

Clarendon College

Clarendon, Texas
Spring 2012
Math 2414
Calculus II

Instructor: Linda Rowland
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Classroom Location: Clarendon College Room #101

Time: MWF 8:00 – 8:55
Lab T R 1:00 – 2:20

Office Hours: **MW 9:00-10:00, 6:20 – 7:20**
M 12:30-3:00
T 12:30 – 1:00
W 12:30 – 3:00
TH 12:30-1:00
F 9:00 – 11:00

Course Description: Definite integral and applications, integration techniques, and derivatives, and anti-derivatives of logarithmic, exponential, trigonometric and hyperbolic functions.

Lecture Hours: 3
Laboratory Hours: 1
Semester Hours: 4
Prerequisites: Math 2413

Statement of Purpose:

This course is intended to provide the student with the skills and concepts needed to be successful in his/her study of Calculus and further studies in Mathematics and Science.

Required Instructional Materials:

Textbook: Finney, Ross L, Weir, Maurice D., Giordano, Frank R. Thomas' Calculus, 12th edition. Addison Wesley, 2010.

Materials: Textbook, paper, graph paper, pencil, MathXL and graphing scientific calculator

Methods of Instruction:

1. Answer questions and review any questions from lecture or math lab.
2. Explanation of the concept and skills under consideration.
3. Provide examples on the board with step by step explanation of the operations and principles being applied.
4. Comment when appropriate on the history, importance, and application of specific concepts.
5. Overheads and power point when appropriate.

Course Objectives

At the end of the course the student should be able to:

1. Find the antiderivative .
2. Solve equations using Riemann Sums.
3. Find the average value of an arbitrary continuous function.

4. Graph the trigonometric functions
5. Use the mean Value Theorem for Definite Integrals
6. Find volumes of a solid by slicing and rotating about an axis.
7. Solve real world problems using differentiation.
8. Find the Integrals trigonometric and natural logarithm functions.
9. Use Euler's Method for solving problems.
10. Do basic Integration.
11. Use L'Hopital's Rule for solving integration problems

Exemplary Objectives:

1. To apply higher-order thinking methods to modeling and solving real-world situations.
2. To represent and evaluate higher level mathematical information verbally, numerically, graphically, and symbolically.
3. To expand mathematical reasoning skills and formal logic to develop convincing mathematical arguments .
4. To use appropriate technology to enhance mathematical thinking and understanding and to solve mathematical problems and determine the reasonableness of the results.
5. To interpret mathematical models such as formulas, graphs, tables and schematics, and draw inferences from them.
6. To recognize the limitations of mathematical models and to learn to think out-side-the box.
7. To develop the view that mathematics is an evolving discipline, interrelated with human culture, and understand its connections to other disciplines.

Grading Policies:

Attendance 10%

Homework: 15%

Quizzes 15%

Tests: 25%

Final: 35% Final will be given at the time set by the Dean of Instruction.

A simple average of the above will be used to determine the letter grade for the course based on the following:

90 – 100%	A
80 – 89.9%	B
70 – 79.9%	C
60 – 69.9%	D
60 or below	F

A student's final grade will be made available through the student portal at www.clarendoncollege.edu.

Student Academic Integrity:

Failure to comply with lawful direction of a classroom instructor is a disruption for all students enrolled in the class. Cheating violations include, but are not limited to: (1) obtaining an examination , classroom activity, or laboratory exercise by stealing or collusion; (2) discovering the content of an examination , classroom activity, laboratory exercise, or homework assignment before it is given; (3) using an unauthorized source of information during an examination , classroom activity, laboratory exercise, or homework assignment ; (4) entering an office or building to obtain unfair advantage; (5) taking an examination for another person; (6) completing a classroom activity, laboratory exercise, homework assignment, or research paper for another person; (7) altering grade records; (8) using any unauthorized form of electronic communication device during an examination, classroom activity, or laboratory exercise; (9) Plagiarism. Plagiarism is the using, stating, offering, or reporting as one's own, an idea, expression, or production of another person without proper credit.

