

MATH 2414 - INTEGRAL CALCULUS

Summer 2025

Lecture Section	Day and Time	Room	Instructor
MATH 2414.0u1	Mon. & Wed. 3:00 pm - 5:00 pm	SCI 2.210	Dr. Ajaya Paudel
MATH 2414.0u2	Mon. & Wed. 12:30 pm - 2:30 pm	PHY 1.202	Dr. Diarisoa Mihaja Rakotomalala

Dr. Ajaya Paudel

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Office Hours: MW 2:00 PM - 2:45 PM

Dr. Diarisoa Mihaja Rakotomalala

Office: FA 2.106 (Founders Annex)

Email: mihaja@utdallas.edu

Office Hours: MW 11:30 AM - 12:15 PM

Course Pre-requisites, Co-requisites, and/or Other Restrictions

Prerequisite: A grade of C- or better in either MATH 2413 or MATH 2417 or equivalent.

Co-requisites: Enrollment in one of the following problem sections is mandatory

Problem Section	Day and Time	Room	TAs	
MATH 2414.8u1	Monday 5:30 pm - 8:15 pm	JO 4.102	Protima Dash	pxd230046@utdallas.edu
			Tonny Ramarolahy	rxr210120@utdallas.edu
MATH 2414.8u2	Monday 5:30 pm - 8:15 pm	GR 4.301	Mohammad Halim	mxh230050@utdallas.edu
			Jason Stack	jcs220002@utdallas.edu
MATH 2414.8u3	Monday 5:30 pm - 8:15 pm	SCI 2.210	Md Farhad Hossain	mxh220100@utdallas.edu
			Gurpreet Kaur	gxk230041@utdallas.edu

During problem section, the TA will:

- review class material and relevant material from prerequisite courses
- return and discuss quizzes and exams
- work problems or have students work problems
- entertain questions
- administer quizzes

Course Description

Continuation of Math 2413. Course covers topics in integral calculus, sequences and series. Topics include techniques of integration, improper integrals, and applications. Polar coordinates, parametric equations, and arc length. Infinite sequences and series, tests for convergence, power series, radius of convergence and Taylor series. Three lecture hours and two discussion hours a week; registration in a problem section as well as the exam section is required with Math 2414. Not all MATH/STAT courses may be counted toward various degree plans. Please consult your degree plan to determine the appropriate MATH/STAT course requirements. Cannot be used to replace Math 2419.

Student Learning Objectives/Outcomes

1. Students will be able to formulate real world problems into mathematical statements.

Given a narrative description of a problem that lends itself to mathematical analysis, the student will clearly define any variables introduced and provide an appropriate function or formula relating those variables.

2. Students will be able to develop solutions to mathematical problems at the level appropriate to each course.

- The student will evaluate an indefinite or definite integral of a continuous function.
- Students will determine the convergence or divergence of an improper integral or an infinite series.

3. Students will be able to describe or demonstrate mathematical solutions either numerically or graphically.

- Students shall provide a qualitative, planar sketch which clearly indicates prescribed attributes.
 - Students will provide numerical results in a prescribed manner, as a percent, an interval, or within a specified error bound.
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Materials and Additional Resources

- **Recommended textbook:** Calculus, Early Transcendentals, 8th Edition, by James Stewart. (Other editions should work)
 - **eLearning:** <http://elearning.utdallas.edu> requires your NETID and password to login. If successful, you will see a link to the complete syllabus and any other additional course materials. You can view your grades, use the email tool, or utilize the discussion tool to communicate with your classmates. You will receive a notice via eLearning (either an announcement, or an E-mail) if there is additional information, exam date/location change, etc, or an urgent message, class canceled, etc, that directly impacts this course. Should a personal situation arise that you feel your instructor needs to be aware of, send that information directly to your instructor (not via e-learning).
 - **No calculators, mobile devices, or other electronic devices are allowed in quizzes and exams.** The quiz and exam questions will be formulated in such a way that you wont need a calculator.
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GRADING SCHEME:

- The course grade is determined from the following:
 - ▶ 10 Graded Homework Sets (The two lowest Homework scores will be dropped.)
 - ▶ 8 Quizzes (The lowest Quiz score will be dropped.)
 - ▶ 3 Major Exams (Exam 1, Exam 2, and Exam 3)

• Weights:

