

Math 10: Calculus II
VL 106
MWF 12:45 - 1:50 PM
Westmont College Spring 2007

Professor: Scott Taylor

Office: Math and Computer Science Building (near Post Office)

Office Hours: Monday, Wednesday, Friday 2- 3 PM;
Thursday 9 - 10 AM and 3 - 4 PM;
and by appointment.

Email: sctaylor@westmont.edu

Webpage: <http://homepage.westmont.edu/sctaylor>

Prerequisite: MA 9: Elementary Calculus I

Catalogue Course Description: “MA 9, 10 (Four credit hours) Functions, graphs, limits, differentiation, integration, sequences, series. Introduction to numerical methods.”

General Education Components: This course satisfies two components of Westmont’s general education requirements: the Common Inquiry of Reasoning Abstractly, and the Common Skill of Quantitative and Analytical Reasoning.

Reasoning Abstractly: One of the reasons that calculus is applicable in so many different contexts is that it is a theory that studies rates of change from a general, abstract point of view. In this course we will study the integral, as well as sequences and series, as general structures. When we state a theorem, we are making a general statement that holds true in a variety of specific contexts. This course will teach you how to reason with these abstract constructs. Much of your written work will be evaluated based on how well you explain yourself; the answer is not as important as the reasoning behind it.

Quantitative and Analytical Reasoning: Calculus is the most important analytical tool in the sciences. Every branch of science uses calculus to understand quantitative change. In addition to the natural sciences, calculus is used to analyze quantitative models in economics, sociology, and a range of other fields. We will see specific ways that calculus can model physical and social systems. Through this study, you will develop a greater capacity to understand quantity, in all of its many manifestations.

Course Objectives:

- To become fluent in solving integrals symbolically.
- To understand and be able to implement various methods for solving integrals numerically.
- To understand infinite series and their convergence properties.
- To be able to use software or graphing calculators to help solve typical Calc. II problems.
- To apply Calculus methods to applications in the sciences.
- To develop an appreciation for the role of mathematical theory in solving problems.

Text: Chapters 6 - 11 of Ostebee and Zorn's *Calculus*.

Calculators: Some homework problems and projects will involve the use of mathematical software such as Maple or Mathematica. This software can be found on the computers in the Math/CS building. You may also find the TI-83 calculator helpful. The use of a calculator's symbolic integration and differentiation features is not permitted on any exam.

Evaluation:

Your course grade will be determined by a weighted average as follows:

10 % Quizzes	15 % Exam 1
10 % Projects	20 % Exam 2
20 % Homework	25 % Final Exam

However: *If you receive fewer than 50% of the points on the final exam, you will receive an "F" in the course.*

Course letter grades will be assigned according to the following scale. Any curve will be determined at the end of the course, according to the discretion of the instructor.

93 - 100 %	A	73 - 77 %	C
90 - 93 %	A-	70 - 73 %	C-
87 - 90 %	B+	67 - 70 %	D+
83 - 87 %	B	63 - 67 %	D
80 - 83 %	B-	60 - 63 %	D-
77 - 80 %	C+	below 60 %	F

Attendance: Attendance is required. You are allowed 4 absences for any reason. Any absences beyond those four will result in the loss of one full letter grade in your final course grade. For instance, a B+ would be changed to a C+. This policy may be amended in the case of an emergency. Please contact the instructor as soon as possible upon word of an emergency that will result in extended absence from class.

Quizzes: Weekly quizzes will be given each Monday (except for exam days and holidays). They will typically consist of 1 or 2 questions, designed to test your understanding of the previous week's material. In case of an absence, a makeup quiz may be arranged with the instructor.

Homework: Homework is an integral part of this course. You have not learned the subject if you cannot work through problems on your own. Homework is your chance to be sure that you understand the material and your chance to discover questions pertaining to the subject matter. You are encouraged to work together on the homework. This does not mean, "You do problems 1 - 3 and I'll do problems 4 - 6 and we'll exchange answers". **All work must be your own.** Homework assignments will be given in class and will also be posted on the class website. You are strongly encouraged to check the website to be sure that you have the entire assignment.

