

MATH 1D. 15  
Multivariable Calculus Fall 2022

**Tuesday and Thursday 4 – 6:15 pm in S45**

**Instructor:** Fatemeh Yarahmadi

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My office hours are times for conversation about the course and your work in it. I am here to answer questions, offer feedback, discuss a course concept, or just listen as you explore a line of reasoning. I can also direct you to resources to help you meet challenges you face outside of class.

**Questions outside of office hours?** I will respond to your message or Q&A Discussion post within 24 hours, M-F. If you do not get a response after 24 hours, please resend.

**Textbook & Required Materials:**

**Text:** Stewart, Calculus Early Transcendentals, 9th edition

**Graphing Calculator:** TI-83/TI-83+/TI-84/TI-84+

**Computer/smartphone** to complete online homework assignments, submit activities on Canvas, and attend required live class meetings.

You should keep a **notebook** where you take notes and work the problems for reference.

**Prerequisite:**

Mathematics 1C (with a grade of C or better) or equivalent. Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as Second Language 272 and 273

**Notebook**

I recommend that you work out each homework problem on paper in a notebook. Even though you won't be handing in problems (unless announced), I expect that you write out the solution to each problem in your notebook. I believe the best way to prepare for a test is to practice the skills that you will demonstrate during the test. Practice solving each problem in a clear, logical, and methodical way and you will earn more points on your test. This will also help me whenever you come to me with questions, because it allows me to see your work and offer helpful suggestions suited to your questions.

**Homework:**

Written sets for submission: During the term, I will send out homework and group activities sets to be discussed, written up, and submitted on Canvas. Homework and group activities is essential in any math class. You cannot expect to pass the class without putting consistent effort into homework and group activities. Show all work and explain any reasoning. Homework and group activities Guidelines:

**Group Quizzes:** There are group quizzes in our class. Quizzes will focus on the material covered during that week.

**Discussions:** There will be discussion topics posted throughout the term. The deadline for responding to the topic will be indicated when the assignment is posted. You may not respond to the discussion once the deadline has passed.

**Projects:** Projects will be assigned throughout the term. Project due dates are indicated on Canvas.

**Exam Reviews:** There will be an exam review assigned before each exam. The purpose of the review is to aid the student in studying for the exams.

**Midterm Exams:** There will be three midterm exams. Each exam includes handwritten portion which you will upload to Canvas. Each midterm exam will focus the material covered since the previous exam. More details on exam dates and procedures can be found in Canvas.

**Final Exam:** The final exam will cover all material from throughout the term. More details on the final exam will be available on Canvas.

**Grading Policy:**

|                           |                 |
|---------------------------|-----------------|
| Homework                  | 100 pts (12.5%) |
| Discussion                | 100 pts (12.5%) |
| Projects                  | 100 pts (12.5%) |
| Midterm Reviews/ Midterms | 300 pts (37.5%) |
| Final                     | 200 pts (25%)   |
| Total                     | 800 pts         |

**Quarter grade:**

|          |           |          |           |
|----------|-----------|----------|-----------|
| ≥ 100%   | <b>A+</b> | 78-79.9% | <b>C+</b> |
| 93-99.9% | <b>A</b>  | 70-77.9% | <b>C</b>  |
| 90-92.9% | <b>A-</b> | 68-69.9% | <b>D+</b> |
| 88-89.9% | <b>B+</b> | 63-67.9% | <b>D</b>  |
| 83-87.9% | <b>B</b>  | 60-62.9% | <b>D-</b> |
| 80-82.9% | <b>B-</b> | 0-59.9%  | <b>F</b>  |

For detailed information on Homework, Quizzes, Projects, Discussion please log into your Canvas course page.

**Important Dates and Deadlines:** <http://www.deanza.edu/calendar/dates-and-deadlines.html>

**De Anza Final exams schedule:** <https://www.deanza.edu/calendar/final-exams.html>

For detailed information on Homework, Quizzes, Projects, Discussion please log into your Canvas course page.

**Academic Integrity:**

All students are expected to exercise high levels of academic integrity throughout the quarter. You are encouraged to work together but you are expected to write up your answers independently. Any instances of cheating or plagiarism will result in disciplinary action, including getting a '0' on the assignment and report to the PSME dean, which may lead to dismissal from the class or the college

**Student Honesty Policy:**

“Students are expected to exercise academic honesty and integrity. Violations such as cheating and plagiarism will result in disciplinary action which may include recommendation for dismissal.”

