

MATH 2415 CALCULUS OF SEVERAL VARIABLES
Syllabus-Fall 2018

Class Information:

Class Section	Location	Days	Time	Instructor
MATH 2415.001	CB 1.219	Tue, Thu	4:00pm-5:15pm	Dr. Neha Makhijani
MATH 2415.002	GR 4.428	Tue, Thu	1:00pm-2:15pm	Dr. Rabin Dahal
MATH 2415.003	JSOM 2.722	Tue, Thu	8:30am-9:45am	Dr. Rabin Dahal
MATH 2415.501	JO 3.516	Tue, Thu	5:30pm-6:45pm	Dr. Neha Makhijani

Instructor Information:

Instructor: Dr. Rabin Dahal	Instructor : Dr. Neha Makhijani
Office: FO 2.110	Office: FO 2.410G
Office Hrs: Tue, Thu 2:30-3:30pm; Wed 9-11am. & by appt.	Office Hrs: Mon 2 -4 pm & by appt.
Email: Rabin.Dahal@utdallas.edu	Email: Neha.Makhijani@utdallas.edu
Phone: (972) 883 6584	Phone: (972) 883 6419

Course Description: The course covers differential and integral calculus of functions of several variables. Topics include vector valued and scalar functions, partial derivatives, directional derivatives, chain rule, Lagrange multipliers, multiple integrals, the line integral, Green's theorem, Stokes' theorem, divergence theorem.(3 lecture hours and 2 problem session hours per week; 4 semester credit hours).

Pre-Requisite: A grade of C- or better in MATH 2414 or equivalent.

Co-requisites:

- Students must enroll in one of the problem sections MATH 2415.3XX in addition to the lecture sections MATH 2415.00x or MATH 2415.50X.
- Students are automatically enrolled in MATH 2415.701 exam section which meets in exam days only.

Textbook and Materials:

- **Textbook:** Calculus: Early Transcendentals, *8th edition*, James Stewart, Chapters 12-16.
- **WebAssign:** You must have **WebAssign** access. Some Options:
 1. Single-term WebAssign printed access card(contains ebook): ISBN: 9781337771467
 2. Multi-term WebAssign printed access card(contains ebook): ISBN: 9781337771474
 3. Bundle: Loose-leaf textbook+multi-term WebAssign access: ISBN: 9781305616691

4. Bundle: Hardcover textbook+multi-term WebAssign access: ISBN: 9781305597624
5. Cengage Unlimited: ISBN: 9780357700006 (4-month access), ISBN: 9780357700013 (12-month access), ISBN: 9780357700020 (24-month access).

- **Sections Covered:** The course will cover the following sections of the textbook: 12.1-12.6, 13.1-13.3, 14.1, 14.3-14.8, 15.1-15.3, 15.6-15.9, 16.1-16.7, and 16.8-16.9.

eLearning:

You must regularly check the MATH 2415.701 (the exam section) page of eLearning:

<https://elearning.utdallas.edu>

Paper Homework(PHW), grades, and important announcements will be posted under the course MATH 2415.701 on eLearning. You will also access WebAssign for Digital Homework(DHW) through the course MATH 2415.701 on eLearning.

PLTL Program:

Peer-Led Team-Learning (PLTL) sessions are available for MATH 2415. More details will be posted on eLearning in about the second week of the semester.

<http://www.utdallas.edu/studentssuccess/help-with-courses/peer-led-team-learning/>

Mathlab:

The Student Success Center Math Lab offers free help in math, physics and statistics courses to UT Dallas students currently enrolled in classes. Please contact Math Lab for appointment and info. Website:

<http://www.utdallas.edu/studentssuccess/mathlab/>

Students Learning Outcomes

1. Students will be able to calculate the dot, cross, and triple product of vectors and apply those products to calculate the angle between two vectors, area of triangle and parallelogram, and volume of a parallelepiped. Students will also be able to find vector and scalar projection of a vector in the direction of another vector.
2. Given an algebraic or parametric or vector equation, the students will be able to determine the graph in space as a line or a plane or a quadric surface, or a space curve and graph it.
3. Students will be able to graph, calculate partial derivatives, and find the relative extrema(if any) of a given function of two variables.
4. Students will be able to solve the constrained optimization problems using Lagrange multiplier.

