MAT 5-122 Calculus of Several Variables

January 2017

Course Outline

Instructor: Professor Tony deLaubenfels

Office: Law 222

Office Hours: 2:30 - 3:30 p.m. Monday through Friday

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E-mail address: tdelaubenfels (tdelaubenfels@cornellcollege.edu from off campus)

Text: Calculus, 2E by Ostebee and Zorn, Houghton-Mifflin and Multivariable Calculus, Volume 3, 2E by Ostebee and Zorn, Houghton-Mifflin. We will cover chapters 6.1, 7.1, 7.2, 8.1, 8.2, 9.1, 10.1 plus geometric series. 12.1-12.4, 12.7-12.9, 13.1-13.7, 14.1-14.6.

Class meetings: There will be Lecture/ Discussion each morning from 9 a.m. until around 11 a.m. and afternoon class each afternoon from 1:15 p.m. until 2:30 p.m. in our Law 203 classroom.

Exam schedule:

Exam 1	6.1, 7.1, 7.2, 8.1, 8.2, 9.1, 10.1	Monday, January 23
Exam 2	12.1-12.4, 12.7-12.9, 13.1	Monday, January 30
Final Exam	Chapters 13 & 14 + comprehensive	Wednesday, February 8

Evaluations: Your grade will be based on your performance on homework and exams according to the following schedule:

Exam 1	100 points
Exam 2	100 points
Final Exam	125 points
Homework and Quizzes	75 points
TOTAL possible	400 points

Grade cutoffs are posted in our course Moodle pages.

This course supports the *Educational Priorities and Outcomes of Cornell College* with emphasis on knowledge, inquiry, reasoning, and communication.

Course Content/Goals

Develop knowledge and procedural skills related to the following concepts:

- techniques of integration including integration by parts and use of partial fractions
- numerically approximating integral with error estimates
- Improper integrals
- calculation of areas and volumes using integrals, including using shells and cylinders
- introduction to differential equations
- Taylor polynomials
- functions of two and three variables, including their graphs
- limits and continuity of functions in several variables
- using vectors, including dot and cross products
- concept of the partial derivative and the gradient and their geometric interpretations
- chain rule for functions of several variables
- optimization of functions of 2 and 3 variables
- definite integral of functions of 2 and 3 variables
- Iterated integrals
- integration using polar and cylindrical/spherical coordinates
- change of variables

Students should develop an enhanced appreciation of calculus as a coherent body of knowledge and as a human accomplishment.

Policies:

Homework. Homework assignments and other course related information will be posted on Moodle. Most homework will not be collected, but it will be the basis for our class discussions, quizzes, and exams.

Distractions. Other than our classroom computer, no electronic devices (laptop computers, cell phones, pdas, mp3 players) may be used in our classroom while class is in session. Exceptions will be made in special cases, for example if these are used to access our text or in an accommodation for a disability.

Drop. I follow the college's policy on 15th day drops. i.e. in order to be eligible for a third Friday drop, you must attend class and complete all course work.

Academic Integrity. Cornell College expects all members of the Cornell community to act with academic integrity. An important aspect of academic integrity is respecting the work of others. A student is expected to explicitly acknowledge ideas, claims, observations, or data of others, unless generally known. When a piece of work is submitted for credit, a student is asserting that the submission is her or his work unless there is a citation of a specific source. If there is no appropriate acknowledgment of sources, whether intended or not, this may constitute a violation of the College's requirement for honesty in academic work and may be treated as a case of academic dishonesty. The procedures regarding how the College deals with cases of academic dishonesty appear in *The Compass*, our student handbook, under the heading "Academic Policies – Honesty in Academic Work."

Accommodation. Students who need accommodations for learning disabilities must provide documentation from a professional qualified to diagnose learning disabilities. For more information see 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.