanksgiving - no classes
14	Areas between curves Applications of definite integrals	Integration by parts Other integration methods
15	*Review*	**Midterm Exam 3**