

SYLLABUS

Course:

MATH 1810

Instructor:

Text:

Title: CALCULUS, 9TH Ed.

Author: Hoffman and Bradley

Publisher: McGraw Hill

Course Description:

This course will cover functions-their limits, derivatives and definite integrals. Receiving greatest emphasis will be the calculation of derivatives and their application.

Grading Standards and Course Policies:

Attendance is important. Arrangements for making up missed homework or missed exams are the responsibility of the student and should be made IN ADVANCE.

Important Information:

1. Last day to drop without a grade –
2. Last day to drop with a “W” –
3. A grade of “I” will be given only in accordance with University policy.
4. If you have a disability that may require assistance or accommodation or you have questions related to any accommodations for testing, note takers, readers, etc., please speak with me as soon as possible. Students may also contact the Office of Disabled Student Services (898-2783) with questions about such services.

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PREREQUISITES: (1) Two years of high school algebra AND a math enhanced ACT score greater than 25 OR (2) Math 1710.
Note: Math for Managerial, Social and Life Science minors should take MATH 1910, Calculus I instead since Applied Calculus II (Math 1820) is no longer offered.

PURPOSE: This course is designed to build on a solid background in algebra. It introduces the notion of the limit of a function and applies the idea to a definition of the derivative and integral. Methods of finding and applying the derivative are explored sufficiently to provide a solid background for further study in the fields of economics, aerospace, engineering technology and computer science.

LEARNING OUTCOMES: Specifically, this course is designed to provide:

- (a) A clear understanding of functions (especially polynomial, exponential and logarithmic), their definition, modes of representation and the relationship among their one sided limits, limits, continuity and differentiability.
- (b) The ability to calculate the derivative of a function utilizing (i) its definition, (ii) formulas derived from the definition of the derivative, and (iii) previously known derivatives of component functions.
- (c) The ability to apply derivatives to the approximation of function values, to curve sketching (including increasing-decreasing behavior, optimization, concavity and inflection points) and to solving problems modeled by functions.
- (d) A clear understanding of the definite integral-its definition, calculation and application using antiderivatives and the Fundamental Theorem of Calculus.

REQUIREMENTS: Daily class attendance and participation. Reading of assigned material and completion of homework problems. Writing hour exams (3-5, depending on the instructor). Writing the Semester Exam.

ATTENDANCE POLICY:

LOTTERY STATEMENT:

To retain Tennessee Education Lottery Scholarship eligibility, you must earn a cumulative TELS GPA of 2.75 after 24 attempted hours and a cumulative TELS GPA of 3.0 thereafter. A grade of C, D, F, or I in this class may negatively impact TELS eligibility. Dropping a class after 14 days may also impact eligibility. If you withdraw from this class and it results in an enrollment status of less than full time, you may lose eligibility for your lottery scholarship. For additional lottery scholarship rules please refer to your Lottery Statement of Understanding form, review lottery scholarship requirements on the web at <http://scholarships.web.mtsu.edu/telsconteligibility.htm>, or contact the MTSU financial aid office at 898-2830.

TOPICAL OUTLINE:

- I Functions
 - (a) Definition
 - (b) Modes of Representation (numerical, graphical and symbolic)
 - (c) Special Functions (polynomial, exponential, logarithmic)
 - (d) Use as Models

- II Limits of Functions
 - (a) Definition
 - (b) Relationship to Continuity and Differentiability

- III Derivatives
 - (a) Definition
 - (b) Calculation from Formulas
 - 1. Polynomial Functions
 - 2. Product and Quotient Rules
 - 3. Chain Rule
 - a. Application to Marginal Analysis
 - b. Application to Implicit Differentiation and Related Rates
 - 4. Exponential and Logarithmic Functions

- IV Applications of Derivatives to Curve Sketching
 - (a) 1st Derivative
 - 1. Increasing-Decreasing Behavior
 - 2. Optimization
 - (b) 2nd Derivative
 - 1. Concavity
 - 2. Inflection Points
 - 3. Optimization

- V Definite Integral
 - (a) Definition
 - (b) Techniques of Antidifferentiation
 - (c) Fundamental Theorem of Calculus
 - (d) Applications
 - 1. Area between two curves
 - 2. Business and Economic Related Models

Math Tutoring Lab (MTL): Tutoring in rooms KOM 204 and 252 is available as free service to MTSU students. Tutoring is conducted by Graduate Teaching Assistants (GTA's), work study aids, and a faculty coordinator. The MTL will open on Tuesday, January 22, and close on Thursday, April 24. Hours of operation are 9:00 am to 4:30 PM, M-R, and 9:00 am to 3:00 PM on Friday. The MTL is closed on weekends and MTSU scheduled holidays. Days and times for tutoring specific topics are posted outside MTL classroom (252). KOM 204 provides tutoring support for courses 1010, 1410, 1420, 1530, 1630 and 1710. KOM 252 provides support for precalculus and calculus courses 1730, 1810, 1820, 1910, and 1920.

TENTATIVE AGENDA
MATH 1810

Week #	Meeting #	Date	Activity
	1		Sec. 1.1
	2		Sec. 1.2
	3		Sec. 1.3
	4		Sec. 1.4
	5		Sec. 1.5
	6		Sec. 1.5
	7		Sec. 1.6
	8		Sec. 2.1
	9		Sec. 2.2
	10		Sec. 2.3
	11		Sec. 2.4
	12		Review
	13		Test #1
	14		Sec. 2.5
	15		Sec. 2.6
	16		Sec. 2.6
	17		Sec. 3.1
	18		Sec. 3.2
	19		Sec. 3.3
	20		Sec. 3.4
	21		Sec. 3.5
	22		Sec. 3.5
	23		Review
	24		Test #2
	25		Sec. 4.1
	26		Sec. 4.2
	27		Sec. 4.3
	28		Sec. 4.4
	29		Sec. 5.1
	30		Sec. 5.2
	31		Sec. 5.3
	32		Sec. 5.4
	33		Sec. 5.4
	34		Sec. 5.5
	35		Review
	36		Test #3
	37		Sec. 5.6 (Optional)
	38		Sec. 6.1 (Optional)
	39		Review
	40		Review

FINAL EXAM IS