

MATH 1413-01: Survey of Calculus

Fall Semester 2016

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Office Hours: Monday, Wednesday, Friday 10-11am and 3-5pm.
If you would like to talk to me but cannot make it during one of these times, please make an appointment

Class Time and Place: Monday, Wednesday and Friday 11:15-12:05pm, Boyd 303

Hours Credit: 3 hours

Prerequisites: MATH 1111 or MATH 1113

Course Description: This course will provide a survey of the differential and integral calculus of polynomial, rational, exponential, and logarithmic functions with an emphasis on applications to problems from business, economics and life sciences.

Text: Bittinger, Ellenbogen and Surgent, *Calculus and Its Applications*, 10th or 11th Edition, Addison Wesley.

Learning Outcomes:

1. The student will be able to compute limits.
2. The student will be able to differentiate polynomial, rational, exponential, and logarithmic functions.
3. The student will be able to apply differential calculus to problems from business, economics, and life science.
4. The student will be able to integrate polynomial, rational, exponential, and logarithmic functions and to apply the Fundamental Theorem of Calculus.
5. The student will be able to apply integral calculus to problems from business, economics, and life science.
6. The student will understand the basic techniques of integration.

Topics: The following sections of the textbook will be covered:
Section

- 1.1 Limits: A Numerical and Graphical Approach
- 1.2 Algebraic Limits and Continuity
- 1.3 Average Rates of Change
- 1.4 Differentiation Using Limits of Difference Quotients
- 1.5 Differentiation Techniques: The Power and Sum-Difference Rules
- 1.6 Differentiation Techniques: The Product and Quotient Rules
- 1.7 The Chain Rule
- 1.8 Higher-Order Derivatives
- 2.1 Using First Derivative to Find Maximum and Minimum Values and Sketch Graphs
- 2.2 Using Second Derivative to Find Maximum and Minimum Values and Sketch Graphs
- 2.4 Using Derivatives to Find Absolute Maximum and Minimum Values
- 2.5 Maximum-Minimum Problems: Business and Economic Applications
- 2.6 Marginals and Differentials
- 2.7 Implicit Differentiation and Related Rates
- 3.1 Exponential Functions
- 3.2 Logarithmic Functions
- 3.6 An Economics Application: Elasticity of Demand
- 4.1 Anti-differentiation
- 4.3 Area and Definite Integrals
- 4.5 Integration Techniques: Substitution
- 5.1 An Economics Application: Consumer Surplus and Producer Surplus

Calculators: You are not allowed to use “**advanced**” calculators such as TI-84 Plus or better in your tests or final exam.

Homework: I will provide you with homework problems that are not to be turned in and graded but that are meant to reflect the sort of questions you can expect in tests and the final exam. I encourage you to use my office hours if you have any questions.

The following problems have been chosen from your textbook. You are encouraged to look at these problems as well. Most of these problems are similar to the homework problems.

Section	Problems
1.1	1-4, 11-44, 61-68
1.2	9-21, 31-41, 47, 48, 53-72
1.3	1-6, 9-14, 17-34
1.4	1-14, 17-22, 25-28, 35, 37

1.5	1-89
1.6	1-6, 13-15, 21-37, 101-107
1.7	1-60, 71-84
1.8	1-22, 25-35, 37-44
2.1	1-20, 69-84
2.2	1-23, 47-56, 103-106
2.4	3-27, 49-54, 97-104
2.5	1-2, 5-10, 17, 18, 23-44
2.6	1-22, 24-26
2.7	1-24, 31-38
3.1	11-51, 55-60, 81-86
3.2	49-85
3.6	1-4, 13-16
4.1	1-46, 59-66
4.3	1-14, 25-32, 43-56, 59-66
4.5	1-24, 43-50, 62-64
5.1	1-10

Attendance: If you miss a class, you are responsible for obtaining any information that you missed. If you miss a test or an exam, you must have a *university-approved excuse* and you must **make arrangements with me in advance** in order to take a make-up test/exam. If you miss four classes or more without a *university-approved excuse*, you may get an F in this course.

Tests: There will be 3 class tests. Each will be worth 25% toward your final grade.

Test 1: Wednesday September 7, 2016

Test 2: Wednesday October 5, 2016

Test 3: Wednesday November 2, 2016

The dates for tests are subject to change.

Final exam: The final exam will be on Friday, December 9, 11-1pm. The final exam is worth 25%.

Grading Scale: A: 90-100%, B: 80-89%, C: 70-79%, D: 60-69%, F: 0-59%.

Grading: Your final grade will be determined as follows: Test One: 25%, Test Two: 25%, Test 3: 25% and Final exam: 25%.

