MATH 249
Spring 2017 Syllabus

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Required Text: Early Transcendentals Multivariable Calculus, Fifth Edition or later (I am using the 6th), by James Stewart.

Goals: This course is a generalization to higher dimensions of the calculus you have already learned.

1. Students will understand and apply concepts of calculus in higher dimensions. [Instruments: lectures (L), WeBWorK (W), classwork (C), projects (P), exams(E)]
2. Students will learn definitions, theorems, techniques, and applications in multivariable calculus. [LWCPE]
3. Students will understand and be able to apply generalizations of the Fundamental Theorem of Calculus. [LWCPE]
4. Students will be able to use technology (Maple) to perform routine calculus tasks and some more sophisticated calculus tasks. [WCP]
5. Students will be able to communicate technical and mathematical ideas to others. [CPE]
6. General Education objective from CLA Catalog: Students will demonstrate the ability to make judgments and draw appropriate conclusions based on quantitative information. [LWCPE]

Course structure: Our classroom will be “flipped.” That means that “lecture” occurs outside of class: there are recorded lectures available for you to watch on the WISE site. You are responsible for watching the assigned videos before class. I will assume that you have watched them and have some idea of what the content is. The lectures include definitions, theorems, examples, etc. – everything you would expect from a normal lecture except for the opportunity to ask me questions. (That comes in class.) As you watch, you should pause frequently to take notes, make sure you understand the material, work through examples before I do, and write down any questions you have. In class, we will work through additional examples and deal with questions, among other things. We will also spend a little time on homework each day, so be sure to bring a laptop or other device with which you can access our online homework system (see below). One major advantage of this system is that you can listen to the lecture as many times as you want throughout the semester. Make use of that opportunity!

Assessment: Your grade will be computed as follows:

<table>
<thead>
<tr>
<th>Component</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>WeBWorK</td>
<td>300</td>
</tr>
<tr>
<td>Homework</td>
<td>50</td>
</tr>
<tr>
<td>Worksheets and Projects</td>
<td>150</td>
</tr>
<tr>
<td>Midterm Exams</td>
<td>3 @ 100</td>
</tr>
<tr>
<td>Final Exam</td>
<td>200</td>
</tr>
</tbody>
</table>

Grades must fall into the categories below to guarantee the corresponding letter grade. Plus and minus grades are at my discretion but generally correspond to trends in your performance.

<table>
<thead>
<tr>
<th>Letter Grade</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum Percentage</td>
<td>92</td>
<td>82</td>
<td>72</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>Minimum Points</td>
<td>920</td>
<td>820</td>
<td>720</td>
<td>600</td>
<td></td>
</tr>
</tbody>
</table>

As a general rule, you should not expect any “curving.” The grades correspond to a level of achievement, not a relative ranking in the class. However, if you focus on learning what we study, the grades will take care of themselves. They should be among the least of your worries.

WeBWorK: This is an on-line homework system. The problems will be very much like those in the text, so the text problems can give you additional practice. Note that WeBWorK is worth 30% of your grade. In WeBWorK, you may keep trying problems you miss until you get them right. This means that everyone should get 100% on homework, so take advantage of the system by not giving up. At the same time, you should not just guess at answers until one works; this is a counterproductive waste of time. If you are struggling, come see me! The address for our WeBWorK site is
Homework: I will select one or two WeBWorK problems each day for you to write up and hand in. WeBWorK only cares about whether the answer is correct. I, however, also care about how you get to the answer and how you communicate your work. At exam time, it will be important that you communicate your process to me clearly, and the homework is a low-stakes chance to practice that. Ideally, you will carefully write out your work for all of your WeBWorK problems whether you hand them in or not, so this should not be much additional burden.

Please note: Our class time is very limited; we are only together for three hours each week. That means that you must watch the lectures and read the text before class; I will assume that you have done so and pace the class accordingly. If you have not, you will be left in the dust. You should expect to spend at least three hours outside of class for every hour we have in class. That includes time spent watching the lectures.

Maple: We will be using Maple regularly. We will have some in-class activities to help you get acquainted, and class will usually include some instruction, but most Maple work will be outside of class. Commands in Maple and WeBWorK are often the same. See the course website for information on Maple commands and syntax. I recommend that you also keep a page of Maple notes in the back of your notebook for quick reference to the commands we use frequently. Maple will be available to you on all exams except the first. We will also have one or two projects that are more substantial than the routine exercises described above. These will be group projects and require a written report. You will need to create a MaplePrimes account so you can upload your work to be graded.

Worksheets: We will have frequent in-class group worksheets. You need to be in class for these since they cannot be made up (except for excused absences). You will need to work with a group; this is one way we work toward Goal 5 above.

Exams: There are three midterm exams; the dates below are subject to change if necessary.

- Exam I: Wednesday, February 8
- Exam II: Monday, March 6
- Exam III: Friday, April 7

The final exam is Thursday, May 4, 8-11am in our classroom. You may not make up any missed exam. If an emergency arises, contact me prior to the exam.

Please note: Written responses to all questions must be in complete sentences. I expect correct use of grammar, spelling, and punctuation; your grade will reflect this! I also expect your work to be neat.

Special Needs: If you have special needs (e.g., for a documented disability), it is your responsibility to approach me at least a day in advance of the need for accommodation. To receive accommodation, you must be registered with Disability Services; this office is located in Bishop Health Center in Baxter Hall. (Phone: (503) 370-6471.)

Cheating: Cheating will not be tolerated. The minimum penalty for cheating is a 0 on the assignment and a formal notification to the dean. I encourage you to work together on your homework, but your final write-up must be your own. NOTE: It is your responsibility to avoid even the appearance of cheating. See the website below for the Willamette policy on cheating and plagiarism. http://www.willamette.edu/cla/catalog/resources/policies/categories/plagiarism_cheating.php

Classroom Comportment: We will all make mistakes, and these are an essential part of learning. The classroom environment must be tolerant and welcoming so that everyone feels free to contribute without fear of ridicule or harassment. Treat everyone with respect, and we can all learn from each other.

You are WELCOME! My door is usually open. The office hours above are the times I will definitely be in my office (or nearby), but you are welcome to come by at other times as well. Make sure you come see me whenever you have a question. Plus, that’s where I keep the Red Vines.