5. Students will be able to compute double integrals in cartesian coordinates over rectangular regions and general regions of type I and type II. Students will also be able to compute double integrals in polar coordinates and simple triple integrals in cylindrical and spherical coordinates.
6. Students will be able to compute and interpret directional derivatives and gradient, of a scalar function.
7. Students will be able to calculate and interpret the curl and divergence of a vector function.
8. Students will be able to compute the line integrals of a function along a closed curve using Green's, Stokes', and divergence theorem.

Course Policy & Grading Scheme

1. Digital Homework(DHW):

- Weekly Digital Homework(DHW) will be made available in WebAssign every Tuesday and will be due at 11:59pm the following Wednesday.
- 2 lowest DHW scores will be dropped at the end of the semester.
- DHW is worth 15% towards your final grade.

2. Paper Homework(PHW):

- A pdf file of weekly Paper Homework(PHW) will be posted each week on eLearning.
- You must print the pdf of the PHW, write your solutions in the space provided, staple it, and turn in at the beginning of the problem sessions.
- You must show all of your work to earn full credit. Correct answers with insufficient supporting work will receive no or reduced credit.
- You may ask questions about PHW to your instructor or TA or your class mate. Collaboration is encouraged. However the final write up should be yours-two identical PHW will both get zero.
- Only a subset of assigned problems on PHW will be graded but you will not be told in advance which ones.
- PHW will count as 15% towards your final grade.
- 2 lowest PHW will be dropped at the end of the semester.

3. Mid-Term Exams:

- Exam I: Sept 28, Friday 7:00pm-8:15pm; Location: TBA
- Exam II: Nov 02, Friday 7:00pm-8:15pm; Location: TBA
- Each midterm exam counts 20% towards your final grade.

4. Final Exam

- Date: TBA
- Comprehensive but more emphasis will be on the material covered after Exam II.
- Final exam will count as 25% towards your final grade.

Note: Exam locations will be assigned and posted tentatively one week before each exam.

5. **Participation in Problem Sessions:** 5% of your grade will be given by the Teaching Assistants based on your active participation on the Friday Problem Sessions. The whole class will be divided into several groups of 3 and each group will work on assigned problems on the white board. The Teaching Assistant (TA) and Undergraduate Learning Assistant (ULA) will monitor your progress and may give you some ideas and answer your questions. For each session you will receive 5 points if you arrive on time, and actively participate in the entire session. You will earn at most 4.5 points if you arrive in the first 10 minutes, leave no more than 20 minutes early and actively participate. You will earn 0-4 points depending on how late you arrive, how early you leave and how actively you participate.

LATE/MISSED COURSEWORK

- There is no make-up for late or missed assignments, quizzes, or exams, unless extreme circumstances with proper documentation accepted by the instructor.

CALCULATORS

- Calculators are not allowed in the exams. The exams will involve simple calculations so that you will not need a calculator.

GRADING SCHEME

- – Two midterm exams: 20% each
 - Digital Homework: 15%
 - Paper Homework: 15%
 - Active participation in Problem Sessions: 5%
 - Final exam: 25%
- All letter grades will be assigned in accordance with the table of numeric to alphabetic conversions given below.

[90; 93) A-, [93; 97) A, [97; 100+] A+
[80; 83) B-, [83; 87) B, [87;90) B+
[70; 73) C-, [73; 77) C, [77;80) C+
[60; 63) D-, [63; 67) D, [67;70) D+
[0, 60) F.

Tentative Schedule

TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
Aug 21st Sec 12.1, 12.2	22nd 2	23rd 3 Sec 12.3	24th 4
28th Sec 12.4	29th 5 DHW#1 Due	30th 6 Sec 12.5	31st 7 PHW#1 Due
Sep 4th Sec 12.6	9 10 DHW#2 Due	6th 11 Sec 13.1	7th 12 PHW#2 Due
11th Sec 13.2, 13.3	12th 13 DHW#3 Due	13th 14 Sec 14.1	14th 15 PHW#3 Due
18th Sec 14.3	17 18 DHW#4 Due	20th 19 Sec 14.4	21st 20 PHW#4 Due
25th Sec 14.5	21 22 DHW#5 Due	27th 23 Sec 14.6	28th 24 Review, Exam#1
Oct 2nd Sec 14.7	25 26 DHW#6 Due	4th 27 Sec 14.7	5th 28 PHW#5 Due
9th Sec 14.8	29 30 DHW#7 Due	11th 31 Sec 15.1	12th 32 PHW#6 Due
16th Sec 15.2	33 34 DHW#8 Due	18th 35 Sec 15.3	19th 36 PHW#7 Due
23rd Sec 15.6	37 38 DHW#9 Due	25th 39 Sec 15.7	26th 40 PHW#8 Due
30th Sec 15.8	41 42 DHW#10 Due	Nov 1st 43 Sec 15.9	2nd 44 Review Exam II
6th Sec 16.1	45 46 DHW# 11 Due	8th 47 Sec 16.2	9th 48 PHW#9 Due

TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
13th Sec 16.3 49	14th DHW#12 Due 50	15th Sec 16.4 51	16th PHW#10 Due 52
20th Fall Break 53	21st Fall Break 54	22nd Thanksgivings 55	23rd Thanksgivings 56
27th Sec 16.5 57	28th DHW#13 Due 58	29th Sec 16.6 59	30th PHW# 11 Due 60
Dec 4th Sec 16.7 61	5th DHW# 14 Due 62	6th Sec 16.8, 16.9 63	7th PHW#12 Due 64
11th 65	12th 66	13th 67	14th 68

Important Dates

- Monday, August 20, 2018: Classes begin
- Monday, January 15, 2018: Martin Luther King Day- No class.
- Wednesday, January 24, 2018: Last Day to Drop a class without a “W” Full Term Session
- **Midterm Exam I:** Friday 7:00pm-8:15pm, September 28, 2018. Location TBA
- **Midterm Exam II:** Friday 7:00pm-8:15pm, November 02, 2018. Location TBA
- **Fall/Thanksgivings Break:** Monday, November 20- Sunday November 26, 2018- No classes.
- **Last Day of Classes - Full Term Session:** Friday, December 07 2018.
- **Final Exam:** TBA

UT Dallas Syllabus Policies and Procedures:

The information at

<http://go.utdallas.edu/syllabus-policies>

constitutes university’s syllabus policies and procedures segment of this syllabus.

MATH 2415 WebAssign Instructions:

To gain access to WebAssign:

1. Log into eLearning, and select the course

MATH 2415.701 - Calculus of Several Variables - F18

2. Click the link on the eLearning course homepage entitled “**Access WebAssign**”.
3. If you already have a WebAssign account, you will either see the WebAssign course **MATH 2415.701-Calculus of Several Variables - F18** at the left or you will see a pull-down menu with courses listed; choose

MATH 2415.701 - Calculus of Several Variables - F18

4. If you do not already have a WebAssign account with the text for this course, you will have 3 options to register.
 - Purchase access online if you do not already have an access code and you want to buy access to the ebook and homework problems without printed text.
 - Enter an access code if you have already purchased an access code.
 - Continue the **trial period** if you want to start using the system before purchasing. The deadline is given in red.

Once you have registered, you should be taken to the WebAssign course

MATH 2415.701 - Calculus of Several Variables - F18

Friday Problem Sections Information:

Problem Section	Location	Time	Teaching Assistant (TA)	ULA
MATH 2415.301	CB3 1.302	8-9:50 am	Asanka Gunawardana	Jennifer Foster
MATH 2415.302	CB3 1.312	8-9:50am	Nisha Nisha	Andrew Marder
MATH 2415.303	FN 2.106	10-11:50am	Md Mujibur Chowdhury	Viren Bhosale
MATH 2415.304	CB2 1.206	10-11:50am	Erika Gallo	Shahrin Sharikha
MATH 2415.305	FO 1.202	1-2:50pm	Jonathan Popa	Danika Lelina
MATH 2415.306	FN 2.202	1-2:50pm	Nisha Nisha	Rahul Singh
MATH 2415.307	FN 2.202	3-4:50pm	Jonathan Popa	Viren Bhosale
MATH 2415.308	FO 2.702	3-4:50pm	Erika Gallo	Uzair Sanjrani
MATH 2415.309	GR 3.302	8-9:50am	Md Mujibur Chowdhury	Uzair Sanjrani

Teaching Assistants Information:

Name	Office	Office hours	Email
Jonathan Popa	FO 1.210	Mon 2-3pm	jonathan.popa1@utdallas.edu
Nisha Nisha			nxn180012@utdallas.edu
Md Mujibur Chowdhury	FO 2.408E	Wed 11am-1pm	mujib.chowdhury@utdallas.edu
Erika Gallo			Erika.Gallo@utdallas.edu
Asanka Gunawardana	FO 1.204	Wed 11 am-12 pm	Asanka.Gunawardana@utdallas.edu