Disciplinary actions for cheating in a course are at the discretion of the individual instructor. The instructor of that course will file a report with the Dean of Students when a student is caught cheating in the course, whether it be a workforce or academic course. The report shall include the course, instructor, student's name, and the type of cheating involved. Students who are reported as cheating to the Dean of Students will receive an F for the course.

Classroom Conduct:

I will show you the respect you deserve as a student. I, in return, expect respectful behavior from you.

Disrespectful behavior includes...

- Arriving late.

- **Leaving the room during class time.** Plan restroom visits before or after class—not during class. If special needs exist, please make prior arrangements.
- **Using electronic communication devices.** This includes cell phones, pagers, etc. Cell phones **cannot** be used in place of calculators. These are not allowed during class time. Make arrangements to leave these devices in your vehicle, dorm, someplace other than the classroom. If special needs exist, please make prior arrangements.
- **Sleeping in class.**
- **Talking in class.** Class time is not the time to visit with your fellow classmates. If you do, I will ask you to leave the classroom.
- **Using headphones.** If you do, I will ask you to leave the classroom.
- **Use of profane or inappropriate gestures and/or language.**

Class Policies:

1. **Final Exams:** Students must take a final exam for each of their academic courses. The schedule of final exams times is published at the beginning of the semester. Do not make plans to leave school before your scheduled final exam. I will not give any early finals except in extreme emergencies after students have provided documentation of said emergency.
2. **Scholastic Honesty:** I adhere to a strict policy regarding academic honesty. Anyone who is dishonest in any way will receive a zero and may be dropped from the course with a grade of F. That student, if allowed to remain in the course, will not be allowed to receive any extra credit points from the time of the infraction through the remainder of the course. Note that dishonest behavior includes both the act of copying someone else's work as well as allowing someone to copy your work. Both students are equally guilty and will be equally punished.
3. **Electronic Communication/Entertainment Devices:** The use of cell phones, iPods, or other electronic communication or entertainment devices is prohibited. A first offense will result in confiscation of the device for one day. A second offense will result in loss of the device for one week. A third offense will result in loss of the device for the remainder of the semester.
4. **Withdrawal:** If you decide that you are unable to complete this course or that it will be impossible to complete the course with a passing grade, you may drop the course and receive a "W" on your transcript instead. Withdrawal from a course is a formal procedure that you must initiate. If you do not go through the formal withdrawal procedure, you will receive a grade of "F" on your transcript.

A student is permitted to drop a course if he/she obtains an official drop slip from the office and has the instructor sign the slip before the 12th class week.

Remember, a student is only allowed to drop the same class twice before he/she will be charged up to triple the tuition amount for taking the class a third time or more. Furthermore, beginning with the Fall 2007 semester, students in Texas may only drop a total of 6 courses throughout their entire undergraduate career. After the 6, he/she will no longer be able to withdraw from any classes.

If you think you need to drop this course, please talk with me about it first. It is possible that there is something you can do to still pass the course. Don't hurt your chances for a passing grade in the course by not attending labs or taking exams before we have discussed your situation. **The last day to withdraw from this course with a "W" is (this changes every semester)**

5. **Absences:** Please take class attendance seriously. You are here to learn all you can learn, to build a body of knowledge to help you in your career and/or to give you satisfaction in the future. Students who are motivated come to class. **You are responsible for the material covered in class (lecture or lab) even if you are absent.** First unexcused absence = 95, Second unexcused absence = 90 and 3 or more unexcused absences = 0.
6. **Excused absences:** Make-ups for tests will be allowed *only* if absences are excused. Excused absences can result from...
 1. illness on the part of the student which must be documented by a doctors note or a note from the Dean of Instruction or the Dean of Students
 2. severe illness or death in your *immediate* (not extended) family documented by the Dean of Instruction
 3. College sanctioned extracurricular events which must be documented by your coaches.
 4. Unfavorable weather conditions that prevent students from reaching the college.

If you wish for your absence to be excused, you should telephone or e-mail me *in advance* of the absence (leave a message if necessary). Even in emergencies, it usually is possible for you to get word to me about an absence. When you return, you must furnish proof of the reason for your absence if you wish for it to be excused.