**Disabled Services:**

Students who have been found to be eligible for accommodations by Disability Support Services (DSS), please follow up to ensure that your accommodations have been authorized for the current quarter. If you are not registered with DSS and need accommodations, please go to <http://www.deanza.edu/dss>.

This syllabus is subject to change at the instructor's discretion. Changes will be announced in class and on Canvas.

**Recipe for Success:**

- If you ever have any questions, Email me! You are welcome to send email to me whenever you need help!
- Visit the Online Tutoring Center.
- Form an online study group.
- Watch all lectures, participate in every discussion, and complete every homework assignment.
- Read the sections to be discussed in class prior to the lecture

| <b>Section</b> | <b>Course Content</b>                           |
|----------------|---|
| 14.1           | Functions of Several Variables                  |
| 14.2           | Limits and Continuity                           |
| 14.3           | Partial Derivatives                             |
| 14.4           | Tangent Planes and Linear Approximations        |
| 14.5           | The Chain Rule                                  |
| 14.6           | Directional Derivatives and the Gradient Vector |
| 14.7           | Maximum and Minimum Values                      |
| 14.8           | Lagrange Multipliers                            |
| 15.1           | Double Integrals over Rectangles                |
| 15.2           | Double Integrals over General Regions           |
| 15.3           | Double Integrals in Polar Coordinates           |
| 15.4           | Applications of Double Integrals                |
| 15.5           | Surface Area                                    |
| 15.6           | Triple Integrals                                |
| 15.7           | Triple Integrals in Cylindrical Coordinates     |
| 15.8           | Triple Integrals in Spherical Coordinates       |
| 15.9           | Change of Variables in Multiple Integrals       |
| 16.1           | Vector Fields                                   |
| 16.2           | Line Integrals                                  |
| 16.3           | The Fundamental Theorem for Line Integrals      |
| 16.4           | Green's Theorem                                 |
| 16.5           | Curl and Divergence                             |
| 16.6           | Parametric Surfaces and Their Areas             |
| 16.7           | Surface Integrals                               |
| 16.8           | Stokes' Theorem                                 |
| 16.9           | The Divergence Theorem                          |

## Tentative Schedule

| WEEK | MONDAY       | TUESDAY             | WEDNESDAY | THURSDAY                          | Friday           |
|------|--------------|---------------------|-----------|-----------------------------------|------------------|
| 1    | September 26 | 27<br>Ch 14         | 28        | 29<br>Ch 14                       | 30               |
| 2    | October 3    | 4<br>Ch 14          | 5         | 6<br>Ch 14                        | 7<br>Quiz 1 Due  |
| 3    | 10           | 11<br>Ch 14         | 12        | 13<br>Exam 1 (Chapter 14)         | 14               |
| 4    | 17           | 18<br>Ch 15         | 19        | 20<br>Ch 15                       | 21<br>Quiz 2 Due |
| 5    | 24           | 25<br>Ch 15         | 26        | 27<br>Ch 15                       | 28               |
| 6    | 31           | November 1<br>Ch 15 | 2         | 3<br>Exam 2 (Chapter 15)          | 4                |
| 7    | 7            | 8<br>Ch 15          | 9         | 10                                | 11<br>Quiz 3 Due |
| 8    | 14           | 15<br>Ch 16         | 16        | 17<br>Ch 16                       | 18               |
| 9    | 21           | 22<br>Ch 16         | 23        | 24                                | 25               |
| 10   | 28           | 29<br>Ch 16         | 30        | December 1<br>Exam 3 (Chapter 16) | 2                |
| 11   | 5            | 6<br>Final Review   | 7         | 8<br>Final Review                 | 9<br>Quiz 4 Due  |

September 26 Fall classes begin

October 8 Last day to add classes

October 9 Last day to drop classes without a W

November 11 Veterans Day holiday – no classes; offices closed

November 18 Last day to drop classes with a W

November 24-27 Thanksgiving holiday – no classes; offices closed

December 12-16 Final exams

**Student Learning Outcome(s):**

\*Graphically and analytically synthesize and apply multivariable and vector-valued functions and their derivatives, using correct notation and mathematical precision.

\*Use double, triple and line integrals in applications, including Green's Theorem, Stokes' Theorem and Divergence Theorem.

\*Synthesize the key concepts of differential, integral and multivariate calculus.

**Office Hours:**

|           |      |     |          |          |
|-----------|------|-----|----------|----------|
| Zoom      |      | F   | 11:00 AM | 12:00 PM |
| In-Person | S91H | M,W | 12:00 PM | 12:00 PM |