

College of Dupage
Math 2235-003: Additional Topics – Vector Calculus
Monday, Wednesday 4:00 – 6:25 PM
April 27, 2020 – May 13, 2020
BIC 2501

Contact Information:

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Course Objectives and Topic Outline:

Course description to appear in catalog: An extension of Calculus III, covering the curl of a vector field, surface integrals, Stoke's theorem, and the divergence theorem

Credit Hours: 1 Lecture Hours: 1 Lab Hours: 0

Prerequisite: MATH 2233 Calculus and Analytic Geometry III with a grade of "C" or better, or equivalent

A. General Course Objectives:

Upon successful completion of the course the student should be able to do the following:

1. Determine the curl of a vector field
2. Represent a surface with parametric equations
3. Integrate a function of three variables over a surface
4. Evaluate the flux of a vector field across a surface
5. Use Stoke's theorem to evaluate the circulation of a vector field around a closed curve
6. Use the divergence theorem to evaluate the outward flux of a vector field across the boundary of a closed region

B. Topical Outline

1. Curl
2. Parametric surfaces
3. Surface integrals
4. Flux across a surface
5. Stoke's theorem
6. Divergence theorem
7. Applications

Textbook:

Thomas' Calculus, 14th Ed. by Hass, Heil, Weir

The online supplement to the textbook will not be required.

Classtime:

Students are expected to PARTICIPATE. Students are responsible for all material covered in each class, even if they missed that day.

All communication between instructor and students will be conducted either through Blackboard or via a COD email account. Make sure you check your COD email regularly.

Participation Write-Ups:

For each section of the textbook covered, students should write up a summary (of one or more pages) of the topics in that section, their interpretation of the calculations, and any thoughts or questions they may have. This summary should NOT just be a list of formulas or a regurgitation of the textbook.

These summaries will not be graded on accuracy or correctness, but rather on insight and thoughtfulness: Is the student truly understanding the material or just memorizing formulas? Is the student asking thoughtful, pointed questions or just claiming not to understand any of it? Is the student connecting the material back to any previous mathematical (or STEM) topics that enhance their understanding?

These summaries should be typed or scanned as pdf files, and can be submitted through Blackboard. Timely feedback will be provided.

Homework:

Homework problems will be assigned for every lecture. Students need to spend time and at least attempt every assigned homework problem to master the material and be prepared for the exams. Homework problems often appear the exam, but the homework itself does not need to be turned in and will not be graded.

Solution guides and online step-by-step solutions should not be overused when doing homework. Students who rely on these resources tend to underperform on exams. When stuck on a problem, take the time to read class notes and the textbook for related examples.

Exams:

There will be one final exam given in the course on May 13. No cell phones or computers will be allowed during the exam. Calculators are not allowed either.

Grade Calculation:

Graded Assessment	Percentage of Final Grade
Participation/Write-Ups	33%
Cumulative Final Exam	67%

Letter Grade	A	B	C	D	F
Percentage	90% and Up	80% - 89%	70% - 79%	60% - 69%	Below 60%

Written Style:

Student should practice and use good style when answering problems to receive any partial credit. That means that any answer which requires an explanation should be written in complete sentences, all mathematical notation should be consistent and make sense, and anybody reading the solutions for the first time (namely, the grader) should have no confusion as to both the final answer and the work involved to get there. For example, “ $1 + 1 = 2$ ” is a complete sentence. It has a subject (1+1), a verb (=) and an object (2).

Academic Integrity:

Students should be aware of the [Code of Academic Conduct](#) and know the consequences should the code be violated. The document can be found at

If a student is caught violating the code they will receive an automatic zero on that assignment and will be reported through COD's academic integrity reporting system.

Center for Access and Accommodations:

Students who require any type of special accommodations for access and participation in this course must be registered with the Center for Access and Accommodations, SSC 3249. Students with extra exam time accommodations will take their exams in the COD Testing Center.

Withdrawal Policy:

The final day for a student to withdraw from any course will be equal to 75% of the time for the respective academic session (see the [Registration Calendar](#)) through myACCESS <https://myaccess.cod.edu> or in person at the Registration office, Student Services Center (SSC), Room 2221.

After the deadline, students will be required to appeal for late withdrawal and provide appropriate documentation to the Student Registration Services Office for all requests. Students who are granted approval to withdraw by petition will not be eligible for refunds of tuition or fees and will receive a 'W' grade on their transcript. Appeals must be submitted prior to the designated final exam period for 16-week classes and before the last class meeting for all other session classes