

**Mathematics MAT 302 : Calculus IV**  
**Spring 2009**  
**MF 12:30 p.m - 1:45 p.m, Room 214**

**Instructor:** Dr. Brad Emmons

**Office:** DePerno Hall 121

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**Office Hours:** Tuesday, 9:30 - 10:30, Thursday 10:30 - 11:30, or by appointment

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### **Course Materials**

Calculus, 3rd Edition by Strauss, Bradley, Smith (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 Friday, February 20 and will count for 20 percent of your final grade. The second exam is scheduled for Friday, April 3 and will count for 20 percent of your final grade. The final exam will be held on Wednesday, May 13 from 1:00 p.m. to 3:30 p.m. The final will count for 20 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. Homework will be assigned at the end of each class period and collected the following class period. I will choose 4 or 5 problems to grade in each assignment. To earn full credit for a problem, a complete solution to the problem must be submitted. Just writing down the answer will not earn full credit. In addition to points for each graded problem, 5 points on each assignment will count for completeness and neatness of the graded assignment. Late assignments will not be graded, but they will be eligible for the 5 completion points. If you are not in class the day an assignment is collected, you may turn in your assignment into my office later that day. However, your assignment will be considered late. 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! The homework will count for 20% of your final grade.

### **Quizzes**

Every other Friday, starting with January 30, we will have an in-class quiz. There will be a total of 6 quizzes throughout the semester. You should treat the quizzes as mini-exams, covering material from approximately 2 weeks worth of course work. The quizzes will consist of 4 or 5 problems similar to problems from your graded homework, and they are to make sure that you are keeping up with the concepts presented in class, and to identify where you are having problems before you take the exams. The quizzes will count for 20% of your final grade.

### **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 12:30 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.

### **Grading**

Your grade in this course will be based on three main factors: homework, quizzes and exams. The homework will be worth 20% of your final grade, the quizzes 20%, and the exams 20%. 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**

Friday, January 30 – Quiz I  
Friday, February 13 – Quiz II  
Friday, February 20 – Exam I  
Friday, March 3 – Quiz III  
Monday, March 16 - Friday, March 20 – Spring Break  
Friday, March 27 – Quiz IV  
Friday, April 3 – Exam II  
Friday, April 17 – Quiz V  
Friday, May 1 – Quiz VI  
Monday, May 4 – Last Day of Class  
Wednesday, May 13, 1:00 - 3:30 – 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 2009

Week 1	January 23	Course Policies, Syllabus
Week 2	January 26 January 30	Section 11.1 – Functions of Several Variables Section 11.2 – Limits and Continuity, <b>Quiz I</b>
Week 3	February 2 February 6	Section 11.3 – Partial Derivatives Section 11.4 – Tangent Planes
Week 4	February 9 February 13	Section 11.5 – Chain Rules Section 11.6 – Directional Derivatives, Gradient, <b>Quiz II</b>
Week 5	February 16 February 20	Section 11.7 – Extrema <b>Exam I</b>
Week 6	February 23 February 27	Section 11.8 – Lagrange Multipliers Section 12.1 – Double Integration, Rectangular Regions
Week 7	March 2 March 6	Section 12.2 – Double Integration, Nonrectangular Regions Section 12.3 – Double Integrals in Polar Coordinates, <b>Quiz III</b>
Week 8	March 9 March 13	Section 12.4 – Surface Integrals Section 12.5 – Triple Integrals
Week 9	March 16 March 20	<b>NO CLASS</b> <b>NO CLASS</b>
Week 10	March 23 March 27	Section 12.8 – Jacobians : Change of Variables Section 13.1 – Divergence and Curl, <b>Quiz IV</b>
Week 11	March 30 April 3	Section 13.2 – Line Integrals <b>Exam II</b>
Week 12	April 6 April 10	Section 13.3 – Fundamental Theorem, Path Independence Section 13.3 – (continued)
Week 13	April 13 April 17	Section 13.4 – Green's Theorem Section 13.4 – (continued), <b>Quiz V</b>
Week 14	April 20 April 24	Section 13.5 – Surface Integrals Section 13.6 – Stokes' Theorem
Week 15	April 27 May 1	Section 13.6 – (continued) Section 13.7 – Divergence Theorem, <b>Quiz VI</b>
Week 16	May 4	Section 13.7 – (continued)