

Mathematics 3202: Vector Calculus – Winter 2006

Slots: 06

Classrooms: SN 3042

Time: Lecture MTR 1:00 - 1:50 pm

Instructor: Dr. Margo Kondratieva

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Prerequisite:

The prerequisites are Math-2000 and Math-2050.

Getting Help:

There are few ways of getting help. First, I'll have **office hours from 2:00pm-3:00pm on Monday, Tuesdays, and Thursdays**, so feel free to come to them. If you need to speak to me outside of those times please make an appointment. If you have a quick question or remark send me an e-mail. This also can be done via the new discussion board on my web page.

Marking Scheme:

There will be an assignment almost every week which I'll usually hand out on Tue. They'll usually be due a week later on Tue in class or assignment box before 4pm. Late assignments will not be accepted. The **assignments** will be worth *only 10%* of your final mark, *but doing them is extremely important for your understanding and success in the course!*

There will also be **two term tests** on **February 23** and **March 27**. The **best** of the two scores will be taken, and it will be worth **30%** of your final mark.

The **final exam** will cover the entire course. It will be worth **60%** of your final mark.

Note: If you miss an assignment or term test for an acceptable reason, write me a note explaining the circumstances and I'll shift the weighting for the missed work to the final exam. Such notes should be submitted within a week of the missed event.

Missing the final exam is a much more serious matter. It can be deferred if you have three exams all scheduled within a 24 hour period, or if you suffer bereavement or serious medical problems. Deferrals must be officially applied for using forms that you can obtain from the General Office (HH-3003).

Calculators:

Graphing calculators such as the TI81,82,83,84,85,86 are allowed during tests and the final exam. However, calculators that can do symbolic manipulations such as the TI89, TI92, or HP48G are not allowed. If you use your calculator to store notes or formulas, you must delete this material before the start of any test, or exam. Bringing electronic notes into an exam is the equivalent of bringing in a cheat sheet, and will be dealt with in the same way (see MUN calendar).

Text and Course Outline:

The official text is Calculus by James Stewart (5th Edition). You are advised to read an appropriate section before starting doing your homework assignment.

We'll cover the following material, which is organized into four units (the class schedule is tentative and may vary):

Unit 1	The geometry of space curves	book ref	class
1.1	Parametric curves in 2D	10.1	Jan 9
1.2	Vector functions and curves in 3D	13.1	Jan 10
1.3	Derivatives and integrals of vector functions	13.2	Jan 12
1.4	arc length	13.3	Jan 16
1.5	curvature and osculating circle	13.3	Jan 17
1.6	normal and binormal vectors	13.3	Jan 19
1.7	motion in space: velocity and acceleration	13.4	Jan 23
Unit 2	The geometry of surfaces	book ref	class
2.1	Some surfaces and their equations	12.6, 14.1	Jan 24
2.2	Functions of two variables and partial derivatives	14.3	Jan 26
2.3	Tangent plane	14.4	Jan 30
2.4	Directional derivative and gradient	14.6	Jan 31
2.5	Lagrange Multipliers	14.8	Feb
	Review for test		Feb 16
	Test 1		Feb 23
Unit 3	Topics in integration	book ref	class
3.1	Double intergral over general region (review)	15.3	Feb
3.2	Doble integral in polar coordinates(review)	15.4	Feb
3.3	Surface area	15.6	Feb
3.4	Triple integrals	15.7	Feb
3.5	Cylindrical and spherical coordinates	12.7	Feb
3.6	Triple integrals in cylindrical and spherical coordinates	15.8	Mar
3.7	Change of variables in multiintegrals	15.9	March
Unit 4	Vector calculus	book ref	class
4.1	Vector fields	16.1	March
4.2	Line integrals	16.2	March
4.3	FTOC for line integrals	16.3	March
4.4	Green's Theorem	16.4	Mar
	Review for test		March 23
	Test 2		March 27
4.5	Curl and divergence	16.5	March
4.6	Parametric surfaces and their areas	16.6	March
4.7	Surface integral	16.7	March
4.8	Stoke's theorem	16.8	Apr
4.9	Divergence theorem	16.9	Apr
	Review for final- will be scheduled before exam		
	Final exams		Apr. 12-22