Math 2415, Fall 2021
Calculus of Several Variables

Course Information

Class #	Class Title	Day	Time	Room	Instructor
81758	Math 2415.001	TuTh	1:00pm - 2:15pm	ECSS 2.415	Eydelzon
81838	Math 2415.002	TuTh	11:30am - 12:45pm	JO 3.516	Coskunuzer
82019	Math 2415.003	TuTh	1:00pm-2:15pm	GR 3.420	Zweck
82109	Math 2415.004	TuTh	4:00pm - 5:15pm	GR 3.420	Zweck
81944	Math 2415.501	TuTh	5:30pm - 6:45pm	GR 2.302	Dahal

Instructors' Contact Information

Name	**Baris Coskunuzer**	**Rabin Dahal**	**Anatoly Eydelzon**	**John Zweck**
Email (@utdallas.edu)	coskunuz	Rabin.Dahal	anatoly	zweck
Office	FA 2.410	FO 2.410B	FO 2.604G	FO 3.704J
Phone	972-883-6584	972-883-6034	972-883-6593	972-883-6699
Office Hours (P=in person) (T= via Teams)	Tu 10-11 (P) W 3-4 (T)	TuTh 8:30-9:30 (P,T) W 10-12 (T)	MW 10-11 (P) T 11:30-12:30 (P) & by appt	Th 2:30-3:30 (P,T) & by appt

Course Coordinator: John Zweck

WebAssign Contact: Questions about WebAssign should be directed to Dr. Zweck. *We do not reply to email sent from within the WebAssign system.*

Office Hours: Office hours will be conducted in person and/or by Teams: See the modality row above. If you cannot make it to office hours *please* contact your instructor in class or by email to set up a time to meet.

Other Info: **All email correspondence with your instructor must be sent to the email address above from your utdallas.edu account.**

COVID-19 Guidelines and Resources

The mandatory problem sessions for this course employ a small group active learning format. These sessions have been redesigned to increase social distancing to the extent possible. However, we very strongly recommend that you have the COVID-19 vaccine. In addition, our expectation is that all students will wear well-fitting masks covering both their mouth and nose during the problem sessions. Finally, please do not come to class if you are sick. These public health measures will help protect you, your fellow students,

the TA's and ULA's, as well as everyone's close contacts. The same guidance applies to the Lectures. If everyone wears masks, there is less of a chance of a covid outbreak on campus and hence less of a chance your education will be disrupted.

Vaccinations

Vaccinations are widely available, free and not billed to health insurance. The vaccine will help protect against the transmission of the virus to others and reduce serious symptoms in those who are vaccinated. You are strongly encouraged to get a COVID-19 vaccine and register your vaccination status through the UTDallas voluntary vaccine report form.

Proactive Community Testing remains an important part of the university's efforts to protect our community. Tests are fast and free. Please check the Comets United webpage for additional information.

Classroom Safety and COVID-19

To help *preserve the University's in-person learning environment*, UT Dallas recommends the following:

Adhere to the Universitys CDC Updated Guidelines issued on July 30, 2021. All Comets are strongly encouraged to wear face coverings indoors regardless of vaccination status.

Accommodations for Students Who Must Isolate or Quarantine

To keep the UT Dallas community as safe as possible, the University requires students who test positive for COVID-19 or who are close contacts as determined by the campus contact tracing program to isolate or quarantine as applicable. *Lectures will be made available for those students during the period the students must isolate or quarantine. Absences due to COVID-19 will not be counted against an isolated or quarantined student.*

Verifying COVID-19 Isolations or Quarantines

Students need to self-report COVID-19 positive results or exposures via an online form so that university campus tracers can verify, record, and take necessary campus precautions. Students should not attend class until cleared by campus tracers.

Student Safety

Student Safety remains an important part of the UT Dallas efforts to protect our community. All students will adhere to the Comet Commitment. Unvaccinated Comets will be expected to complete the mandatory Required Daily Health Screening.

Student Resources

Students who have tested positive for COVID-19 or may have been exposed should not attend class in person and should instead follow required disclosure notifications as posted on the university's website.

Course Pre-requisites and Co-requisites

Pre-requisites: A grade of C− or better in MATH 2414 or equivalent

Preparation: In general, success in Math courses strongly depends on your grade in previous relevant courses. *For Math 2415, the material in Math 2413 is much more important than that in Math 2414.* See Brushing Up on Single Variable Calculus at bottom of course web page.