ACADEMIC DISHONESTY

Academic dishonesty is NOT tolerated. It will result in failure on assignment(s) as well as possible disciplinary sanction(s) as stipulated by university rules. The University of West Georgia Student Conduct Code defines academic dishonesty as cheating, fabrication, plagiarism, and facilitating or allowing academic dishonesty in any academic exercise.

Cheating: Using or attempting to use unauthorized materials, information or study aids;

Fabrication: Falsification or unauthorized invention of any information or citation;

Plagiarism: Representing the words or ideas of another as one's own. Direct quotations must be indicated and ideas of another must be appropriately acknowledged.

Academic dishonesty in any form compromises your grade and lowers the quality of your diploma. A fellow student who cheats may actually lower your grade, sometimes causing unfair and inflated grading scales. I hope each of you values your college education enough to protect yourself from dishonest classmates.

Students, please carefully review the following information at this link http://www.westga.edu/assetsDept/vpaa/Common_Language_for_Course_Syllabi.pdf. It contains important material pertaining to your rights and responsibilities in this class. Because these statements are updated as federal, state, university, and accreditation standards change, you should review the information each semester.

COMMON LANGUAGE FOR COURSE SYLLABI

Updated June 30, 2015

Students should review the following information each semester.

ACADEMIC SUPPORT

Accessibility Services: Students with a documented disability may work with UWG Accessibility Services to receive essential services specific to their disability. All entitlements to accommodations are based on documentation and USG Board of Regents standards. If a student needs course adaptations or accommodations because of a disability or chronic illness, or if he/she needs to make special arrangements in case the building must be evacuated, the student should notify his/her instructor in writing and provide a copy of his/her Student Accommodations Report (SAR), which is available only from Accessibility Services. Faculty cannot offer accommodations without timely

receipt of the SAR; further, no retroactive accommodations will be given. For more information, please contact Accessibility Services.

Center for Academic Success: The Center for Academic Success provides services, programs, and opportunities to help all undergraduate students succeed academically. For more information, contact them: 678-839-6280 or cas@westga.edu

University Writing Center: The University Writing Center assists students with all areas of the writing process. For more information, contact them: 678-839-6513 or writing@westga.edu

ONLINE COURSES

UWG takes students' privacy concerns seriously: technology-enhanced and partially and fully online courses use sites and entities beyond UWG and students have the right to know the privacy policies of these entities. For more information on privacy and accessibility for the most commonly used sites, as well as technology requirements visit the UWG Online site.

Students enrolled in online courses can find answers to many of their questions in the Online/Off-Campus Student Guide.

If a student is experiencing distress and needs help, please see the resources available at the UWG Cares site. Online counseling is also available for online students.

HONOR CODE

At the University of West Georgia, we believe that academic and personal integrity are based upon honesty, trust, fairness, respect, and responsibility. Students at West Georgia assume responsibility for upholding the honor code. West Georgia students pledge to refrain from engaging in acts that do not maintain academic and personal integrity. These include, but are not limited to, plagiarism, cheating, fabrication, aid of academic dishonesty, lying, bribery or threats, and stealing.

The University of West Georgia maintains and monitors a confidential Academic Dishonesty Tracking System. This database collects and reports patterns of repeated student violations across all the Colleges, the Ingram Library, and the School of Nursing. Each incidence of academic dishonesty is subject to review and consideration by the instructor, and is subject to a range of academic penalties including, but not limited to, failing the assignment and/or failing the course. Student conduct sanctions range from verbal warning to suspension or expulsion depending on the magnitude of the offense and/or number of offenses. The incident becomes part of the student's conduct record at UWG.

Additionally, the student is responsible for safeguarding his/her computer account. The student's account and network connection are for his/her individual use. A computer account is to be used only by the person to whom it has been issued. The student is responsible for all actions originating through his/her account or network connection. Students must not impersonate others or misrepresent or conceal their identities in

electronic messages and actions. For more information on the University of West Georgia Honor Code, please see the Student Handbook.

UWG EMAIL POLICY

University of West Georgia students are provided a MyUWG e-mail account. The University considers this account to be an official means of communication between the University and the student. The purpose of the official use of the student e-mail account is to provide an effective means of communicating important university related information to UWG.

CREDIT HOUR POLICY

The University of West Georgia grants one semester hour of credit for work equivalent to a minimum of one hour (50 minutes) of in-class or other direct faculty instruction AND two hours of student work outside of class per week for approximately fifteen weeks. For each course, the course syllabus will document the amount of in-class (or other direct faculty instruction) and out-of-class work required to earn the credit hour(s) assigned to the course. Out-of-class work will include all forms of credit-bearing activity, including but not

limited to assignments, readings, observations, and musical practice. Where available, the university grants academic credit for students who verify via competency-based testing, that they have accomplished the learning outcomes associated with a course that would normally meet the requirements outlined above (e.g. AP credit, CLEP, and departmental exams).