PROFESSOR: J. Freeman
OFFICE: Law 304
OFFICE HOURS: Will usually be in office from 11:00 am to noon and 3:00pm
                                to 3:30pm (whenever possible). If you need help, please tell
                                me and a time will be arranged.
CELL PHONE: 743-8487 (text messages acceptable)
E-MAIL: jfreeman (this is the best way to get a hold of me.)

Class Meetings: Class will meet from 9:00 am – 11:00 am and 1:00 pm – 3:00 pm. Times other than 9:00 and 1:00 are approximate. There will be an exam on Wednesday, January 23, and Thursday, January 31. As these exams are not timed, please do not make commitments for either late morning or early afternoon on these days.

Students are expected to attend all class meetings, unless an agreement is reached with the instructor.

Exams: There will be three exams in this class. The exams on January 23 and January 31 are each worth 30% of the points for the class. The final on February 7 will be worth 36% of the points for the class. Exams will be ready to be distributed shortly after 8:00 a.m. (7:00 a.m. for final). Students must begin an exam by 9:00 a.m.

Ungraded Quizzes On non-exam days, there will be an ungraded quiz given at the end of morning class. The instructor would like this quiz returned by the start of the next morning class. These quizzes do not count toward the final grade, but must be handed in.

Homework: An up-to-date homework notebook must be kept by each student. The instructor reserves the right to request a notebook at any time. Failure to produce a notebook will adversely affect a student's grade by at most a full letter grade. Math homework is best kept in a three ring binder. I will be reviewing notebooks at least once a week.

Attendance and Question of the Class: Attendance will be taken at each class meeting other than exams. Participation in class is essential. A student will not get credit for attending a class if the student does not complete any in-class work assigned. Use of phones during class or other evidence of lack of attention will result in the the student being assigned an unexcused absence. Students will receive one warning by e-mail before the instructor will mark a student absent. The instructor will notify a student each time he records a student absent due to lack of attention in class. Each missed class period will lower a student's final point total by 20 points. The instructor reserves the right to change this policy with an appropriate announcement to the class.

Students can get excused absences from the instructor by sending him e-mail before the missed class session or by e-mail after the class session if the circumstances prevent immediate communication with the instructor. The instructor will always give an excused absence for appropriate school activities like athletics. An excused absence does not excuse students for required work or give extensions for required work. Students who have active class participation will find that the instructor will be much more likely to excuse an absence for just about any reason, at least once.

The student will have the opportunity to ask a question for each class period by filling out the attendance form. Students will earn 20 points if they submit a question(s) in at least 10 class sessions. Failure to record a question(s) during 10 class sessions will result in 30 points being removed from their point total for the class.

Sophomore Exam Study Guide: The Department of Mathematics offers a Sophomore Exam which covers material from MAT 121, 122, 221, and CSC 151. Passing this exam is worth 10 Math Culture points, one third of the number of Culture Points required for a major in Mathematics. Each student is responsible for preparing a personal study guide that they could use in a year to prepare for taking the Sophomore Exam. This study guide will be submitted to Moodle as a single file or multiple files. Any format may be used for the study guide. For student who do not want to take the Sophomore Exam, this study guide will hopefully help them study for the final and could be used later in life to review the material of this course. Completing this assignment is worth 20 points. In determining if a student has completed the assignment the instructor will simply make a judgment if the student made a good faith effort, i.e, the study guide could actually be

used for studying for the final. Failure to complete this assignment will result in 50 points being removed from their point total. ANY evidence of cheating on this assignment will result in failure of the course, both for the person cheating and the person who permitted the cheating to occur. Study Guides should NEVER be shown to another student. Study guides are to be given to the instructor at the start of each exam. The instructor will return the study guides after each exam.

Grading: A student's grade is essentially determined by their total points points. The instructor may raise or lower a student's grade based on their class performance. With exception to exams, the instructor is interested in a student's curiosity and effort, not in how many correct answers the student gave during the term.

The instructor will use the following scale, although the instructor reserves the right to decrease (not increase) the scale.

- 100–91: A- or above
- 90–80: B- or above
- 79–69: C- or above
- 68-57: D- or above

Calculators: Graphing calculators are required. Mathematica at the instructor's workstation may be used during exams. Use of Mathematica in this class is expected.

Tutors: See schedule in the Teaching and Learning Center in the Library.

Drops: The instructor follows faculty legislation concerning 15th day drops. In particular, if a student has NOT

- handed in most quizzes in a somewhat timely fashion;
- attended class regularly; and
- achieved at least 40 percent on exams,

the student has not shown sufficient effort to justify a 15th day drop. In this case, the instructor will not sign a 15th day drop. If students experience problems that interfere with a student's effort, the conditions above may be waived if the instructor and student have had timely discussions. If you meet any of the conditions listed above, do not expect to be able to drop if you have not discussed your problems at the time they occurred.