Co-requisite: Students *must* be enrolled in one of the following **problem sections**:

Class #	Class Title	Day	Time	Room
81800	Math 2415.301	Friday	8:00am - 9:50am	CB3 1.304
81801	Math 2415.302	Monday	8:00am - 9:50am	CB3 1.310
81886	Math 2415.303	Monday	1:00pm - 2:50pm	CB3 1.314
81839	Math 2415.304	Friday	8:00am - 9:50am	CB3 1.314
81840	Math 2415.305	Friday	3:00pm - 4:50pm	CB3 1.314
81842	Math 2415.307	Friday	1:00pm - 2:50pm	CB3 1.308
82020	Math 2415.308	Friday	3:00pm - 4:50pm	CB3 1.310
82110	Math 2415.310	Friday	10:00am - 11:50am	FN 2.202
82111	Math 2415.311	Friday	1:00pm - 2:50pm	FN 2.202

TA Info: Graduate Teaching Assistant and Undergraduate Learning Assitant Contact Info.

Co-requisite: Students *must* be enrolled in the following **exam section** (see below for exams dates):

81799	Math 2415.701	F 7-8:15 pm	ECSS 2.410, ECSS 2.412, ECSS 2.415, GR 2.302

Course Materials

Announcements: At the start of each week, you will receive an email entitled *This Week in MATH 2415.* This email will also be posted in the announcements section of the **MATH 2415.701** eLearning Course.

Webpage: We maintain a web page for the course, linked from Dr. Zweck's web page `https://personal.utdallas.edu/~jwz120030`. *Bookmark it!* All course materials (except digitial homework, quizzes, and exams) will be posted on this web page, and are publicly available.

eLearning: The course material housed solely on eLearning is not publicly available.

UTD Policy: The instructor may provide class materials that will be made available to all students registered for this class as they are intended to supplement the classroom experience. These materials may be downloaded during the course, however, these materials are for registered students' use only. Classroom materials may not be reproduced or shared with those not in class, or uploaded to other online environments except to implement an approved Office of Student AccessAbility accommodation. Failure to comply with these University requirements is a violation of the Student Code of Conduct.

Course Description

Continuation of the Math 2413, 2414 sequence. 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, double and triple integrals, the line integral, Green's theorem, Stokes' theorem, Divergence theorem.

Student Learning Outcomes

See separate document Math 2415 Learning Outcomes on the course web page.

Required Textbooks and Materials

Text: "Calculus (Early Transcendentals)", Eighth Edition, by James Stewart, Chapters 12-16. (Do *not* purchase the 7th edition!) A less expensive Electronic Version is also available. You must have **WebAssign** access. Some Options:

1. Access code to Enhanced WebAssign (contains digital copy of the text) ISBN: 9781285858265
2. Loose leaf copy of the text bundled with Enhanced WebAssign access code ISBN: 9781305616691
3. Hardbound text bundled with Enhanced WebAssign access code ISBN: 9781305597624

Material 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 (to the extent that time permits) 16.8-16.9.

Online Resources: We encourage you to make use of the online video lectures and other resources developed by MIT and the Khan Academy.

Academic Calendar and Assignments

The Course Schedule, Homework and other Assignments are available on the course web page. In addition, there is a large collection of Past Exams on the course web page,

most with complete solutions. eLearning Course **MATH 2415.701** will be used to post grades, submit paper homework and quizzes, and access WebAssign for digital homework and the online version of the textbook.

14 Day Assessment Cycle

Here is a 14 day activity/assessment cycle. The first cycle starts on the first Tuesday of the semester. Two consecutive cycles overlap. The Problem Sessions on Mondays will usually cover the same material as is covered on the *previous* Friday. However, for students in the Monday problem sessions, **there will be no problem sessions on Monday Aug 23rd (1st day of semester) or on Monday Sep 6th (Labor Day Holiday).**

#	Day	Activity	Comments
1	Monday	**Quiz and PS Video Posted**	[on eLearning 2415.701]
2	Tuesday	Lecture	-
3	Wednesday	-	-
4	Thursday	Lecture	-
5	Friday	Active Learning Problem Sections	**Quiz Due 8am**
6&7	Weekend	-	-
8	Monday	Active Learning Problem Sections	-
9	Tuesday	-	-
10	Wednesday	Digitial Homework	Due 11:59pm
11	Thursday	-	-
12	Friday	-	-
13	Saturday	Paper Homework	Due 11:59pm
14	Sunday	-	-

Midterm Exams: There will be two midterm exams, each 75 minutes.

