MATH 120: Multi-variable calculus. Summer 2021
Tentative Syllabus

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Office hours: To be decided in class.
Textbook: James Stewart, *Calculus: Early Transcendentals*, 8th edition.

Course Description: In Math 120 we study the geometry and calculus of three-dimensional objects (and sometimes higher dimensional!). Some of the topics include: the vector geometry of three dimensions, scalar and vector functions of one and two variables, partial derivatives, directional derivatives, multiple integrals, cylindrical and spherical coordinates, parameterized curves and surfaces, gradient, divergence, curl, line and surface integrals, and the theorems of Gauss, Green, and Stokes.

Prerequisites: You should be familiar with the topics covered in a standard Integral Calculus course. This is Math 115 at Yale University, or an equivalent course elsewhere.

Course Structure: The class will meet on Mondays, Wednesdays and Fridays:

- Prior to attending each class, students will have to watch a few short videos that will be posted on Canvas.

- Mondays, Wednesdays and Fridays: 9-9:45am (approximately). We will use this time to review the video content and answer questions from students.

- Mondays, Wednesdays and Fridays: 9:45-11:15am. These will be workshop days where we will go through examples and work on problems either as a class or in groups. There will be a worksheet that students will have to complete in groups.

Homework: There will be two homework assignments due each week: Tuesdays and Fridays. This will be your time to practice the concepts covered in the lectures, and so you should treat the assignments as such. You should attempt to do the problems without calculators or notes so that you get the most out of the homework. There may be times on the homework where you encounter a tricky integral, and it is ok to look those up. Note that, on exams, you are responsible for the u-substitution and by-parts integration techniques, as well as basic trig integrals (but not trigonometric substitution).

You are more than welcome to discuss the problems with your friends and classmates. However, you must write up and submit your own solutions to the problems. Be sure to show your own work to each problem. Copying answers is academic dishonesty, and all such cases will be handled appropriately.

Workshops: Workshops will be held MWF, 9:45-11:15am. These consist on in-class worksheets to be completed in small groups and they will count towards the final grade. The grade will be based on completion, collaboration, correctness and class-interaction.

Exams: There will be three 90-minute non cumulative written exams. Tentative exam dates are the following:

- Exam 1: July 26, 9am-10:30am.

- Exam 2: August 6, 9am-10:30am.

- Exam 3: August 13, 9am-10:30am.

There are no calculators, notes, books, etc. allowed on the exams. More information will be provided closer to exam time.

Grading: Your grade will consist of five parts: homework, in-class worksheets and three exams. These are weighted as follows:

Homework: 10%
Worksheets: 15%
Exam 1: 25%
Exam 2: 25%
Exam 3: 25%

We have the following guaranteed cutoffs below:

Cutoff	≥ 90	≥ 80	≥ 65	≥ 50	≥ 0
Grade	A/A-	B+/B/B-	C+/C/C-	D	F

What this means is if you get a 91% at the end, then you are guaranteed an A- in the class, regardless of how the rest of the class fares. However, we can move the cutoffs down if the grade distribution is too low. All this is to say that a curve can only help you at the end, it can't hurt you (we won't curve down).

Missed or Late Work: It is possible you will miss coursework because of illness, a family emergency, or certain university-approved reasons (such as athletics). If you provide adequate documentation, I can provide you with an extension or excuse the work as is appropriate for the situation. Work missed for other reasons will not be excused.

Academic Integrity: At Yale, academic honesty is taken very seriously. Please take a moment to read the above homework and exam policies in Math 120, so that you can be sure to follow them. In particular, the use of calculators, notes, books, or any other aid on our exams is forbidden.

As an extra note, please do not make any notes into returned examinations. Should you need to ask for re-grading of your exam, the test must be submitted to us exactly the way it was. Any alteration, however innocent, is considered to be dishonest by the University.

If you have any questions about our policies, please feel free to ask me, I will be happy to help.

Extra Resources: I will be having regularly scheduled office hours. This is a great place to go for any questions you have.

There will also be practice problems and videos on our website that can be used as extra practice.