Course Description: This class investigates the applications of integration, many techniques of integration, improper integrals, parametric equations, polar coordinates and functions. Further study involves conic sections, exponential growth/decay models, infinite series including Maclaurin and Taylor Series.

Basic Skills Advisories: Eligibility for ENGL 125 AND ENGL 126

Subject Prerequisites: MATH 5A or equivalent

TEXT: Anton, Calculus: Early Transcendentals, ed. 9th Wiley, 2009. ISBN 978-0470-18204-8

REQUIRED NOTES: Notes will be available on Blackboard daily. They must be printed out and brought to class.

ATTENDANCE: Students are expected to attend all class meetings, be on time, and be in class the entire class session. Calling me to tell me you will be absent **does not** excuse you. **STUDENTS LEAVING CLASS BEFORE THE END OF CLASS WILL BE COUNTED AS BEING ABSENT!** **Three (3) absences** may result in a drop from the course. However, if you decide to drop the course, it is **your** responsibility to make the drop official in the Administrations and Records office or else possibly receive a grade of **F.**

Behavioral Standards: Your classmates and I would greatly appreciate that students in the class take care of any personal needs (i.e., using the restroom, getting a drink, sharpening a pencil) before class begins. Please turn your phone off when entering the class. You may not use your phone as a calculator. I would appreciate that you not bring guests to class.

NOTE: The drop deadline is **March 9, 2012**.

TARDIES: Students are expected to be on time. It is distracting, rude and unfair to fellow classmates and to the instructor when a student is late. If you are not present when roll is taken you will be counted as absent.

HOMEWORK: **NO LATE HOMEWORK WILL BE ACCEPTED!**   When a student has not satisfactorily completed 3 homework assignments they will be dropped

TESTS: There are no makeup exams for missed tests.

FINAL EXAM: A two-hour comprehensive final exam worth 1 test will be given at the end of the semester during finals week. You are required to take the final exam, however the final exam will replace your lowest test score.

Students are required to participate in all class discussions and activities. You may not start the homework during class. You may not study for another class or read a book during class.

GRADING:
- *Homework*: Homework will be worth 20% of the grade. Homework worth 10 points and homework worth 15 points will count the same.

- *In Class Tests*: All of your test percentages will be averaged and will count as 80% of your grade.

Percent of Total Points	Grade
89-100	A
79-88	B
70-78	C
60-69	D
0-59	F

WHERE TO FIND YOUR GRADE:
Available at http://sc.webgrade.classmanager.com/ReedleyCollege/ Your class will be identified by schedule number. Username and password is sent to your email that you have on record with Blackboard.

SPECIAL NEEDS REQUESTS: If you have a verified need for an academic accommodation or materials in alternate media (i.e., Braille, large print, electronic text, etc.) per the Americans with Disabilities Act (ADA) or Section 504 of the Rehabilitation Act, please contact me as soon as possible.

Academic Dishonesty
Students at Reedley College are entitled to the best education that the college can make available to them, and they, their instructors, and their fellow students share the responsibility to ensure that this education is honestly attained. Because cheating, plagiarism, and collusion in dishonest activities erode the integrity of the college, each student is expected to exert an entirely honest effort in all academic endeavors. Academic dishonesty in any form is a very serious offense and will incur serious consequences.

Cheating is the act or attempted act of taking an examination or performing an assigned, evaluated task in a fraudulent or deceptive manner, such as having improper access to answers, in an attempt to gain an unearned academic advantage. Cheating may include, but is not limited to, copying from another's work, supplying one's work to another, giving or receiving copies of examinations without an instructor's permission, using or displaying notes or devices inappropriate to the conditions of the examination, allowing someone other than the officially enrolled student to represent the student, or failing to disclose research results completely.

