

MATH 1413-Online: Survey of Calculus **Spring Semester 2016**

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Online Office Hours: Tuesday and Thursday 3pm-4pm, Wednesday 10:30-11:30am. If you would like to talk to me but cannot make it during one of these times, please make an appointment. I will be on campus on Tuesday and Thursday and will be available between 10am and 11:30am and between 3:00pm and 4:00pm. If you want to see me on campus, just send me an email.

Hours Credit: 3 hours

Class Type: This class is 95% or more online

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 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 midterm exam or final exam.

Homework: I will upload 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 quizzes, tests, midterm exam and the final exam. I encourage you to use my online 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 ones uploaded to CourseDen.

Submission for academic credit of a work product, developed in substantial collaboration with other person or source but represented as one's own effort, is unauthorized. Seeking and providing such assistance is a violation of academic honesty. However collaborative work specifically authorized by an instructor is allowed.

Falsification

It is a violation of academic honesty to misrepresent material or fabricate information in an academic exercise, assignment or proceeding. Some examples of falsification are:

- false or misleading citation of sources
- the falsification of the results of experiments or of computer data
- false or misleading information in an academic context in order to gain an unfair advantage).

Multiple Submissions

It is a violation of academic honesty to submit substantial portions of the same work for credit more than once without the explicit consent of the instructor(s) to whom the material is submitted for additional credit. In cases in which there is a natural development of research or knowledge in a sequence of courses, use of prior work may be desirable, or required. However, the student is responsible for indicating in writing, that the current work submitted for credit is cumulative in nature.

Evidence and Burden of Proof

In determining whether or not academic dishonesty has occurred, guilt must be proven by a preponderance of the evidence. This means that if the evidence that academic dishonesty occurred produces a stronger impression and is more convincing compared to opposing evidence, then academic dishonesty has been proven. In other words, the evidence does not have to be enough to free the mind from a reasonable doubt but must be sufficient to incline a reasonable and impartial mind to one side of the issue rather than to the other. Evidence as used in this statement can be any observation, admission, statement, or document that would either directly or circumstantially indicate that academic dishonesty has occurred. Electronic means may be used to monitor student work for the inappropriate use of the work of others.

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

Makeup Test/Exam: 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.

Participation in Discussions: Every week four questions will be posted to the discussion boards. The questions are not multiple choice questions. Students should post their solutions to the discussion boards. Participation in discussions will be worth 20% toward your final grades.

Quizzes: There will be weekly quizzes (thirteen quizzes all together). Each quiz will be worth 2% toward your final grade. All quizzes are online.

Tests: There will be two online tests. Each will be worth 12%.

Test 1: January 30 – February 1, 2016

Test 2: March 27 – March 29, 2016

Midterm exam: The midterm exam will be **on campus** in ??? on Thursday February 25, 2016 at 2pm. The final exam will be worth 15%.

Final exam: The final exam will be **on campus** in ??? on Thursday April 21, 2016 at 2pm. The final exam will be worth 15%.

The dates for tests and final exam are subject to change.

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: Quizzes: 26%, Test One: 12%, Test Two: 12%, Participation in discussions 20%, Midterm exam: 15% and Final exam: 15%.

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 21, 2013

Students should review the following information each semester, because these statements are updated as federal, state, university, and accreditation standards change.

Americans with Disabilities Act

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.*

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 students in a timely manner. It is the student's responsibility to check his or her email.

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).

University of West Georgia 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.

Academic Honesty

(Acknowledgement is hereby given to Georgia State University on whose policy this is based).

As members of the academic community, all students are expected to recognize and uphold standards of intellectual and academic integrity. The University System of Georgia assumes as a basic and minimum standard of conduct in academic matters that students be honest and that they submit for credit only the products of their own efforts. Both the ideals of scholarship and the need for fairness require that all dishonest work be rejected as a basis for academic credit. They also require that students refrain from any and all forms of dishonorable or unethical conduct related to their academic work.

In an effort to foster an environment of academic integrity and to prevent academic dishonesty, students are expected to discuss with faculty the expectations regarding course assignments and standards of conduct. In addition, students are encouraged to discuss freely with faculty, academic advisers, and other members of the academic community any questions pertaining to the provisions of this policy.

Definitions and Examples

The examples and definitions given below are intended to clarify the standards by which academic honesty and academically honorable conduct are to be judged.

- Plagiarism
- Cheating on examinations
- Unauthorized Collaboration
- Falsification

- Multiple Submissions
- Evidence and Burden of Proof

The list is merely illustrative of the kinds of infractions that may occur, and it is not intended to be exhaustive. Moreover, the definitions and examples suggest conditions under which unacceptable behavior of the indicated types normally occurs. However, there may be unusual cases that fall outside these conditions that also will be judged unacceptable by the academic community.

Plagiarism

Plagiarism is presenting another person's work as one's own. Plagiarism includes any paraphrasing or summarizing of the works of another person without acknowledgment, including the submitting of another student's work as one's own. Plagiarism frequently involves a failure to acknowledge in the text, notes, or footnotes the quotation of the paragraphs, sentences, or even a few phrases written or spoken by someone else.

The submission of research or completed papers or projects by someone else is plagiarism, as is the unacknowledged use of research sources gathered by someone else when that use is specifically forbidden by the instructor. Failure to indicate the extent and nature of one's reliance on other sources is also a form of plagiarism.

Finally, there may be forms of plagiarism that are unique to an individual discipline or course, examples of which should be provided in advance by the instructor. The student is responsible for understanding the legitimate use of sources, the appropriate ways of acknowledging academic, scholarly, or creative indebtedness, and the consequences of violating this responsibility.

Cheating on Examinations

Cheating on examinations involves giving or receiving unauthorized help before, during, or after an examination. Examples of unauthorized help include the use of notes, texts, "crib sheets," websites, electronic documents or notes, and computer programs during an examination (unless specifically approved by the instructor), or sharing information with another student during an examination (unless specifically approved by the instructor). Other examples include intentionally allowing another student to view one's own examination and forbidden collaboration before or after an examination.

Unauthorized Collaboration

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