- ▶ 15% **Homework:** A pdf file of weekly homework (HW) will be posted each week on eLearning. You can print the pdf of HW, write your solutions in the space provided. If printer is not available, write the solutions on separate sheets of paper and make sure to clearly indicate question numbers. Scan your HW as a single pdf and upload it on elearning before every **Sunday at 11:59 pm**.
- ▶ 20% **Quizzes:** Each quiz will be given during the last 20 minutes of the problem section (during the weeks identified in the schedule).
- ▶ 40% **Exam 1 and Exam 2:** The lower of those 2 exam grades will constitute 15% of the course grade; the greater will constitute 25%.
- ▶ 25% **Exam 3:** Exam 3 is not optional

• Grade Scale:

[96.5,100]... A+	[92.5,96.5)... A	[89.5,92.5)... A-
[86.5,89.5)... B+	[82.5,86.5)... B	[79.5,82.5)... B-
[76.5,79.5)... C+	[72.5,76.5)... C	[69.5,72.5)... C-
[66.5,69.5)... D+	[62.5,66.5)... D	[59.5,62.5)... D-
[0,59.5)... F		

Schedule (subject to change)

Week	Mon.	Lecture	Problem Section	Wed.	Lecture	Sun.
1	6/2	6.2: Disk/Washer method	Review: - Derivatives - Integrals	6/4	6.3: Cylindrical Shell method	HW1
2	6/9	7.1: Integration by Parts	6.2, 6.3 - Quiz 1	6/11	7.2: Trig Integrals	HW2
3	6/16	7.3: Trigonometric Substitution 7.4: Partial Fraction Decomp.	7.1, 7.2 - Quiz 2	6/18	7.4: Continued 7.5: Strategy for Integration	HW3
4	6/23	Exam 1 Review	EXAM 1	6/25	7.8: Improper Integrals	HW4
5	6/30	9.3: Separable Diff. Eq. 8.1: Arc Length	7.3, 7.4, 7.8 - Quiz 3	7/2	8.2: Area of a surface of revolution	HW5
6	7/7	10.1: Parametric curves	8.1, 8.2, 9.3 - Quiz 4	7/9	10.2: Calculus with Parametric Curves	HW6
7	7/14	10.3: Polar coordinates	10.1, 10.2 - Quiz 5	7/16	10.4: Area & Lengths in Polar coord.	HW7
8	7/21	Exam 2 Review	EXAM 2	7/23	11.1: Sequences	HW8
9	7/28	11.2: Series	10.3, 10.4, 11.1 - Quiz 6	7/30	11.3: Integral Test 11.4: Comparison Test	HW9
10	8/4	11.5: Alternating series 11.6: Absolute convergence	11.2, 11.3, 11.4 - Quiz 7	8/6	11.7: Strategy for testing series 11.8: Power series	HW10
11	8/11	11.9: Functions as power series 11.10: Taylor and Maclaurin series	Review - Quiz 8	8/13	EXAM 3	

Important Dates:

- Exam 1: Monday, June 23, during the problem section time.
- Exam 2: Monday, July 21, during the problem section time.
- Exam 3: Wednesday, August 13, during the lecture time

Make-Up Policy: Make-up opportunities are available only under university-approved circumstances, such as official UTD business or medical emergencies. In such cases, proper documentation is required, and arrangements must be made with your instructor.

Expectations: In addition to attending lectures, it is important for students to regularly and actively participate in the course by providing feedback and asking questions either during class/problem section or office hours.

Academic Integrity The faculty expects from its students a high level of responsibility and academic honesty. Because the value of an academic degree depends upon the absolute integrity of the work done by the student for that degree, it is imperative that a student demonstrate a high standard of individual honor in his or her scholastic work.

Scholastic Dishonesty, any student who commits an act of scholastic dishonesty is subject to discipline. Scholastic dishonesty includes but is not limited to cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts.

Plagiarism, especially from the web, from portions of papers for other classes, and from any other source is unacceptable and will be dealt with under the university's policy on plagiarism (see general catalog for details). This course will use the resources of turnitin.com, which searches the web for possible plagiarism and is over 90% effective.

UT Dallas Syllabus Policies and Procedures: The information at <http://go.utdallas.edu/syllabus-policies> constitutes the University's policies and procedures segment of the course syllabus.

Academic Calendar: Please refer to the UT Dallas academic calendar for important dates, such as university closings and withdrawal deadlines (<http://www.utdallas.edu/academiccalendar/>).

Students requiring special accommodations are strongly encouraged to contact the UTD AccessAbility office.

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.”

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