Math 170D – Calculus and Analytic Geometry I
Fall 2006 Syllabus

Class Meetings: PPHAC 117, MWF 11:25-12:30am
Text: *Calculus: Early Transcendentals* (5th edition), by James Stewart
Website: http://math.moravian.edu/hartshorn/math170

Instructor: Kevin Hartshorn
Office Hours: PPHAC 215, MW 9-10am, WTh 1-2pm, *or by appointment*
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1 Textbooks

James Stewarts *Calculus: Early Transcendentals* (5th Edition) is the only required text. Note that you need the fifth edition (the black textbook with the green design) in order for your text to be compatible with the course.

A graphic calculator will also be needed for this course. The TI-83 is the standard used here at Moravian. Students using a different calculator will bear the responsibility of making it emulate the TI-83.

2 Goals and Objectives

Calculus is the key tool to understanding and modeling many aspects of the real world. Measuring rates of change, speed, area, length, and volume are all in the purview of calculus, as is computing averages, finding centers of mass, or plotting trajectories. It is arguably the most important intellectual tool developed in the past 400 years, finding use in virtually every area of science, including physics, chemistry, biology, sociology, business, medicine, architecture, engineering, psychology, and astronomy.

In this course, you will be introduced to the differential calculus. You should gain a mastery over several basic techniques and ideas of differential calculus and gain a certain understanding as we examine the subject graphically, numerically, algebraically and verbally. We will look at several applications of calculus to the real world and develop problem solving techniques for some of the more commonly encountered applications.

To help meet these goals, your study will be focused through problem sets, quizzes, midterms, and group projects. Homework and quizzes will be given regularly. There will be several group projects that will provide you the opportunity to explore some of the central concepts of calculus. Finally, two midterms, two proficiency exams, and a final exam.

3 Exams

There will be two exams in the course and a final exam. The dates for the midterms are **Monday, October 2**, and **Friday, November 17**. Details on the midterms will be provided as these dates approach.

Be sure to mark these dates on your calendar. Remember, flight or vacation plans for vacations are not an acceptable reason to miss an exam date. As a general rule, make-up exams are not given. If you have a truly exceptional situation, be sure to see me before the exam date to discuss your dilemma.

In addition to the regular exams, there will be two proficiency exams: a *Limit Proficiency* and a *Derivative Proficiency*. You must pass both of these exams (with a score of at least 80%) in order to complete the course. Note that you will have multiple opportunities to take the proficiency exams.

The date and time for the final exam will be provided later.

4   Lab Projects

There will be several lab projects through the semester that will require you to work in small groups. Each will have both an in-class experimental portion and a reflective write-up portion. Details will be provided when the first project is assigned.

5   Quizzes

You have spent upwards of $100 on new calculus texts. To help encourage you to make the most of them and to help teach you how to make the most of them quizzes will be given throughout the semester. They are aimed at testing several things: proficiency in calculus and general mathematics; comprehension of new vocabulary or theorems; your overall attendance in class. I will provide a short handout later giving more information on reading the text and preparing for quizzes.

6   Homework

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 hours per week** outside of class working on calculus. To help you in your study, I will regularly assign homework, of which a fraction shall be graded. Note that for you to succeed in this course, you should complete all homework assigned, whether or not it will actually be collected and graded.

Homework must be handed in at the beginning of class on the date due. If you are unable to turn your homework in when it is collected (e.g.: if you are sick, forgot your homework, or are late to class), then I can accept late homework until 4:00pm of the due date. Note that any homework handed in late may be subject to a small penalty. No late homework will be accepted after 4:00pm of the due date.

When completing your homework, keep the following requirements in mind. *Failure to meet these requirements will incur a penalty on your homework grade.*

- Homework should be neat, legible and written on clean standard-sized paper. I do not want to see your scratch paper. As with any assignment at Moravian, your homework should be demonstrative of your best work.

- Your problems should be presented in the order they appear in the textbook. In completing your homework, be sure that it is clear where work from one problem ends and the next begins.

- Unless told otherwise, you should show your work. The correct answer is only one objective. I do not grade homework to see if you got the right answer (there are computerized multiple choice tests for that). I grade to ensure that you demonstrate a master of the tools and techniques introduced in the course.

- Your full name should be on first page of the submitted homework, clearly readable in the top right-hand corner of the page.

- If your homework has multiple pages, it must be stapled. Folding over the corner of the paper or using a paper clip is not sufficient.

7   Culture Points

An important aspect of the calculus sequence is to introduce you to the idea of what a "mathematician" is. Frankly, this is not effectively done within the classroom calculus is but a tiny portion of mathematical thought. To give you a broader perspective on the role of calculus in mathematics (and the role of mathematics in the world), I will be asking to to participate in mathematically-oriented activities throughout the semester. Details on this will be provided on a separate handout.

8   Grading and Assessment

Your course grade will be computed based on a raw percentage score, broken down as shown in the table below. Generally speaking, your final course grade translates to a letter grade loosely based on the standard 4-point system: generally 85% marks the difference between an "A" and a "B", 70% marks the difference between a "B" and a "C", 55% marks the difference between a "C" and a "D", and any score below 40% is considered failing.

10%	Homework and quizzes
15%	Labs (based on average of lab scores)
5%	Limit proficiency exam
10%	Derivative proficiency exam
5%	Culture Points
30%	Exams (2 over the course of the semester)
25%	Final Exam
100%	**Total**

9   Attendance and other Issues

9.1   Attendance

There are 42 class meetings this semester. While I expect you to attend every session, unavoidable situations will arise during the semester. Thus I will allow each student up to 3 absences, excuses or unexcused. In addition, you may miss as many as 3 additional classes with an appropriate excuse. Absences beyond this are subject to a penalty on your course grade (typically a 5% deduction from your final course percentage).

Excused absences include those due to illness or family emergency (with appropriate documentation). You may also be excused for competitions or field trips *if I am notified properly in advance of the date of absence.* I reserve the right to decide whether an absence qualities as "excused."

In all cases, you are responsible for any missed work.

9.2   Academic Honesty

Students will be expected to adhere to the standard of the Academic Honesty policy as described in the Student Handbook (pages 51-53). 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.

Honesty in Homework: When faced with difficulty in mathematics, it helps to work through problem with a colleague. Thus I welcome and encourage you to work with friends, tutors and myself in finding solutions to homework problems.

HOWEVER: when *writing up* your homework solution, you should be working on your own. Without help from friends, neighbors or tutors, you should sit down with your scratch work and write up a complete solution in your own words. Remember: the exam will be based on what you can do on your own!

9.3   Final reminders and disclaimers

- *Visit my office!* I would love to help address individual issues or answer questions you have about the course. I would love to hear feedback about which aspects of the course are or are not going well. You have a great deal of power to determine the path this class takes – take advantage of it.

  You can also communicate with me via e-mail (hartshorn@moravian.edu). Drop me a line and let me know how the course is going.

- This syllabus is subject to change through the semester. The most recent version of the syllabus can be found at http://www.math.moravian.edu/hartshorn/math327/.

- If you are in need of special accommodations due to a disability, please contact the Learning Services Office as soon as possible. We can only accommodate your special needs if we are made aware of them.

- Final determination of your course grade is subject to my discretion as professor of the course.