

Text: *Calculus with Applications*, 9th edition by Lial, Greenwell and Ritchey.

1. Review of Functions and Graphs
 - a. Algebraic Functions
 - i. Polynomials including Linear and Quadratic Functions
 - ii. Rational Functions and Asymptotes
 - b. Exponential and Logarithmic Functions

 2. Limits and Derivatives
 - a. Informal Introduction to Limits
 - b. Continuity
 - c. Definitions of the Derivative, using Limits
 - d. The Tangent Line and its Relation to the Graph of a Function

 3. Formulas for Computing Derivatives
 - a. The Differentiation Rules for Power Functions, Exponential and Logarithm Functions
 - b. The Sum, Difference and Constant Multiplier Rules and Polynomials
 - c. The Product, Quotient and Reciprocal Rules and Rational Functions
 - d. The Chain Rule and its Special Cases (to Power, Exponential and Logarithm Functions)

 4. Applications of Derivatives
 - a. Geometric Applications
 - i. Sign of the Derivative and its Significance to the Graph
 - ii. Local Extrema
 - iii. Sign of the Second Derivative and its Significance
 - iv. Inflection Points
 - b. Other (Applied) Applications
 - c. Miscellaneous Applications
 - i. Related Rates
 - ii. Differentials
 - iii. Implicit Differentiation

 5. Introduction to Integration
 - a. The Integral as an Anti-Derivative
 - b. The Integral as an Area Under a Curve and the Fundamental Theorem
 - c. Integration by the Substitution Technique
 - d. Applications of Integration
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Sample – Math M119 – Brief Survey of Calculus, Fall 2008

10:00am - 11:15am, Monday and Wednesday, NS 105

Prerequisite: C- or better in MATH-M115, or C- or better in MATH-M125, or Level 5 on the Mathematics Placement Examination.

Instructor: Dr. Yu Song, NS 319, 520-4299, yusong@iusb.edu, <http://mypage.iusb.edu/~yusong>

Office hours: MWR: 8:30 – 9:50, MTWR: 11:20 – 12:00, other times by appointment.

Grading: Your work is evaluated and weighted as shown for the final grade.

Quizzes 1-10:	20%	20 points each, 200 total
Exams 1-3:	45%	150 points each, 450 total
Final:	30%	300 points
Attendance, participation and effort:	5%	50 points
TOTAL:	100%	1000 points. Grading scale as below

A: 90% (900-1000), B: 80% (800 – 900), C: 70% (700 – 800), D: 60% (600 – 700.)

Pluses and Minuses will be used at the high and low end of each range.

Text & Calculator: *Calculus with Applications*, 9th edition by Lial, Greenwell and Ritchey (Student Solutions Manual recommended.) A graphing calculator, such as the TI-83, may be useful for the course, and will be allowed on all quizzes/exams. A web calculator tutorial at <http://mypage.iusb.edu/~pbeem/Tutorials/TI-83Tutorials.html> is available and very helpful. More powerful calculators and/or computers with "symbolic" capabilities, such as the TI-89, TI-92 or certain HP calculators, will not be allowed.

Reading & Homework: You should read the section(s) indicated on the syllabus before the class in which the corresponding topics are discussed. We will make appropriate adjustments if we deviate from the syllabus. Homework is assigned every class. You should do all the problems because most quiz problems are selected from homework assignments. Questions on the assignments will be answered at beginning of each class, but if you have a lot of questions about the homework, you should seek help outside of class, either from me, fellow classmates, the free math tutors located in NS 310-312, or your own personal tutor. Study groups are strongly encouraged. Talk to me first if you are discouraged and struggling.

Quizzes & Exams: Missed quizzes and exams cannot be made up without adequate justification for the absence. If you know in advance that you have a conflict, you must tell me before the exam (or quiz). Please email or call.

Attendance, participation and effort: Attendance will affect your grade. If you miss a class, make sure you get homework assignment from me or your classmates. Email communication with me is encouraged.

Disabilities Statement: Any student who feels that an accommodation may be needed based on the impact of a disability should contact Disability Support Services at 520-4832 in office 120 of the Administration Building. Staff will work to coordinate reasonable accommodations for students with documented disabilities. If you need adaptations or accommodations because of a disability, if you have emergency medical information to share with me, or if you need special arrangements in case the building must be evacuated, please make an appointment with me as soon as possible.

Week	Dates	Text Sections	Test and quizzes
1	08/25, 08/27	2.1 - 2.5 (review)	H1
2	09/03	3.1, 3.2	Q1
3	09/08, 09/10	3.2, 3.3, 3.4	Q2
4	09/15, 09/17	3.5, 4.1, 4.2	Q3
5	09/22, 09/24	4.2	Exam1
6	09/29, 10/01	4.3, 4.4	Q4
7	10/06, 10/08	4.5, 5.1	Q5
8	10/13, 10/15	5.2 – 5.4	Q6
9	10/20, 10/22	5.4	Exam2
10	10/27, 10/29	6.1, 6.2	Q7
11	11/03, 11/05	6.4, 6.5, 6.6	Q8
12	11/10, 11/12	7.1 – 7.3	Q9

13	11/17, 11/19	7.3	Exam3
14	11/24, 11/26	7.4, 7.5	Q10
15	12/01, 12/03	7.5, Review	Q11 (optional)
Final	Wednesday, December 10, Comprehensive Final Exam		

IMPORTANT NOTE: Friday, October 31, is the last day to withdraw. Ceasing to attend class is not a withdrawal and results in an F. These are hard on the GPA so if withdrawal is necessary, see your advisor and do it right with withdraw form.