Course	MATH 2451, Multivariable Calculus with Applications
Instructor	Dr. Ali Hooshyar
Teaching Assistant	Rakotomalala Diarisoa
Term	Spring 2017, 1/9 (classes begin), 4/30 (classes end)
Class Meetings	T&R, 2:30pm-3:45pm, GR 2.530
Problem Session	Math 2451.301, W(1:00pm-2:50pm)FN 2.104
	Math 2451.302, W(3:00pm-4:50pm)FO 2.404

Instructor's Contact Information

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Office Hours	T&R, 1:15pm-2:15pm

Teaching Assistant's Contact Information

Office Location	FN 3.118
Email Address	Rakotomalala Diarisoa: mihaja@utdallas.edu
Office Hours	TBA

General Course Information

Pre-requisite Co-requisite	Math 2419 Math 2451.301 or 2451.302
Course Description	Vectors, matrices, vector functions, partial derivatives, divergence, curl, Laplacean, multiple integrals, line and surface integrals Green's, Stoke's, and Gauss's Theorems, and selected applications from engineering and physics.
Learning Outcomes	**1.** Students will be able to articulate the concept of differentiation, directionalderivative, gradient and know their properties. **2.** Students will be able to use the chain rule, Taylor's Theorem, find extremaand constrained extrema of real valued function. **3.** Students will be able to calculate line integral, the area of a parametrizedsurface and surface integrals of vector fields. **4.** Students will be able to articulate integral theorems of vector calculus andknow to apply them.
Required Texts & Materials	*"Vector Calculus"*, 6th Edition, Marsden & Tromba
Suggested Texts, Readings, & Materials	The website, `www.whfreeman.com/MarsdenV6e/` contains material that supplements the text. Additional course material will be posted on `e-Learning`.

Course Policies

	The course grade is based on the following:	
	Two Exams	See schedule for dates
	Homework	Assigned and collected on regular basis (about 10 assignments)
Grading Criteria	10 **Quizzes**	See schedule for dates
	Comprehensive Final Exam	See schedule for dates
	Weights	

15%	Quiz total, the best 9 quiz scores scaled to 100%
20%	Homework total, the best scores from 9 assignments scaled to 100%
40%	Exam 1 (20%) & Exam 2 (20%)
25%	Final Exam, comprehensive, not optional (the final exam score, if higher, will replace the lowest score of the two exams).

Grade Scale

$[97.6, 100] \rightarrow A+$	$[93.3, 97.6) \rightarrow A$	$[90, 93.3) \rightarrow A-$
$[86.6, 90) \rightarrow B+$	$[83.3, 86.6) \rightarrow B$	$[80, 83.3) \rightarrow B-$
$[76.6, 80) \rightarrow C+$	$[73.3, 76.6) \rightarrow C$	$[70, 73.3) \rightarrow C-$
$[66.6, 70) \rightarrow D+$	$[63.3, 66.6) \rightarrow D$	$[60, 63.3) \rightarrow D-$
$[0, 60) \rightarrow F$		

Example

Exam 1	Exam 2	Quiz %	Homework %	Final Exam
83	74	65	80	87
Course percent		$0.15 \times 65 + 0.20 \times 80 + 0.20 \times (83 + 87) + 0.25 \times 87 = 81.5$		
Course grade		*B−*		

Make-up Exams and Quizzes	If you miss an exam, the grade will be recorded as zero unless you contacted your instructor **IN ADVANCE** and agreed upon a procedure to make it up. **No make-up quizzes are allowed.**
Late Work and Special Assignments	Occasionally there may be an assignment that is to be completed outside the classroom. Any such assignment will have a specific deadline. Failure to meet the deadline will result in a 25% reduction per each 12 hours late of the point value for the assignment.
Class Attendance	Attendance is expected and highly recommended.
Classroom Citizenship	Any action which disturbs your classmates or interrupts the lecture is unacceptable.

Coverage Schedule (Tentative - Based on "Vector Calculus" (6th Edition), Marsden & Tromba)

