Math 211 – Analytic Geometry and Calculus III

Kevin Hartshorn – Spring 2010

This course is a continuation of Math 171. We will begin by completing our coverage of sequences and series (focusing on the Taylor polynomial) before moving into multivariable calculus. We will look at many of the ideas from Math 170/171 (derivatives, integrals, optimization, linearization) in the context of multivariable problems.

Goals and objectives

In this class, I hope to meet the following goals:

- To use the notion of linear and quadratic approximations to solve new problems.
- To develop visual and numeric models to explore the properties of functions (local maxima, minima, etc.)
- To write technical essays that effectively incorporate equations and/or graphics to support a central result.
- To explore the role of calculus is the broader mathematical and scientific community.

To help measure our progress toward these goals, the course shall involve the following activities:

- Two exams, as well as a cumulative final exam
- Regular problem sets and quizzes, including worksheets exploring *Maple*
- Several group projects

Homework and quizzes

As you surely know by now, calculus is not a spectator sport. Your only chance to learn the subject is to practice on a daily basis. It is expected that you spend ***8 to 10 hours per week*** outside of class working on calculus.

Homework problems are for your benefit, and it are your responsibility. All homework is given to help you work toward the goals listed above (that is, they prepare you for the exams).

To evaluate the homework:

- Some homework will never be collected. It is your responsibility to solve the problems on your own in preparation for the exam.
- Some homework problems will be in preparation for short (10 minute) quizzes at the beginning of class.
- Some homework will be collected and graded. See the "Prepared materials" section on the next page.

Course Information

Class Meeting
Time MWF 11:45am – 12:55pm
Place M PPHAC 335
WF PPHAC 113

Required Text
Multivariable Calculus, Early Transcendentals (6th Edition), by James Stewart

Recommended Text
Student Solution Manual to Stewart's *Calculus: Early Transcendentals*

Computer Application
Maple is available on all campus computers

Contact Information

Office
PPHAC 215

Office hours
MTuW 2:30–4:00pm, *or by appointment*

e-mail
hartshorn@math.moravian.edu

Class Web-page
http://www.math.moravian.edu/hartshorn/211

Other Resources

Calculus help on-line
http://www.calculus.org

Wolfram Alpha
http://www.wolframalpha.com/

On-line help page for *Maple*
http://www.maplesoft.com/support/help/

Maple

In continuation from Math 171, we will be using *Maple* in this class. Worksheets will be given throughout the semester to help explore applications of *Maple* to our work.

If you have difficulty printing Maple-based homework, you may send the *Maple* file to me by e-mail before the beginning of class. Be sure that your subject line includes a description of the assignment you are submitting.

Projects

To help develop problem-solving, team work, technical writing, and to generally make the subject more interesting, I will assign several group projects throughout the semester. Each project will require a carefully written response to the problem. Details on the group projects will be provided with the first assignment.

Prepared materials: showing pride in your work

You are not required to type your homework (group projects will need to by typed), but any submission you make should be neat and organized. I am collecting complete solutions and responses, not scratch work.

In particular, I expect that anything handed in . . .

- has your name at the top, right corner
- is either typed or neatly written, with complete solutions showing all relevant work.
- is clearly organized, particularly if the submission includes solutions to multiple problems.
- is stapled if more than one page
- is written on clean 8.5 × 11" loose-leaf paper (not torn from a spiral notebook).
- uses complete sentences and logical paragraph structure where appropriate.

Work that does not meet these guidelines will be penalized.

Exams

There will be two in-class exams in addition to the final exam. The exams will be on ***Wednesday, February 17*** and ***Wednesday, March 31***. Be sure to make these dates – if you have a conflict with either of these times, let me know by January 31.

The final exam will be on ***Thursday, May 6 at 1:30 pm***.

Computing your grade

To determine your numeric grade at the end of the course, I will use the following distribution:

30%	Homework and Quizzes
25%	Group projects (average of project scores)
10%	Midterm 1 (Wednesday, February 17)
10%	Midterm 2 (Wednesday, March 31)
25%	Final Exam (Thursday, May 6 at 1:30pm)
100%	**Total Score**

When assigning letter grades at the end of the course, I generally use the 4 point scale from the student handbook as a baseline for grading. This means that (generally speaking), 85% or better is an A (+ or –), 70% or better is a B (+ or –), 60% or better is a C (+ or –). Note that these are only guidelines and are subject to change. Also note that I do not assign letter grades to individual assignments, but you can get a feel for how well you did by measuring your percentage score to this scale.

Attendance

Although I will not be taking attendance, you are expected to attend each and every class. As a general rule, ***I do not allow make-up quizzes/exams***. Otherwise, you have sole responsibility for all work and information you may miss by not attending class, regardless the reason. Homework is due in class, even if you cannot make it – find a friend or classmate who can get the work to me if you must miss a class.

If homework is not submitted the day it is due, a "0" will be put in the grade book – regardless the reason for the absence. However, at the end of the semester, the lowest 3 homework scores will be dropped from your record.

If you know you will be missing class: Let me know as soon as possible in case special arrangements need to be made.

If you miss class for an unforeseen reason (sudden illness, car breakdown, etc.): Send me e-mail when possible(hartshorn@math.moravian.edu). If you miss a quiz for a legitimate reason, I can give you an excused miss so that you are not penalized.

Academic honesty

Students will be expected to adhere to the standard of the Academic Honesty policy as described in the Student Handbook (http://www.moravian.edu/studentLife/handbook/academic/academic2.html). Any violations of this will result in severe penalties on the assignment, a report to the Dean, and the very real possibility of failing the course. For specific application to this course, note the following:

- ***Honesty in Homework:*** I believe that mathematics must be a group effort. Your work with classmates will do wonders in helping you internalize the new information. Thus you are encouraged to work with your fellow students on all problem sets and general homework problems. Use the solution manual to check your work and take any advantage you can to ensure that you know how to do the problems.
- ***Honesty with Maple Assignments:*** These assignments should be your own work. While you may discuss difficulties with your classmates, each person should complete the assignment on their own.
- ***Honesty on the Group Projects:*** When working on the group projects, each group will submit a single response to the problem. Obviously, you must collaborate with the other members of your group to complete the assignment. You may use Stewart's *Calculus*, as well as a graphing calculator or *Maple*. You may ***not*** use any other sources or reference tools without specific permission from the instructor. You may not consult with anyone outside the group, other than the instructor.

Last notes

- If you are in need of any special considerations, please contact Learning Services and let me know what is needed.
- If you have any questions, concerns, or comments about the course, please feel free to contact me in my office or by e-mail.
- This syllabus is subject to change. The latest version of this syllabus can be found on the class website (http://math.moravian.edu/hartshorn/109).
