

Mathematics MAT 302 : Calculus IV
Spring 2014
TR 2:30 p.m - 3:45 p.m, Room 209

Instructor: Dr. Brad Emmons

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Course Materials

Calculus, Early Transcendentals, 5th Edition by Larson and Edwards (required)

Introduction

MAT 302 is the fourth and final installment of the Calculus sequence here at Utica College. The prerequisites for the course are MAT 301 and a positive attitude. We will cover the calculus for functions of several variables, including partial differentiation, multiple integration, vector analysis, Green's Theorem, and Stokes' Theorem. If there is time, we will introduce some differential equations and some applications.

Exams

There will be two in-class exams as well as a final cumulative exam. The exams will test your ability to work through some of the computations, as well as your ability to apply the techniques to certain applications. The first exam is scheduled for Thursday, February 20 and will count for 25 percent of your final grade. The second exam is scheduled for Thursday, April 3 and will count for 25 percent of your final grade. The final exam will be held on Saturday, May 10 from 3:00 p.m. to 6:00 p.m. The final will count for 25 percent of your final grade. There will be NO make-ups for missed exams. Please look over your schedule as soon as possible. If you see a potential conflict, inform me immediately.

Homework

The best way to learn Mathematics is to solve problems. At the end of each section, there are a variety of exercises that you can look at to help understand concepts and hone your skills. I will suggest problems for you to attempt from the end of the section, but I will not grade these. Instead, I will assign weekly problem sheets that will be collected and graded. These problems will be more in-depth than the drill-type activities and will require more exposition on your part. You will be graded on content, organization and completion of the assignments. In addition to the graded problems, each assignment will carry 5 completion points. To earn 5 out of 5 of the completion points, the assignment must be written up neatly and thoroughly with complete solutions to all of the assigned problems. Late homework will not be graded, but you may still earn completion points on late assignments. The homework is designed to help you identify where you might have difficulties. If you encounter any trouble with an assignment or a concept, seek help!

Attendance

Attendance in MAT 302 is extremely important. Although there is no official attendance policy, note that if you are not in class on a particular day, your homework will not be graded for a score. I will also require that you be in class at 2:30 p.m. and no later. If you are late to class, you may stay to enjoy the wonderful learning experience. However, your homework for the day will be considered late.

Derivatives and Integrals Proficiency Exams

In order to pass the course, you must pass both the Derivatives Proficiency Exam (DPE) and the Integrals Proficiency Exam (IPE). Each exam will consist of 20 basic questions, and in order to pass the exam, you must get 18 questions correct. The DPE consists of basic questions such as, find the derivative of $\sin 3x$, and the IPE consists of questions such as, find $\int e^{5x} dx$. You will have three attempts on each exam, and the exams will be graded Pass/Fail. You are responsible for scheduling a time to take the exams when you feel you are ready, either during office hours, or at another time. You may have three attempts at passing each exam.

Grading

Your grade in this course will be based on three main factors: homework, quizzes and exams. The

homework will be worth 25% of your final grade and the exams 75%. In addition to these factors, minor ethereal factors such attendance, class participation, attitude, and improvement over the course of the semester can also affect your grade. To determine your final grade, 90–100% = A, 80–89% = B, 70–79% = C, 60–69% = D, 59 and below = F, with the top two percents receiving a + and the bottom two percents receiving a –.

Calculators

The use of calculators will not be allowed on any quizzes or exams. None of the work will require any sophisticated computations. You may use a calculator when working on your homework to check your work. However, since will not be allowed to use it on the exam, I suggest you do as much work without your calculator as possible.

Important Dates

Thursday, February 20 – Exam I
Monday, March 17 - Friday, March 21 – Spring Break
Thursday, April 3 – Exam II
Tuesday, May 6 – Last Day of Class
Saturday, May 10, 3:00 - 6:00 – Final Exam

Suggestions

Come to class with your homework assignment completed every day
Study for at least 30 minutes each day in addition to completing your homework assignment
Read the section we will be covering *before* we cover it in class
Do not fall behind!
Come to office hours to discuss homework and concepts. I am here to help!

Syllabus

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Term : Spring 2014

Week 1	January 23	Course Policies, Syllabus, Section 13.1
Week 2	January 28 January 30	Sections 13.2, 13.3 – Partial Derivatives Section 13.4 – Differentials
Week 3	February 4 February 6	Section 13.5 – Chains Rules for Functions of Several Variables Section 13.6 – Directional Derivatives and Gradients
Week 4	February 11 February 13	Section 13.7 – Tangent Planes and Normal Lines Sections 13.8, 13.9 – Extrema of Functions of Two Variables
Week 5	February 18 February 20	Section 13.10 – Lagrange Multipliers Exam I
Week 6	February 25 February 27	Section 14.1 – Iterated Integrals and Area in the Plane Section 14.2 – Double Integrals and Volume
Week 7	March 4 March 6	Section 14.3 – Change of Variables: Polar Coordinates Section 14.4 – Center of Mass and Moments of Inertia
Week 8	March 11 March 13	Section 14.5 – Surface Area Section 14.6 – Triple Integrals and Applications
Week 9	March 18 March 20	NO CLASS NO CLASS
Week 10	March 25 March 27	Section 14.7 – Triple Integrals in Cylindrical and Spherical Coordinates Section 14.8 – Change of Variables : Jacobians
Week 11	April 1 April 3	Section 14.8 – (continued) Exam II
Week 12	April 8 April 10	Section 15.1 – Vector Fields Section 15.2 – Line Integrals
Week 13	April 15 April 17	Section 15.3 – Conservative Vector Fields and Independence of Path Section 15.4 – Green's Theorem
Week 14	April 22 April 24	Section 15.5 – Parametric Surfaces Section 15.6 – Surface Integrals
Week 15	April 29 May 1	Section 15.7 – Divergence Theorem Section 15.8 – Stokes's Theorem
Week 16	May 6	Section 15.8– (continued)