Cedar Crest College

Calculus II - MAT-142-02 (Three Credits)
Spring 2010
MWF 10:00 a.m. - 10:50 a.m. BHA 2
T 1:00 p.m. – 1:50 p.m. MIL 33

Professor: Patrick Ratchford   **Phone:** ext. 3375
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Office Hours

Monday, Wednesday 11:30 a.m. – 3:30 p.m.

Tuesday 9:00 a.m. – 11:00 a.m. , 2:00 p.m. – 4:00 p.m.

Additional office hours are available by appointment.

Required Text: Stewart , *Calculus,* 6th ed., Thomson, 2008
Calculator: A Texas Instruments graphing calculator is required.
Prerequisite: Successful completion of MAT 141 or an equivalent course.

Course Description

I'm very well acquainted, too, with matters mathematical,
I understand equations, both the simple and quadratical,
About binomial theorem I'm teeming with a lot o' news,
With many cheerful facts about the square of the hypotenuse.

I'm very good at integral and differential calculus;
I know the scientific names of beings animalculous:
In short, in matters vegetable, animal, and mineral,
I am the very model of a modern Major-General.

from *The Pirates of Penzance*
by Gilbert and Sullivan

In this course we will be dealing with both the differential and integral calculus of the Major-General's song.Calculus developed as mathematicians attempted to answer the following:

Question 1: Given a curve in the plane and a point on the curve, can we find the slope of the line tangent to the curve at the point?

Question 2: Given a region in the plane, can we find its area?

These questions will underlie much of what we do in this course.

Course Outcomes: Upon successful completion of the course the student should be able to
➢ Demonstrate her understanding of the definite integral
➢ Evaluate definite integrals numerically and analytically using the fundamental theorem.
➢ Apply the techniques of Calculus I to exponential, logarithmic, and inverse trigonometric functions.
➢ Compute antiderivatives using the techniques of substitution, integration by parts, integration by partial fractions, and other such techniques.
➢ Apply the definite integral in various ways , including the integral as an area, and volumes of revolution.
➢ Use the computer program *Mathematica* to differentiate and integrate functions.

Assessment

There will be three exams each accounting for 20% of your final average (each exam may consist of both in-class and take-home portions), and a cumulative final exam contributing 25%. The remaining 15% will consist of take-home or short in-class quizzes. (Some of the quizzes will involve the uses of *Mathematica*.) If it is to your advantage I will increase the
weight of the final exam to 35% and reduce the weight of your worst exam to 10%. Homework will be assigned and discussed daily. ***There will be no extra credit given.***

The grade scale that I will use to assign final grades is A (93 and up), A- (90-93), B+ (87-90), B (83-87), B- (80-83), C+ (77-80), C (73-77), C- (70-73), D+ (67-70), D (60-67), F(Below 60).
Attendance in class is expected of all students and mandatory on exam days, but it will not be factored numerically into your grade. Make-up exams will be given only with **prior** notification and documentation of a legitimate excuse. Make-up quizzes will not be given. **All quizzes are due in-class on the due date** and will not be accepted otherwise.

Notes
* I fully support the Cedar Crest College Honor Code and the Classroom Protocol code as stated in the Customs Book. Appropriate classroom behavior is implicit in the Cedar Crest College Honor Code. Such behavior is defined and guided by complete protection for the rights of all students and faculty to a courteous, respectful classroom environment. That environment is free from distractions such as late arrivals, early departures, inappropriate conversations and any other behaviors that might disrupt instruction and/or compromise students' access to their Cedar Crest College education.

* Cell phones should be turned off or set to vibrate for the duration of the class period.

* Students should not make any travel arrangements for the end of the semester until after the final exam schedule is published.

* The format of the course will be lecture/discussion with much emphasis on homework discussion. In order for this to work it is vitally important for you to come to class prepared.

* Collaboration on daily homework is expected and encouraged, but any work turned in for a grade should be your own. Violations of the college plagiarism policy will be reported to the dean and result in a grade of zero for the particular assignment / exam.

- It is vitally important for you to keep current with the work. Students who fall behind early quickly find themselves in a hole that is very difficult, if not impossible, to get out of. I'm more than willing to meet with you during my office hours or otherwise to help you succeed, but you must make the effort. Feel free to drop by my office, even if it's not my scheduled office hour.

- Professional tutoring is available from Gary Moll in Academic Services. Gary can be reached at extension 3485 or via e-mail at glmoll@cedarcrest.edu .

Tentative Schedule

Day	Date	Material Covered[*]
Monday	1/18	No Class, MLK Jr. Day
Tuesday	1/19	Introduction
Wednesday	1/20	5.1
Friday	1/22	5.1
Monday	1/25	5.2
Tuesday	1/26	5.2
Wednesday	1/27	4.10
Friday	1/29	5.3
Monday	2/1	5.3
Tuesday	2/2	5.4
Wednesday	2/3	5.5
Friday	2/5	5.5
Monday	2/8	Review
Tuesday	2/9	Exam 1
Wednesday	2/10	6.1
Friday	2/12	6.1
Monday	2/15	6.2
Tuesday	2/16	6.2,6.3
Wednesday	2/17	6.3
Friday	2/19	Review
Monday	2/22	6.4
Tuesday	2/23	6.4
Wednesday	2/24	6.5
Friday	2/26	9.1
Monday	3/1	Review
Tuesday	3/2	Exam 2
Wednesday	3/3	7.1
Friday	3/5	7.1
Monday – Friday	3/8 – 3/12	No Classes, Spring Break
Monday	3/15	7.2
Tuesday	3/16	7.2
Wednesday	3/17	7.3
Friday	3/19	7.3
Monday	3/22	7.4

Tuesday	3/23	7.4
Wednesday	3/24	7.5
Friday	3/26	7.5
Monday	3/29	7.6
Tuesday	3/30	7.6
Wednesday	3/31	7.6
Friday	4/2	No Classes
Monday	4/5	No Classes
Tuesday (Monday Schedule)	4/6	7.7
Wednesday	4/7	7.8
Friday	4/9	7.8
Monday	4/12	Review
Tuesday	4/13	Exam 3
Wednesday	4/14	8.1
Friday	4/16	8.1
Monday	4/19	8.2
Tuesday	4/20	8.2
Wednesday	4/21	8.4
Friday	4/23	8.4
Monday	4/26	8.3
Tuesday	4/27	8.6
Wednesday	4/28	8.6
Friday	4/30	8.7
Monday	5/3	8.8
Tuesday	5/4	8.8
Wednesday (Friday Schedule)	5/5	Review
TBA	TBA	Final Exam

* Section numbers from *Stewart*