- Midterm I: Friday Oct 1st, from 7:00-8:15pm, on 12.1-12.6, 13.1-13.3 (excluding curvature), 15.7 (cylindrical coordinates only), 15.8 (spherical coordinates only).
- Midterm II: Friday Oct 29th, from 7:00-8:15pm, on 14.1, 14.3-14.7, 16.6 (excluding surface area).

Final Exam: TBD. The final will be based on the whole course and will be 2 hours 45 mins.

Exam Rooms: All exams will be held in ECSS 2.410, ECSS 2.412. ECSS 2.415, and GR 2.302.

PLTL Program

Peer-Led Team-Learning (PLTL) sessions are available for MATH 2415 and are run by the Student Success Center.

Grading Policy

Grades will be assigned based on the ranges given below using interval notation. The course coordinator in collaboration with the course instructors reserves the right to slightly decrease these ranges. There will be no extra credit. Extensions on homework may be granted in exceptional circumstances.

A^+	A	A^-	B^+	B	B^-	C^+	C	C^-	D	F
[97,100]	[92,97)	[90,92)	[86,90)	[79,86)	[77,79)	[75,77)	[67,75)	[64,67)	[55,64)	[0,55)

Grades: Concept Quizzes (**CQ**) 5%, Active Participation in Problem Sessions (**AP**) 5%, Digital Homework (**DH**) 15%, Paper Homework (**PH**) 15%, Midterm I 15%, Midterm II 20%, Final 25%.

Concept Quizzes (CQ): Each Monday at 11pm a quiz will be posted in the Math 2415.701 eLearning course. The quizzes will ask you to write answers to several theory questions *drawn directly from the lecture material.* You are to download the quiz sheet, write your answers on the sheet and then upload the sheet to eLearning by the following Friday at 8am. The quizzes will help you understand how and what to learn and how to know when you have learned. For example, we may ask you to state the formula for the dot product, draw a picture illustrating the concept of a vector projection, or state the chain rule for functions of two variables. *The quizzes will not include any problem solving.* **Your lowest two quiz scores will be dropped. There will be no make ups for the quizzes.**

Active Participation (AP): Five percent of your final grade will be assigned by the Teaching Assistant based on the degree to which you *actively* participate in the Friday Problem Sessions. **While the 50% capacity rule is in force** the problem sessions will be conducted as follows. Each Monday night a PS Video will be posted in the MATH 2415.701 eLearning course. The video will get you started on the problems marked with a **V** in the PS Assignment. You should spend a total of about 55 minutes watching the video and attempting the **V** problems for yourself. You are to bring your solutions to the problem section for the TA to inspect. Each week, half the students will attend the first 55 minutes of the problem section and the other half will attend the second 55 minutes. During the session students will work on the problems marked with a **P** in the PS Assignment. Your AP score will be assigned as follows. For each problem session you can earn a maximum of 5 points. You will receive 5 points if you (i) arrive within the first 5 minutes, (ii) show the TA your attempt at the **V** problems, (iii) actively participate and (iv) leave no more than 5 minutes early. You will earn 3 points if you do three of (i)-(iv) above. **If the 50% capacity rule is not in force**, you will attend the entire problem session and there will be no PS Video. You will receive 5 points if you (i) arrive within the first 10 minutes, (ii) actively participate and (iii) leave no more than 10 minutes early. You will earn 3 points if you do two of these. Read the Handout for Students for more info on how we run the Problem Sessions.

Digital Homework (DH): Each problem on the Digital Homework (WebAssign) is worth 5 points. Students will have three attempts, with a maximum score of 5/5 for the first and second attempts and a maximum score of 3/5 for the third attempt. You will be able to submit each part of a multi-part question separately. Therefore, if you get a part correct by the second attempt then you get full credit for that part. You may ask your instructor and the graduate TA's questions about the digital homework. **Your lowest two digital homework grades will be dropped.**

Paper Homework (PH): You may ask your instructor and the graduate TA's questions about the paper homework and you may collaborate with another student in the class. However the final write up must be your own. **Your lowest two paper homework grades will be dropped.** Please follow these guidelines for how to prepare your homework for submission to the MATH 2415.701 eLearning course.

