1 General Information

1.1 Course Overview

The first two-thirds of MATH 2010 extends the ideas developed in the first part of the standard Calculus sequence at RPI into higher dimensions. We will cover extensions of derivatives (partial derivatives), integrals (integrating over general regions), optimization (saddle points and Lagrange multipliers), and the fundamental theorem of calculus (Green’s, Stokes’, and the divergence theorems).

The last third of MATH 2010 is a brief introduction to the key ideas in linear algebra.

1.2 Important Dates, Times, & Materials

- **Lecture Time & Location**: Tuesday & Friday, 8:30 - 9:50 AM, Darrin 324. The times and places of the recitations vary by section:
  - Section 9 (CRN 53359) will meet in Carnegie 101 on Monday from 1:00 - 1:50 PM.
  - Section 10 (CRN 53362) will meet in Carnegie 101 on Thursday from 1:00 - 1:50 PM.
  - Section 11 (CRN 53499) will meet in SAGE 2707 on Monday from 12:00 - 12:50 PM.
  - Section 12 (CRN 53500) will meet in Carnegie 101 on on Thursday from 12:00 - 12:50 PM.

- **Office Hours**: My office is in Amos Eaton 412. My office hours are from 2:00 PM until 3:30 PM on Tuesday and Thursday. I am also available by appointment. My TA, Bradley Mason, has office hours on Wednesday from 9:30 AM until 11:00 AM. His office is in Amos Eaton 317.

- **Course Materials**: Our textbooks are *Calculus*, third edition, by Jon Rogawski and Colin Adams and *Introduction to Linear Algebra*, Custom Edition for RPI, by Lee Johnson, Dean Reiss, and Jimmy Arnold. Neither of these books have varied much over their different releases (though some of the section numbers have changed) so you should be able to use an older edition of the textbook if you wish, though it will be up to you to determine listings of relevant exercises if you have an older edition.

1.3 Communication

I will periodically send out messages through LMS (also known as Blackboard). You are required to regularly check LMS for any class information sent this way. The best way to contact me is by email (wellsd2@rpi.edu) or in person.
1.4 Prerequisites

The prerequisite class for MATH 2010 is MATH 1020. I expect students taking this class to thoroughly understand continuity, differentiation, and integration of real-valued functions of a single variable.

1.5 Enrollment Policy

If you are not on the official class roll then you are not in the class. It is your responsibility to ensure proper enrollment in the class section you attend. For no foreseeable reason will you be allowed to stay in the wrong section. Your work will not be graded if you are not on the class roll. Simply attending a section will not entitle you to be placed on its roll.

2 Assignments and Grading

2.1 Grading Policy

Grading will be done by either myself or my TA. Please address all concerns about grading promptly. I will not consider requests submitted any later than two weeks after an assignment is returned.

2.2 Homework

I will assign homework most weeks. The homework will be due by 4 PM on Friday in a collection box in the main math office (Amos Eaton 301). Either the TA or myself will collect the box by 5 PM. I will drop your lowest homework score when calculating your final grade. Homework problems are drawn from a variety of sources and will be posted in PDF format on LMS. The homework assignments are provided in worksheet format for your convenience, but I also accept work done on looseleaf paper or typed and printed.

Your homework should be neat and easy to follow: I will deduct points for sloppy work or poor handwriting. In general, keep in mind that the goal of homework is to convince me that you understand the material. For legibility, please use the following style guide:

- If several statements are equal to each other, then they should be displayed in a two-column format. Example:

\[
\nabla f \Big|_{(x,y)=(1,2)} = \left( \frac{4x^3}{y^2 + x} - \frac{x^4}{(y^2 + x)^2} \right) \Big|_{(x,y)=(1,2)} = \left( \frac{4(1)^3}{(2)^2 + (1)} - \frac{(1)^4}{((2)^2 + (1))^2} \right) \bigg|_{(x,y)=(1,2)} \]

\[
= \left( \frac{20}{25} - \frac{1}{25} - \frac{4}{25} \right) \bigg|_{(x,y)=(1,2)} = \left( \frac{19}{25} \right).
\]

- Use standard notation, e.g., \(\Rightarrow\) means “logically implies” (not equality).

