1. **Major Course topics:**
   - Review: Parametric Equations and Polar Coordinates
   - Vectors and Three-Dimensional Analytic Geometry
   - Calculus of Vector Functions
   - Differentiation in Several Variables
   - Multiple integration
   - Line and Surface Integrals
   - Fundamental Theorems of Vector Calculus

2. **Course Learning Outcomes:**
   - Students will demonstrate a working **knowledge of multivariable calculus topics**. This includes knowledge of **theorems** with complete assumptions.
   - Students will demonstrate the ability to use **methods** of multivariable calculus and **perform computations accurately and efficiently**.
   - Students will demonstrate the ability to **solve problems**, including **applications outside of mathematics**.
   - Students will be able to **construct elementary calculus proofs** independently.
   - Students will demonstrate the ability to **communicate mathematical ideas** clearly.

3. Regular **attendance** is really necessary. It is quite difficult to catch up with the material when you miss a class. It becomes virtually impossible, if you miss several classes.

4. Be aware that the pace of the course will be **EXTREMELY FAST**, particularly in its first, relatively easier part. Of all math courses I have taught at USD, Calculus III is the **most intense**. The amount of material to be covered is truly overwhelming. For example, the list of topics for the final exam is over **70 items long**, compared to usual 40 – 60 in other courses I teach. We **cannot omit** any of the topics as the course is a **prerequisite** for various upper-division courses. Your success in these upper-division courses depends on your mastery of Calc III material. We **have to cover the entire list of topics**. There simply is no way around it. In the past years, students called the pace of the course "hellish," "ridiculous," "impossible," "insane", etc. I do not totally disagree; well, it is not an impossible course, but it is indeed **very hard**. In my view, Calculus III should be an at least **5-units course**, but it is not feasible for various reasons. The last four major course topics are usually perceived much **more difficult** than the first three. Thus, we will cover the first part of the course at an **absolutely breakneck speed** to allow more time for more difficult material. Please brace yourself for possibly a rough ride. I am here to help you.
5. A student is supposed to spend at least **two hours at home for each class hour**. Thus, you should expect spending at least 8 hours a week (more likely about 10 hours) doing your homework and preparing for quizzes/exams.

6. Since Calculus III is a course in **mathematics**, we will be doing some simple **proofs**. You will be expected to do some proofs in your homework assignments as well as during exams.

7. Because of the increased availability of various symbolic algebra/calculus tools such as computer packages (**Maple, Mathematica, MATLAB, etc.**) and **advanced calculators**, the computational aspect of the course will be reduced. Computations are way less important than **setting up** the problem correctly. Calculators and computers can do the computations; only people, however, can set the problems for computations. In this course, the **concepts** count much more than computations. In class I will usually omit the computational details of, say, integrations. When doing your homework, you will be often encouraged to use integration tables, advanced calculators, or various Web tools, except for some problems that I will ask you to solve completely manually, showing all the steps of your work.

8. The **textbook**: Jon Rogawski, *Multivariable Calculus* (Chapters 12 through 18). I cannot lecture on everything in class (simply, there is not enough time), so you will have to learn quite a lot of **material** on your own. Reading the assigned material is absolutely **essential**! Quizzes may include questions on the assigned reading as a gentle method of enforcing your reading.

9. **Office hours** (Dr. Lukasz Pruski, Serra 149, x. 4035):

<table>
<thead>
<tr>
<th>Day</th>
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<tbody>
<tr>
<td>Monday</td>
<td>1:30 - 3:30</td>
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<tr>
<td>Tuesday</td>
<td>2:30 - 3:30</td>
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<tr>
<td>Wednesday</td>
<td>3:00 - 4:00</td>
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<tr>
<td>Thursday</td>
<td>11:00 - 12:00</td>
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and at other times, by appointment.

10. **Contact**: The best way to contact me is by using e-mail (**pruski@sandiego.edu**). I read e-mail many times a day, except for a few weekends when I am out of town, camping in the desert. I have voice mail (x. 4035), but I sometimes forget to check it. You may call our departmental Executive Assistant, Holly Hoffman, at x. 4706, as well.

11. **Course crappy webpage**: [http://home.sandiego.edu/~pruski/m250s10.html](http://home.sandiego.edu/~pruski/m250s10.html). You should check the webpage daily for assignments, announcements, and links.

12. **Homework Assignments** will be assigned and collected twice a week (unless everybody in class agrees upon a different frequency). The assignments will be graded partly on **effort**. I will assign many odd-numbered exercises that have **answers** at the **BOB** (Back-Of-Book). The total homework assignment score will count for **20%** of the course grade. **No late assignments** will be accepted unless you arrange it with me in advance.
13. There will be about 10 – 12 **pop-quizzes** (not announced in advance), i.e., approximately one quiz a week. Quiz questions will refer to the recently covered material and to the new material you were supposed to read on your own. Three lowest quiz scores will be dropped, and the remaining scores will count for 20% of the course grade. Quizzes cannot be made up unless you have a valid reason for not taking the quiz and **you notify me in advance of your absence**.

14. There will be three **tests** (hour exams); the tentative dates are February 19, March 26, and April 28. **Tests** will be of **closed-book** variety and the **calculator policy** will be discussed in class. The test scores will count for 30% of the course grade. A test can be made up only if you have an actual emergency and **if you notify me in advance about your absence**.

15. The **final exam** (May 14, 11:00 – 1:30 for Section 1 and May 19, 2 – 4:30 for Section 2) will be cumulative and its score will count for 30% of the course grade. The exam is closed-book and the calculator policy will be the same as during the tests.

16. **Grading criteria** are as follows:

<table>
<thead>
<tr>
<th>Total percentage</th>
<th>Grade</th>
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<tbody>
<tr>
<td>90% and above</td>
<td>A</td>
</tr>
<tr>
<td>80% - 90%</td>
<td>B</td>
</tr>
<tr>
<td>60% - 80%</td>
<td>C</td>
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<tr>
<td>50% - 60%</td>
<td>D</td>
</tr>
<tr>
<td>below 50%</td>
<td>F</td>
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</tbody>
</table>

Of course, **pluses** and **minuses** will be used, on cutoff boundaries.

17. The Mathematics and Computer Science Department strongly promotes **Academic Integrity**. I hope issues related to academic integrity will not arise in our course. There have been some cases of cheating in math courses in the past – mainly the cases of submitting someone else’s work as well as cases of cheating during exams. Depending on the severity of the case, the possible consequences include: assigning the score of 0 on the given assignment, lowering the course grade, or even assigning an F in the course.