# MATH-2414 CALCULUS II

The University of Texas at Tyler, Fall 2025

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**Time and Place**:
Section 01: MoWeFr 9:05AM - 10:20AM. Ratliff Building North (RBN) 04027
Section 02: MoWeFr 10:30AM - 11:45AM. Ratliff Building North (RBN) 04027

**Instructor**: Pamela Delgado, Ph.D

**Office:** RBN 4009

**e-mail**: pdelgado@uttyler.edu

**Office Hours**: MoWeFr: 3pm to 4 pm. Room RBN 4009.
Office hours can also be arranged at a different time if the times above do not work for you, please email me 2 business days in advance so we can find a common time to meet.

**Overview:** A study of differentiation and integration of transcendental functions, polar coordinates, techniques of integration, sequences, series and improper integrals. The goal is to prepare you to make use of calculus as a practical problem-solving tool.

**Prerequisites:** C or better in MATH 2413 (or equivalent).

**Textbook:** Calculus: Volume 2, by OpenStax.

You can access the textbook online, or download it from:
https://openstax.org/details/books/calculus-volume-2

**Grading procedure**:
Three exams 60% (each worth 20%)
Homework 5%
Quizzes 15%
Final exam 20% (comprehensive)

**Grading scale:**
**A:** Greater or equal to 90%, **B:** greater or equal to 80%, strictly less than 90%,
**C:** greater or equal to 70%, strictly less than 80%, **D:** greater or equal to 60%, strictly less than 70%,
**F:** striclty less than 60%.

**Final exam date: Wednesday, December 10, from 10:15 a.m. to 12:15 p.m.** for both sections. Room TBA.

**Important Dates:**

- September 8th. Census date: Last date to withdraw without incurring grades of "W" or "Q".
- November 3rd. Last day to withdraw from one or more courses with a W.

For more important dates visit: https://www.uttyler.edu/academics/academic-calendar-25-26/academic-calendar-15-week-and-summer.php

**Homework:** Homework will be **assigned via the online platform WeBWorK**. Instructions for logging into and using WeBWorK will be given during the first lecture. These instructions will also be posted on Canvas. A new homework assignment will become available on WeBWorK after each topic has been covered in class. It is your responsibility to be aware of due dates, which will be posted on Canvas and on WeBWorK. For most problems, WeBWorK allows up to 8 attempts. You are required to successfully complete all assigned problems on WeBWorK. **Late homework will NOT be accepted and there will be no extensions or additional attempts. If you are having issues with a particular problem, make sure to visit my office hours before you exhaust all your attempts**. The lowest homework grade will be dropped. **The main goal of homework is to help you prepare for evaluations in this course**. The only way homework serves its intended purpose is if you work on it consciously.

**Evaluations:** We will have three exams and a comprehensive final exam. The exam dates are listed in the schedule below. We will also have weekly quizzes.

**Attendance:** Students are expected to attend every lecture and to arrive on time. If a lecture is missed, it is the student's responsibility to catch up on the material covered and to find out about any announcements made during class.

**Make-up evaluations:** Make-up evaluations for exams and quizzes are **only given if you have a legitimate justification; documentation to support your justification must be provided.** Make-up evaluations must be completed within three days of your return to your academic duties. It is the responsibility of the student to communicate with me promptly and regularly until arrangements for the missed evaluation have been established. If this criterion is not met, the make-up evaluation won't be granted.
Legitimate justifications for make-up evaluations include illness (affecting you or your child), pregnancy related absences, or academic conflict that will prevent you from being in class. If you know you will be missing classes, you need to contact me as soon as you become aware of the lecture you will miss. **In case of illness as justification for a missed evaluation, you will need to present a doctor's note dated within 72 hours of the missed lecture.** You can also go to the Health Clinic on campus, to make an appointment call (903) 939-7870. Pregnant and parenting students must work with the Parenting Student Liaison to satisfy the requirement of documentation supporting your justification. You can reach out to Parenting Student Liaison at parents@uttyler.edu. Approval for make-up evaluations due to personal reasons will be granted only in exceptional circumstances for substantial grounds, and documentation will still be required. Early flights home, bus tickets to leave town, and family vacations are NOT valid excuses to miss or reschedule a final exam.

**Student Learning Outcomes:** Upon completion of this course, students should be able to do the following:

- Apply integration to solve problems involving area, volume, and physical work.
- Apply substitution, integration by parts, trigonometric substitution, partial fractions to evaluate definite and indefinite integrals.
- Apply the concepts of limit, convergence and divergence to evaluate some classes of improper integrals.
- Define sequences and series, and determine convergence or divergence.
- Find the Taylor and MacLaurin series to represent elementary functions.
- Apply the ideas of polar coordinates to find areas, lengths of curves and representations of conic sections.