Homework is due at the beginning of the class period indicated (usually on a Friday). If you are absent from class on the day homework is due, you should send the assignment with a friend or arrange to turn it in early. Late assignments will not be accepted unless cleared with the instructor in advance. Except in cases of emergency, extensions will not be granted.

Homework must be **very readable**. This means **no** messy scratchwork, no huge eraser marks, no loose pages. Problems must be in order with the section and problem number clearly indicated. **You must show all of your work.** Your work is your answer. *Again, you must show all of your work.*

Exams: The two midterm exams will be in-class on the days indicated in the schedule. The final exam is on **Monday, April 30**. The final is cumulative. **The final exam may not be rescheduled** for personal convenience, airline reservations, etc. Requests to reschedule a final because you have three scheduled in one day or because of a special situation must be completed and turned into the Student Records Office by Monday, April 16. Exams will be designed to test your understanding of the material, not just your computational capabilities. You must understand, and communicate, the material.

Tentative Schedule:

Class	Day	Date	Section	Comments
1	Mon.	Jan. 8	Chapter 5	Review of the integral
2	Wed.	Jan. 10	6.1	
3	Fri.	Jan. 12	6.1	HW #1 due.
	Mon.	Jan. 15	MLK Holiday	
4	Tues.	Jan. 16	6.2	Quiz #1.

Class	Day	Date	Section	Comments
5	Wed.	Jan. 17	Group Project 1	In Computer Lab Last day to drop.
6	Fri.	Jan. 19	6.3 Group Project 2	In Computer Lab HW #2 due.
7	Mon.	Jan. 22	7.1	Quiz #2.
8	Wed.	Jan. 24	7.1	
9	Fri.	Jan. 26	7.3	HW #3 due.
10	Mon.	Jan. 29	7.4	Quiz #3.
11	Wed.	Jan. 31	7.5	
12	Fri.	Feb. 2	Review	HW #4 due.
13	Mon.	Feb. 5	8.1	Quiz #4.
14	Wed.	Feb. 7	8.2	
15	Fri.	Feb. 9	8.3	HW #5 due.
16	Mon.	Feb. 12	8.3	Quiz #5.
17	Wed.	Feb. 14	Review	
18	Fri.	Feb. 16	Exam 1	HW #6 due.
	Mon.	Feb. 19	Presidents' Holiday	
19	Wed.	Feb. 21	8.4	
20	Fri.	Feb. 23	9.1	HW #7 due.
21	Mon.	Feb. 26	9.2	Quiz #6.
22	Wed.	Feb. 28	9.3	
23	Fri.	March 2	Group Project 3	In Computer Lab HW #8 due.
24	Mon.	March 5	9.3/Review	Quiz #7.

Class	Day	Date	Section	Comments
25	Wed.	March 7	10.1	
26	Fri.	March 9	10.2	HW #9 due.
	MWF	Mar. 12-16	Spring Break	
27	Mon.	March 19	10.2	Quiz #8.
28	Wed.	March 21	10.3	
29	Fri.	March 23	Review	Last day to withdraw. HW #10 due.
30	Mon.	March 26	Exam 2	
31	Wed.	March 28	11.1	
32	Fri.	March 30	11.2	HW #11 due.
33	Mon.	April 2	11.3	Quiz #9.
34	Wed.	April 4	11.3	
	Fri.	April 6	Good Friday	
	Mon.	April 9	Easter Monday	
35	Wed.	April 11	11.4	
36	Fri.	April 13	11.5	HW #12 due.
37	Mon.	April 16	11.5	Quiz #10.
38	Wed.	April 18	11.6	
39	Fri.	April 20	11.7	HW #13 due.
40	Mon.	April 23	Catch-up	Quiz #11.
41	Wed.	April 25	Review	HW #14 due.
	Mon.	April 30	12 - 2 PM	FINAL EXAM