Accommodation: Cornell College is committed to providing equal educational opportunities to all students. Students who need accommodations for learning disabilities must provide documentation from a professional qualified to diagnose learning disabilities. For more information see http:\\www.cornellcollege.edu\disabilities\documentation\index.shtml.

Students requesting services may schedule a meeting with the disabilities services coordinator as early as possible to discuss their needs and develop an individualized accommodation plan. Ideally, this meeting would take place well before the start of classes.

At the beginning of each course, the student must notify the instructor within the first three days of the term of any accommodations needed for the duration of the course.

Course Objectives: The student is expected to learn the following skills in this class:

- technique of integration including integration by parts and use of partial fractions (Knowledge)
- numerically approximating integral and error estimates (Knowledge)
- Improper integrals (Knowledge)
- calculation of areas and volumes using integrals, including using shells and cylinders (Knowledge, Reasoning)
- introduction to differential equations (Knowledge)
- Taylor polynomials (Knowledge)
- functions of two and three variables, including their graphs (Knowledge)
- limits and continuity of functions in several variables (Knowledge)
- using vectors, including dot and cross products (Knowledge)

- concept of the partial derivative and the gradient and their geometric interpretations (Knowledge)
- chain rule for functions of several variables (Knowledge)
- optimization (Knowledge, Reasoning)
- definite integral of functions of 2 and 3 variables (Knowledge)
- Iterated integrals(Knowledge)
- integration using polar and cylindrical/spherical coordinates (Knowledge)
- change of variables (Knowledge)
- Learning how to ask questions and test conjectures (Inquiring, Reasoning)
- Clear communication of mathematical ideas using complete sentences and proper grammar (Communication)

The content of this course addresses the college's educational priority of Knowledge. Students are expected to be able to clearly communicate how answers are obtained on exams and in class discussion. In addition, students are expected to be able to find solutions to problems that are not identical matches to examples done in class. As a result, the class also addresses the educational priorities of Reasoning and Communication.

Expectations of Students: The amount of time required to successfully complete this course will vary by student. Students not used to logical and deductive thinking should expect to spend significant time on this course, very possibly more than they are used to spending on other courses (4-8 hours). For students whose background makes this course easier, they should seek out students who may find the course more challenging and offer to work with those students. A student who helps others will find that they will get more out of this class. Students are **strongly** encouraged to work together to complete homework.

The pacing of material in this class will be determined by student needs. So long as you are working hard, the instructor will modify the course to attempt to the best of his ability to maximize your chances for success. Much of the material of the class will be presented in response to class questions, so the quality of your questions will be a major contributing factor to the quality of the course.

The instructor expects you to work hard in this course, but he also wants you to have some fun. Puns and other word play is always appropriate.

The instructor has only two rules concerning behavior in this class. First, students must respect the learning efforts/environment of other students. Just because material may be easier for you does not give you the right to belittle the efforts of others. You may do just about anything in class so long as it does not take away from the the learning experience for others in the course. Cheating on an exam impacts the learning experience of other students and is a violation of rules one. The instructor expects students to report cheating on an exam to him, although no charge of cheating can be brought against a student based solely on another student's report of cheating. If the instructor hears about any cheating, he will do all in his power to make sure it does not occur again. Second, if you have a concern with any aspect of this course, you will immediately contact the instructor. While the instructor may or may not be able to address your concerns, they will be respected and an effort will be made to address them. Questions concerning grading should always be brought to the instructor's attention. Once exams are returned, the instructor will never lower a grade due to a discovered error in grading, but he will raise scores due to a grading error.

Please ask questions at any time in class. If I tell you that I will answer the question after class, that does not mean it is an inappropriate question. It simply means that I believe that I can do a better job answering the question one-on-one instead of in a class setting.

Dishonesty in Academic Work: The instructor refers students to http:\\www.cornellcollege.edu\catalogue\academic-info\academic-honesty.shtml. Because of the way this course is organized, the instructor's most likely penalty for a charge of dishonesty will be failure of the class.

Behavior during exams should be clear to a student. As the exams and graded quizzes are closed book, reference to any material/person other than the printed exam during the exam is considered dishonesty.

Students may discuss ungraded quizzes with anyone they wish.

The instructor expects that students will work extensively together during this class and strongly encourages this. Students working in isolation will most probably have significant difficulty with this course.

MATERIAL: *Calculus from Graphical, Numerical, and Symbolic Points of View, 2nd Ed.* and *Multivariable Calculus from Graphical, Numerical, and Symbolic Points of View, 2nd Ed.*, by Ostebee and Zorn. We will cover most of chapters 6, 12, 13, 14 and portions of Chapters 7, 8, 9, and 10.