3. **Make-up work:** Late or unexcused work will not be accepted. Students who have excused absences **MUST** let me know **before** the test is given that we need to schedule a make-up. In most cases, the tests must be taken **PRIOR** to the absence in order to receive full credit. ****If you take the test after it has been given to the class, you will receive a 10% penalty per school day that passes until you take the make-up.** To avoid the penalty, MAKE SURE YOU TAKE A MAKE-UP TEST BEFORE YOU LEAVE.**

American with Disabilities Act Statement: Clarendon College provides reasonable accommodations for persons with temporary or permanent disabilities. Should you require special accommodations, it is your responsibility to notify the

Office of Student Services (806-874-3571 or 800-687-9737). We will then work with you to make whatever accommodations we need to make.

Important dates:	Spring Break	March 12 th – 16 th
	Easter Break	April 6 – 9 th
	Last Day to drop with a W	Thursday, April 13 th
	Final Exams	May 7 th – 10 th

Tentative Course Schedule/Outline: All assignments, quizzes, and chapters tests are on the MathXL.

Chapter 5: Integration

- 5.1 Estimating with finite Sums: 5.2 Sigma Notation and Limits of Finite sums
- 5.3 The Definite
- 5.4 The Fundamental Theorem of Calculus
- 5.5 Indefinite Integrals and the Substitution Rule
- 5.6 Substitution and Area between Curves

Chapter 6: Applications of Definite Integrals

- 6.1 Volumes by slicing and rotation about an Axis:
- 6.2 Volumes by cylindrical Shells:
- 6.3 Lengths of Plane Curves:
- 6.4 Moments and Centers of Mass:
- 6.5 Areas of Surfaces of Revolution and the Theorems of Pappus:
- 6.6 Work:
- 6.7 Fluid Pressures and forces:

Chapter 7: Transcendental Functions and Differential Equations

- 7.1 Inverse Functions and Their derivatives:
- 7.2 Logarithms
- 7.3 Exponential Functions:
- 7.4 a^x and $\log_a x$
- 7.5 Exponential Growth and Decay
- 7.6 Relative Rates of Growth
- 7.7 Inverse Trigonometric Functions:
- 7.8 Hyperbolic Functions

Chapter 8: Techniques of Integration

- 8.1 Basic Integration Formulas:
- 8.2 Integration by Parts:
- 8.3 Integration of Rational functions by Partial Fractions
- 8.4 Trigonometric Integrals
- 8.5 Trigonometric Substitutions
- 8.6. Integrals Tables and Computer Algebra Systems:
- 8.7 Numerical Integration
- 8.8 Improper Integrals

Chapter 9: Further Applications of Integration

- 9.1 Slope Fields
- 9.2 First Order Linear differential Equations
- 9.3 Applications
- 9.4 Graphical Solutions of Autonomous Differential Equations
- 9.5 Systems of Equations and Phase Planes

Chapter 10: Infinite Sequences and Series

- 10.1 Sequences
- 10.2 Infinite Series
- 10.3 The Integral Test
- 10.4 Comparison Tests
- 10.5 The Ratio and Root Tests
- 10.6 Alternating Series
- 10.7 Power Series
- 10.8 Taylor Series
- 10.9 Convergence of Taylor Series
- 10.10 Binomial Series

Chapter 11: Parametric Equations

- 11.1 Parameterizations of Plane Curves

11.2 Calculus with Parametric Curves

11.3 Polar Coordinates

11.4 Graphing in Polar Coordinates

11.5 Areas and Lengths in Polar Coordinates'

11.6 Conic Sections

11.7 Conics in Polar Coordinates

May 7^d thru May 10th is **Finals week**. Final is comprehensive and will be given at the time specified by the Dean of Instruction. To take the final at any other time, you must have a note given to me by the Dean of Instruction giving permission to reschedule the test for you.

Homework must be completed by the completion date assigned. Any assignment not completed by the deadline is a zero.

Content of Course schedule and content may be changed at the discretion of the instructor.