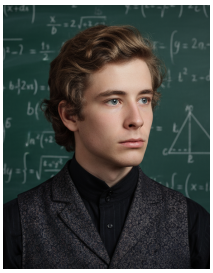
MTH 2554: Multivariable Calculus



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Webpage for the course: Additional materials for this course are posted at
http://www.risat.org/calculus-iii

Catalog Description. A study of vectors, polar coordinates, three-dimensional geometry, differential calculus of functions of several variables, multiple integrals, line and surface integrals, and vector fields including Green's theorem, Stoke's theorem, and Divergence theorem.

Prerequisites: MTH 1555 (Calculus II) with a grade C or better.

Textbook: Suggested textbook is **Calculus with Early Transcendentals**, by Stewart.
Any edition is fine! Any used textbook including older editions are just fine.

Course objectives: A student who successfully completes this course will be able to:

(1) To understand the foundations of the geometry in space: vectors, dot and cross product, equations of lines, planes, surfaces.
(2) Have a deep understanding of vector functions and how they are used in physics, engineering, topography, climate change, etc.
(3) Understand the theory of partial derivatives and their applications: tangent planes, maximums and minimums for functions of several variables.
(4) Be able to compute multiple integrals, including integrals that require a change of coordinates (variables).
(5) To have a solid understanding of vector calculus, line integrals, curl and divergence, Green, Stoke, and Divergence theorems.

Delivery of lectures. This is a face to face class. You are expected to attend lectures, which will be held on Room: ODH 202A (O'Dowd Hall) MTWR 9:45 - 11:20 a.m.

There will be one midterm which will be held during regular class time. Please block the date. No makeup exams will be given under any circumstances. I follow the class calendar (next page) very closely. Please use it as your guid throughout the semester.

Materials needed. For the course you will need some version of the book **Calculus** of Stewwart.

Grading: The following chart will be used to determine your grade:

Homework:	20%
Midterm I:	20%
Midterm II:	20%
Final:	40%

Grades will be determined with the following scale:

A	A-	B+	B	B-	C+	C	C-	D+	D	D-	F
94-100	90-93	87-89	84-86	80-83	77-79	73-76	70-72	67-69	63-66	60-62	0-59

Course policies. The course will be conducted in accordance to the Oakland University regulations and policies. Details can be found here: https://oakland.edu/provost/policies-and-procedures/

Good study habits.

- Take careful notes, make sure to go over them when you get home
- Solve all the problems at the end of each section. Even when you are not able to solve a problem you learn a lot from them if you attempt to do so.
- Create study groups and participate actively on them
- Come to my office hours and ask for help for things that you don't understand. Make sure you come prepared with well though questions.

Contents. We will cover chapters 12-16 in Stewart's book (with some small deviations). The following list of topics will be followed very closely. Please pay attention and take careful notes as some of the problems or topics might not be in the book.

Monday	Wednesday	Friday
Jan 5th	7th **1** Section: 12.1-12.2	9th **2** Section: 12.3
12th **3** Section: 12.4	14th **4** Section: 12.5	16th **5** Section: 13.1
No Class 19th	21st **6** Section: 13.2	23rd **7** Section: 13.3
26th **8** Section: 13.4	28th **9** Section: 14.1	30th **10** Section: 14.2
Feb 2nd **11** Section: 14.3	4th **12** Section: 14.4	6th **13** Section: 14.5
9th **14** Section: 14.6	11th **15** Section: 14.7	13th **16** Section: 14.8
16th **17** **Midterm I:**	18th **18** Section: 15.1	20th **19** Section: 15.2
23rd **20** Section: 15.3	25th **21** Section: 15.4	27th **22** Section 15.5
Winter Break Mar 2nd	Winter Break 4th	Winter Break 6th
9th **23** Section 15.6	11th **24** Section 15.7	13th **25** Section 15.8
16th **26** Section 15.9	18th **27** Section 15.10	20th **28** Review
23rd **29** Section 16.1	25th **30** Section 16.2	27th **31** Section 16.3
30th **32** Section 16.4	Apr 1st **33** Section 16.5	3rd **34** Review
6th **35** **Midterm II:**	8th **36** Section 16.6	10th **37** Section 16.7
13th **38** Section 16.8	15th **39** Section 16.9	17th **40** Review
20th **41** Review	22nd **42**	24th **43**
Final Exam: 8:00-11:00 AM 27th **44**	29th **45**	May 1st **46**