Textbooks

James Stewart’s *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.

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.

Exams

There will be two exams in the course and a final exam. The dates for the midterms are **Monday, October 3**, and **Friday, November 18**. Details on the midterms will be provided as these dates approach.

In addition to the regular exams, there will be two proficiency exams: Limit Proficiency and 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.

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.

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.

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.
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.

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.

Attendance
I will not be taking attendance, but I do expect you to come to class for each session. **You are responsible for any announcements made in class.** If you miss a class, make sure that you find out from me or from a fellow student whether you missed any important information or announcements.

**You must attend the class for which you registered.** You will not get credit for homework, quizzes or exams that are submitted in the wrong section. Further, there will be opportunities for group work that will only be effective if everyone stays in their enrolled section.

**Late work is never accepted.** I don’t accept late homework and I don’t give make-up exams. **If you expect to miss a class (due to a sporting event or conference or some planned activity), let me know ahead of time.** Special arrangements can be made for homework and exams if I am alerted before the date. If you miss class due to an illness or other unforeseen emergency, let me know as soon as possible so that your grade is not adversely affected.

Note that if you are late for class, you may miss a quiz or the deadline for homework submission. If you are late to class, you will not be provided extra time for an ongoing quiz, and you may be penalized for handing in your homework late. Make-up quizzes are never given.

The class web-page will be updated regularly with any important announcements. However, it is your responsibility to make any deadlines for the course.

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.

In this course, there are two special situations: homework and group projects.
• **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 any homework that will not be graded. Use the solution manual to check your work and take any advantage you can to ensure that you know how to do the problems.

The graded homework must demonstrate your own work – you may not consult with anyone except the instructor when working on graded homework. You may use the class textbook and any notes from class, but you may not use any other texts or sources. Do not use the solution manual when completing the graded homework and do not research the graded homework on the internet.

• **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 in order to complete the assignment. You may use Stewart’s *Calculus*, as well as a graphing calculator. 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. Each member of the group must submit his/her own write-up of results.

**Grading Policy**

When assigning letter grades at the end of the course, I will base your grade on the following guidelines: 90% or better should garner an A (+ or –), 80% or better for a B (+ or –), 60% or better is a C (+ or –), and 50% or better to avoid a failing grade. Note that these are only guidelines and are subject to change. Also note that while I may use an A+ grade to indicate truly exceptional work, such a score cannot reflect on your official grade sheet. Be sure to review the section on “Grades and Quality Points” on pages 44 and 45 of the Student Handbook.

I do not assign letter grades to exams or homework, but you can get a feel for how well you did by measuring your percentage score to this scale. To determine your numeric grade at the end of the course, I will use the following distribution:

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<thead>
<tr>
<th>Points</th>
<th>Component</th>
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<tbody>
<tr>
<td>10</td>
<td>Homework and Quizzes</td>
</tr>
<tr>
<td>15</td>
<td>Labs (based on average of lab scores)</td>
</tr>
<tr>
<td>5</td>
<td>Cultural Awareness</td>
</tr>
<tr>
<td>5</td>
<td>Limit Proficiency Test (Monday, September 26)</td>
</tr>
<tr>
<td>10</td>
<td>Derivatives Proficiency Test (Friday, October 21)</td>
</tr>
<tr>
<td>15</td>
<td>Midterm 1 (Monday, October 3)</td>
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<tr>
<td>15</td>
<td>Midterm 2 (Friday, November 18)</td>
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<tr>
<td>25</td>
<td>Final Exam</td>
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<td>100</td>
<td>Total possible</td>
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</tbody>
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At any point during the course, feel free to contact me if you need help computing your current grade.

**Disclaimers**

• This syllabus is subject to change through the semester. Any updates to the syllabus will be posted on the class web-page.

• 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.

• All grades given in this class are subject to my qualitative judgment as professor of the course.