Plagiarism is a specific form of cheating: the use of another's words or ideas without identifying them as such or giving credit to the source. Plagiarism may include, but is not limited to, failing to provide complete citations and references for all work that draws on the ideas, words, or work of others, failing to identify the contributors to work done in collaboration, submitting duplicate work to be evaluated in different courses without the knowledge and consent of the instructors involved, or failing to observe computer security systems and software copyrights.

Incidents of cheating and plagiarism may result in any of a variety of sanctions and penalties, which may range from a failing grade on a particular examination, paper, project, or assignment in question to a failing grade in the course, at the discretion of the instructor and depending on the severity and frequency of the incidents.

Course Objectives

In the process of completing this course, students will:

A. Determine the area between two curves in the coordinate plane.
B. Determine the volumes of solids of revolution using the disk and shell methods.
C. Determine the length of a curve in the coordinate plane.
D. Solve application problems involving force, pressure, and work.
E. Evaluate and use hyperbolic functions.
F. Use the technique of integration by parts to evaluate definite and indefinite integrals.
G. Evaluate definite and indefinite integrals involving combinations of trigonometric functions.
H. Use the technique of trig substitution to evaluate definite and indefinite integrals.
I. Use the technique of integration by partial fraction decomposition to evaluate definite and indefinite integrals.
J. Learn to use integral tables to evaluate definite and indefinite integrals.
K. Apply Simpson's Rule to numerically evaluate integrals.
L. Evaluate improper integrals.
M. Use, differentiate, and integrate parametrically defined functions.
N. Use polar coordinates to define and analyze polar functions.
O. Derive the equations for and graph conic sections.
P. Investigate the behavior of exponential functions.
Q. Mathematically model exponential growth and decay phenomena.
R. Investigate the behavior of sequences and series.
S. Judge convergence or divergence by apply appropriate tests.
T. Apply convergence tests including the Comparison, Ratio, and Root Tests.
U. Derive and use Maclaurin and Taylor Series.
V. Derive and use power series.
W. Investigate the convergence of Taylor Series and use the Remainder Theorem.

Course Outcomes

Upon completion of this course, students will be able to:

A. Evaluate definite integrals using the fundamental theorem of calculus and relate definite integrals to areas and Riemann sums
B. Apply the use of integrals to problems involving volumes of solids, arc length, surface area, and other applications from science and/or engineering.
C. Find antiderivatives using a variety of techniques of integration.
D. Determine the convergence or divergence of infinite series by using appropriate tests and use infinite series to find polynomial representations of transcendental functions.
E. Analyze conic sections and mathematical relationships given in parametric and polar forms.

COURSE CONTENT OUTLINE:

A. Applications of the Definite Integral
    1. Area between two curves
    2. Volumes by disk and washer methods
    3. Volumes by shell method
    4. Length of a plane curve
    5. Work, Pressure and Force
    6. Hyperbolic Functions

 B. Techniques of Integral Evaluation
    1. Integration by parts
    2. Trigonometric Integrals
    3. Trigonometric substitution
    4. Partial fractions
    5. Using tables of integrals
    6. Simpson's Rule
    7. Improper Integrals

C. Analytic Geometry
    1. Parametric equations
    2. Polar coordinates and equations
    3. Parabolas
    4. Ellipses
    5. Hyperbolas
    6. Differentiation/Integration of parametric curves.

D. Exponential Growth and Decay Applications
    1. Exponential functions
    2. Modeling physical phenomena with differential equations

E. Infinite Series
    1. Sequences
    2. Infinite Series
    3. Convergence Tests
    4. Taylor and Maclaurin Series
    5. Comparison, Ratio and Root Tests
    6. Alternating series and conditional convergence
    7. Power Series
    8. Differentiation/Integration of power series.
    9. Convergence of Taylor Series

Important Dates

January 9	Class Begins
January 16	Martin Luther King Day
February 17-20	Presidents Day
March 9	Last day to drop
April 2-7	Easter Break
May 16	Final 9:00-10:50

The final is a test. Be sure you plan to be there!