Week	Mon	Sections covered	Wed	Sections covered	Quizzes
1	1/10	Sections: 1.1 - 1.3	1/12	Sections: 1.4, 2.1	
2	1/17	Sections: 2.2, 2.3	1/19	Sections: 2.3, 2.4	Qz 1
3	1/24	Sections: 2.4, 2.5	1/26	Sections: 2.6, 3.1	Qz 2
4	1/31	Sections: 3.2, 3.3	2/2	Sections: 3.3, 3.4	Qz 3
5	2/7	Sections: 3.4, 3.5	2/9	Sections: 4.1, 4.2	
6	2/14	**Exam 1**	2/16	Sections: 4.3, 4.4	Qz 4
7	2/21	Sections: 5.1, 5.2	2/23	Sections: 5.2, 5.3	Qz 5
8	2/28	Sections: 5.3, 5.4	3/2	Sections: 5.5, 6.1	Qz 6
9	3/7	Sections: 6.1, 6.2	3/9	Sections: 5.1, 6.2	Qz 7
10	3/14	**Spring Break**	3/16	**Spring Break**	
11	3/21	Sections: 6.1, 6.2	3/23	Sections: 6.2, 6.3	
12	3/28	**Exam 2**	3/30	Sections:7.1, 7.2	
13	4/4	Sections: 7.2, 7.3	4/6	Sections: 7.4, 7.5	Qz 9
14	4/11	Sections: 7.6	4/13	Sections: 8.1	Qz 10
15	4/18	Sections: 8.2	4/20	Sections: 8.3	Qz 11
16	4/25	Sections: 8.6	4/27	**Review for Final**	
Math 2451	**Final Exam**	University's Final Exam Schedule (TBA)	in	**GR 2.530**	

*Students are responsible for all announcements made by the instructor concerning any changes in the schedule for the class.

Exams & Quizzes (general rules)

Exams and quizzes are closed-book tests and students are required to take them at the announced time. All exams (except the final exam) will be given during class meetings and all quizzes during problem sessions. Students are expected to inform the instructor of suspected honor code violations. Show all details of your work for each problem you solve during exams and quizzes (unsupported answers will receive little or no credit). Graphing calculator, programmable calculators, or calculators with non-numeric displays are **NOT ALLOWED** during quizzes and exams. Graded quizzes and exams will be returned to you as soon as possible. Any document not picked up by the end of finals week will be destroyed. The final exam will not be returned to students but held for review for one semester.

Homework and additional assignments

Homework assignments will be given, collected and graded on a regular basis throughout the semester. Students are strongly encouraged to work more problems than only these assigned for homework. Therefore, you should challenge yourself by attempting problems which are not part of the homework assignments, for instance students should consider doing problems from the *"List of Practice Problems"*. Problems from"*List of Practice Problems"* will not be collected.

List of Practice Problems (based on "Vector Calculus" Marsden & Tromba)

Section	Problems	Section	Problems

1.1	5, 7, 11, 13, 15, 17 − 22	4.4	1 − 4, 7, 9 − 26, 28, 29
1.2	7, 11, 15, 16, 18	5.1	1, 3, 5, 7 − 11
1.3	2, 3, 7, 10, 13, 15, 18, 24, 26, 30, 33, 34	5.2	1 − 7, 9, 12
1.4	1, 2, 4, 8, 9	5.3	1 − 13
1.5	2, 3, 7, 12, 13, 17, 18	5.4	1, 2, 7 − 11
2.1	1, 2, 4 − 32	5.5	1 − 21, 23 − 28
2.2	1 − 5, 7, 8, 9, 13, 15, 16, 17	6.1	1 − 7, 12
2.3	1 − 18	6.2	1 − 9, 12, 13, 14, 17, 18, 19, 21 − 33
2.4	1, 3, 4, 5, 6, 8, 11, 12, 14 − 20	6.3	1 − 12
2.5	1 − 5, 8 − 16	7.1	1 − 5, 7, 12, 13, 14
2.6	1 − 15, 24	7.2	1 − 3, 6, 7, 9 − 12, 15, 16
3.1	1 − 13, 15, 16, 19, 20	7.3	1 − 15
3.2	1 − 6	7.4	1 − 3, 5, 6, 8, 9, 10 − 13, 15, 18, 21, 22
3.3	1 − 17, 21 − 25, 27, 29, 30, 31, 34, 35	7.5	1 − 8
3.4	1 − 12, 15, 16, 25, 27, 29	7.6	1 − 7, 9, 10, 15, 16, 18
3.5	1 − 12	8.1	1 − 5, 7, 11, 13, 15
4.1	1 − 9, 14, 17, 19	8.2	1 − 3, 5 − 7, 9 − 11, 23, 25
4.2	1 − 9	8.3	2, 10, 13, 14, 15
4.3	1 − 16	8.6	1 − 4, 8 − 12

Tentative Schedule

Course & Instructor Policies

Make-up exams: N/A, *Extra Credit:* N/A, *Late Work:* N/A*, Special Assignments:* N/A

Off-campus Instruction and Course Activities _ N/A

Comet Creed

This creed was voted on by the UT Dallas student body in 2014. It is a standard that Comets choose to live by and encourage others to do the same:

"As a Comet, I pledge honesty, integrity, and service in all that I do."

UT Dallas Syllabus Policies and Procedures

The information contained in the following link constitutes the University's policies and procedures segment of the course syllabus.

Please go to http://go.utdallas.edu/syllabus-policies for these policies.

The descriptions and timelines contained in this syllabus are subject to change at the discretion of the Professor.