- Box final answers, or use some other technique to make it clear what the ultimate result of a computation is.

- Show enough intermediate work so that it is clear where each value came from.

- Do not reuse variable names or use two different pieces of notation for the same thing.
2.3 Quizzes

Course recitations will usually involve a short written quiz. If you miss a quiz for reasons that are serious, unavoidable, and beyond your control, I may allow for you to take a makeup quiz. I will drop your lowest quiz grade when calculating your final grade.

2.4 Exams

You must take exams on the specified date. In general, makeup exams will not be given. If you miss an exam for reasons that are serious, unavoidable, and beyond your control, I may allow for you to take a makeup exam.

The final exam is a required class meeting that will not be rescheduled for discretionary reasons, including conflicts with work schedules, conflicts with other classes and exams at other colleges, and travel plans.

I will give three in class exams and one final exam. The grade on the final exam will replace exactly one of your test grades, your cumulative quiz grade, or your cumulative homework grade if it is to your benefit: I will pick the one that helps your final grade the most.

2.5 Grading Percentage Summary

- **Exams:** 45% (three exams weighted equally)
- **Final Exam:** 20%
- **Homework:** 20%
- **Quizzes:** 15%

In the case of the students who are merely enrolled in MATH 2012 (that is, purely the linear algebra portion of this course) the grade breakdown is

- **Exam 3:** 60%
- **Quizzes:** 20%
- **Homework:** 20%

Note that, since Exam 3 exhaustively covers all linear algebra topics, there is no final exam for this subcourse. The final exam policy applies again to Exam 3 in this circumstance (i.e., the grade on Exam 3 will replace either your quiz grade or homework grade if it helps you).

2.6 Grade Cutoffs

I will use the following grade cutoffs:

- A score of at least 93 will guarantee an A.
- A score of at least 90 will guarantee an A−.
- A score of at least 87 will guarantee a B+.
- A score of at least 83 will guarantee a B.
- A score of at least 80 will guarantee a B−.
- A score of at least 77 will guarantee a C+.
- A score of at least 73 will guarantee a C.
- A score of at least 70 will guarantee a C−.
- A score of at least 67 will guarantee a D+.
- A score of at least 60 will guarantee a D.

This cutoffs may be lowered, but they will not be raised. For example: it is possible that, when computing final grades, the cutoff for a B− will be lowered to 79.
3 Special Accommodations & Class Conduct

3.1 Special Accommodations

If you need adaptations or accommodations because of a documented disability, have emergency medical information to share with me, or need special arrangements in case the building must be evacuated, then please talk with me as soon as possible.

3.2 Class Conduct

You and your classmates are entitled to learn in an atmosphere of mutual respect and freedom from distractions and disturbances. The following guidelines are in effect for this class: students are expected to arrive on time and stay until the class is dismissed (with the exception of a short break halfway through the lecture). If you know ahead of time that you will be late or leave early, then you should let me know in advance, sit near the exit, and leave (or enter) quietly.

Talking to classmates (apart from group assignments) is disruptive to the class as a whole. Please direct questions to me and not your neighbor. Reading magazines, newspapers, or books while in class is inappropriate. Cell phones must be turned off or silenced (not set to vibrate) before entering the classroom. You should be respectful of other students when they ask questions; if one student has a question, then typically many other students silently have the same question.

3.3 Honor Code

I recommend reviewing the relevant parts of the student handbook. As a summary, I provide this compatible statement as the 2010 honor code:

The Rensselaer Academic Integrity policies apply to this course. You are responsible for understanding these policies. All assignments, exams, and quizzes submitted will be considered graded work and must be completed on an individual basis. Copying solutions or parts of solutions from any source is a violation of the honor code, as is sharing your solution with such intent with others. Specifically, this policy prohibits the revising, rephrasing, or inclusion of work from any source prepared by anyone other than yourself. If you have any questions about how these policies apply to a particular solution, then it is your responsibility to ask.