Instructor Policies

Attendance

Attendance in Lectures and Problem Sections is mandatory and will be recorded. An informal study by the UTD Department of Mathematical Sciences has shown that there is a very strong correlation between attendance at lectures and course grade.

Policy on Electronic Devices in Lectures

Electronic devices, such as cell phones, should be turned off during lectures.

Policy on Calculators in Exams

No calculators, mobile devices, or other electronic devices are allowed in exams. The exam questions will designed so that you do not need a calculator.

Regrades

Requests for regrades on homework or the midterm exams must be made no later than 7 days after the work has been returned to the class. There will be no regrades allowed for the final exam. Once posted, the only reason a course grade will be changed is because of a clerical error. Requests for any of the items listed above must be made to the course coordinator by email, accompanied by appropriate documentation.

The MATH 2415 instructional team understands that we are living in an exceptional time and that during the semester you may encounter challenges that prevent you from performing at your best. We will endeavor to adjust assessment due dates for individual students in as flexible and equitable manner as possible. Nevertheless, all students are expected to complete all assigned work.

Late Submissions

There will be no late submissions or makeups allowed for the CQ's. There will be no late submissions or makeups on the AL assessment in the Problem Sections. Extensions for homework will only be granted in exceptional circumstances with appropriate documentation. Contact Dr Zweck to request an extension on a digital homework assignment. Contact your TA to request an extension on paper homework.

Making up an exam you missed

If you know ahead of time that you will be missing an exam, you must contact the course coordinator and your instructor by email at least 4 days in advance of the scheduled exam. If an emergency arises which prevents you from taking the exam at the scheduled time you must contact the course coordinator and your instructor by email **no later than 48 hours after** the exam time.

However we will listen to all reasonable requests. Be prepared to bring appropriate evidence in support of your request.

Academic Integrity

We will be vigorous in reporting all instances of cheating to the University administration. (See http://www.utdallas.edu/deanofstudents/dishonesty/) In particular, you may **not** use solutions manuals, solutions you find online, or solutions copied verbatim from other students for the digital or paper homework. The graders are trained to detect such instances of cheating and will report them to the course coordinator. Your instructor reserves the right to recommend to the University administration penalties varying from receiving zero points for a particular homework, to zero for your entire homework grade for the course, to failing the course. Analogous statements apply to the exams.

Seven Salient Study Skills

1. Study $\geq$ 10 hours per week per course.
2. Start studying 10 days before each exam.
3. Do past exams to master and apply concepts from lectures.
4. Study 70% solo and 30% in a group of 3.
5. Talk more than listen.
6. Write more than read.
7. Understand more than memorize.
8. Ask questions!

Also see Chew Videos on How to Study

Advice for Exams

A large collection of **past exams** are on the course web page together with some solutions. *Do them!*

Exams will include problems similar to those in the homework and in lectures as well as examining theory covered in class (definitions, theorems, concepts, examples). *You will not get any credit for an answer unless you also show how you arrived at that answer.* Some questions will be similar or even *identical* to homework questions. Others will look a little different from those you have seen before and will test whether you really understand the *concepts* we have discussed in class. There may be a question or two that involves a *written explanation* of the *theory* we discuss in class.

We encourage you to first master the theory and memorize calculation methods and formulae you need to know and then use this knowledge to work a range of problems *without looking at your notes.* To learn theory, calculation methods, and formulae with your lecture notes and book closed write down what you know about each item in the Math 2415 Learning Outcomes on the course webpage, as precisely and succinctly as you can. Only when you get stuck should you look at your lecture notes. If you do this about 4 times in the 10 days prior to the exam you should be in good shape. Don't forget to work lots of (past exam) problems as well!

You should also spend *some but not all* of your preparation time studying in small groups to learn from each other. Presenting material to someone else is often the best way to work out whether you really know it yourself.

UT Dallas Syllabus Policies and Procedures

The information at `http://go.utdallas.edu/syllabus-policies` constitutes the University's policy and procedures segment of the course syllabus.

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