**Preparing for quizzes and exams:** To prepare for quizzes and exams you must have **plenty** of practice. Solving your homework consciously will help you prepare for quizzes. I will also provide lists of exercises for the different topics covered in class. These additional exercises will not be collected for grading; they are a tool to help you practice and reinforce your understanding of the material. The lists of exercises will be posted on Canvas–>Files. Exams will have similar exercises to those from these lists, making it crucial that you understand how to solve them. As time permits, we will dedicate some lecture time to solving these exercises. I strongly encourage you to actively participate in these exercise-solving lectures. For any exercises we cannot cover together in class due to time constraints, you should ensure you solve them on your own, and seek help from me during office hours if needed. You are encouraged to collaborate with your classmates, and you may use any resources you prefer to solve the exercises, but keep in mind that **for evaluations you must show all your work for full credit, and you are only permitted to use results and techniques that were covered in class**. Moreover, struggling with an exercise is a vital part of the learning process. It challenges you to think deeply and helps solidify your understanding. Don't skip this important step in your mathematical development by immediately searching for solutions elsewhere. Make sure to give each exercise a serious attempt on your own first; only then will discussing the exercise with your classmates or looking at others' solutions add real value to your exam/quiz preparation. I will also provide study guides for the different evaluations, they will be posted under the corresponding evaluation on Canvas–>Assignments. Study guides are not exhaustive; they are intended to serve as a resource to help you review and focus your studying. You are still responsible for all material covered in class, even if it does not appear explicitly on the guide.

**Artificial Intelligence Statement:**

From the University Policies and Information:
*"UT Tyler is committed to exploring and using artificial intelligence (AI) tools as appropriate for the discipline and task undertaken. We encourage discussing AI tools' ethical, societal, philosophical, and disciplinary implications. All uses of AI should be acknowledged as this aligns with our commitment to honor and integrity, as noted in UT Tyler's Honor Code. Faculty and students must not use protected information, data, or copyrighted materials when using any AI tool. Additionally, users should be aware that AI tools rely on predictive models to generate content that* ***may appear correct but is sometimes shown to be incomplete, inaccurate****, taken without attribution from other sources, and/or biased. Consequently, an AI tool should not be considered a substitute for traditional approaches to research. You are ultimately responsible for the quality and content of the information you submit. Misusing AI tools that violate the guidelines specified for this course (see below) is considered a breach of academic integrity. The student will be subject to disciplinary actions as outlined in UT Tyler's Academic Integrity Policy."*

For Math-2414:
As stated above, you may use any resources to solve the exercises assigned in class. For this course, **the use of AI tools is permitted only outside of lecture; however, if you choose to use them, you do so at your own risk**, given that you might obtain incorrect answers or answers based on results not studied in class. Even when the answers are correct and consistent with our lectures, relying solely on these tools **defeats the purpose of the assigned exercises as a learning tool**. Assigned exercises are designed to help you understand and apply the material, which is essential for your success in this course. If you merely copy answers from AI without fully engaging with the problems, **you may find yourself unprepared for in-class evaluations, where NO electronic devices —and therefore no AI tools— will be allowed**. Ultimately, this approach could negatively impact your performance on evaluations and your overall understanding of the subject.

**Calculators:** The use of **calculators** and other electronic devices, including **cell phones**, during exams or quizzes is strictly **prohibited**, so study accordingly.

**Academic Integrity:** All students have the responsibility to exhibit honesty and to respect the ethical standards of academic conduct in carrying out his or her academic assignments. Academic dishonesty will be dealt with seriously.

**Student Resources:** As stated above, **for evaluations you must show all your work for full credit, and you are only permitted to use results and techniques that were covered in class**. Keep this in mind when you use any of the following resourses:

- **The Mathematics Learning Center (MLC)**, RBN 4021, is an open access computer lab for math students. There are tutors on duty for several hours each day to assist students who are enrolled in early-career courses. For more information about the MLC including the tutoring schedule visit: https://www.uttyler.edu/academics/colleges-schools/arts-sciences/departments/mathematics/math-learning-center.
- **Supplemental Instruction program**. The Supplemental Instruction (SI) Program is a peer-led study group, which provides academic support to students in traditionally difficult courses to help them become successful. SI sessions are facilitated by Supplemental Instruction Leaders (SILs), peer students, who have previously completed the targeted course and have demonstrated competency in the course. In sessions, students are introduced to various study skills and strategies in addition to course content practice, which enable them to become successful in all their college courses. Sessions are offered regularly each week in person to ensure maximum engagement. During the typical session, students will have the opportunity to clarify/compare their notes with their classmates, review all required reading assignments, and discuss key course concepts. Though it is important to grasp key functions of the SI Program, it is equally important to understand that SI is not a remedial program. SI is a free and voluntary program that is open to all students, which eliminates the stigma that only certain students should come to sessions. SI strives to maintain a non-remedial, non-threatening, and non-punitive image. For more information visit: https://www.uttyler.edu/academics/success-services/supplemental-instruction/faculty-resources/.
- **The UT Tyler PASS Tutoring Center** PASS Tutoring offers face to face and online tutoring for select undergraduate courses. You do not need an appointment to see a tutor in person; however, you will need an appointment to work with a tutor online. For assistance scheduling an online appointment, please reach out to tutoring@uttyler.edu. For more information including the tutoring schedule visit: https://www.uttyler.edu/academics/success-services/tutoring/ for the PASS tutoring schedule.
- **Upswing** (Online Tutoring Service) Online tutoring for undergraduate UT Tyler courses is available 24 hours per day, 7 days per week. Through Upswing, an online tutoring platform, students can connect with professional tutors without having to be present on campus. Upswing services are free to currently enrolled, undergraduate UT Tyler students. For more information about Upswing visit https://www.uttyler.edu/academics/success-services/tutoring/

**University Policies:** See https://www.uttyler.edu/offices/academic-affairs/files/syllabus-information.pdf for important information on University policies and resources including Student Accessibility and Resources, student rights and responsibilities, Withdrawing from Class, Incomplete Grade and Grade Appeal Policy, Military Affiliated Students, Students on an F-1 Visa, Academic Honesty and Academic Misconduct, FERPA, Absences Policy, and campus carry.

**UT Tyler is proud to be a tobacco-free campus.**

**Schedule:** The following is a TENTATIVE schedule for lectures and is subject to change.

| Date | Section and Topic | Notes | Date | Section and Topic | Notes |
|---|---|---|---|---|---|
| Mo 08/25 | Syllabus/ Direct Integration | | Mo 10/20 | **Exam 2** | |
| We 08/27 | U-substitution | | We 10/22 | Series | |
| Fr 08/29 | Integration by parts | | Fr 10/24 | Series (cont) | |
| Mo 09/01 | **No Class** | **Labor Day** | Mo 10/27 | Integral and comparison tests | |
| We 09/03 | Trig Integration | Quiz 1 | We 10/29 | Other convergence tests | Quiz 7 |
| Fr 09/05 | Trig Substitution | | Fr 10/31 | Power series | |
| Mo 09/08 | Partial Fractions | | Mo 11/03 | Functions as Power series | |
| We 09/10 | Part Frac (cont) | Quiz 2 | We 11/05 | Taylor and Maclaurin | Quiz 8 |
| Fr 09/12 | Approximate Integration | | Fr 11/07 | Applications of Taylor polys | |
| Mo 09/15 | Improper Integrals | | Mo 11/10 | Parametric curves | |
| We 09/17 | Imp Int (cont) | Quiz 3 | We 11/12 | Calculus with param curves | Quiz 9 |
| Fr 09/19 | Areas between curves | | Fr 11/14 | Polar coordinates | |
| Mo 09/22 | **Exam 1** | | Mo 11/17 | **Exam 3** | |
| We 09/24 | Volumes | | We 11/19 | Areas lengths polar coords | |
| Fr 09/26 | Disk and Washer method | | Fr 11/21 | Conic Sections polar coords | |
| Mo 09/29 | Cylindrical Shell method | | Mo 11/24 | **No Class** | **Thanksgiving** |
| We 10/01 | Arc length | Quiz 4 | We 11/26 | **No Class** | **Thanksgiving** |
| Fr 10/03 | Area of surface of revolution | | Fr 11/28 | **No Class** | **Thanksgiving** |
| Mo 10/06 | Applications to Physics/Eng | | Mo 12/1 | Review | |
| We 10/08 | App Phy/Eng (cont) | Quiz 5 | We 12/3 | Review | Quiz 10 |
| Fr 10/10 | Differential equations | | Fr 12/5 | Review | |
| Mo 10/13 | Diff equations (cont) | | Wed 12/10 | **Final Exam** | |
| We 10/15 | Sequences | Quiz 6 | | | |
| Fr 10/17 | Sequences (cont) | | | | |

**A message from your instructor:**

To make the most out of the learning journey we are about to embark on, it is important we create an environment in our class that is safe and supportive for everyone to participate and share their input, regardless of race, gender, class, sexual orientation, etc. Both you and I have a duty to treat everyone with respect and courtesy, and you can expect the same treatment for yourself. This will allow for a space in which our individualities enrich the learning process.

*The instructor reserves the right to change this syllabus, with due notice to the class, to best benefit the needs of the students.*