

Lamar University

Department of Mathematics

Fall 2017 Syllabus

MATH 2414.01 Calculus II (5 hour course)

MTWRF 8:00 – 8:55

MATH 2414.04 Calculus II (5 hour course)

MWF 12:40 – 1:35

TR 12:45 – 1:40

Instructor: Sarah Leger

Contact: sleger2@lamar.edu

Office Hours: MWF 9:00-11:30

Text: Instructor supplied notes.

Catalog Description: Methods of integration, polar co-ordinates, parametric equations, sequences and series, and vectors.

Pre-requisites: C or better in MATH 2413.

Lectures/Discussions: This is a problem-based course. This means that the majority of class time will be spent presenting problems at the board that we worked prior to coming to class. A detailed discussion of how to succeed is included in the introduction of the course notes.

Lectures/Discussions/Classwork/Homework Topics: Topics are listed under Learning Outcomes below.

Grading Policies: Attendance will be taken at the beginning of every class, and I reserve the right to take one point off your final grade for every class missed. Using your cell phone during my class for anything other than taking a picture of the board counts as missing a class.

Presentations = 40%

Weekly quizzes/write-ups = 10%

Four Tests, including comprehensive final = 50%

- Test 1: Techniques of Integration (Chapter 5)
- Test 2: Sequences and Series (Chapter 6)
- Test 3: Parametric Equations, Polar Coordinates, Vectors, Lines, Cross Products and Planes (Chapters 7-9)
- Test 4: Comprehensive final

Dates for tests 1-3 will be determined as we work through the material.

Final Exam:

2414.01: Thursday, December 7th, 8:00-10:30

2414.04: Friday, December 8th, 11:00-1:30

Make-ups: Make-up tests will be given during the last week of classes. It is your responsibility to contact me to set a date for taking the makeup. Late work or make-ups will not be accepted for write-ups or quizzes.

Important: I reserve the right to vary from this syllabus.

Learning Outcomes: Upon completion of the course, students will:

1. Use the concepts of definite integrals to solve problems involving area, volume, work, and other physical applications.
2. Use substitution, integration by parts, trigonometric substitution, partial fractions, and tables of anti-derivatives to evaluate definite and indefinite integrals.
3. Define an improper integral.
4. Apply the concepts of limits, convergence, and divergence to evaluate some classes of improper integrals.
5. Determine convergence or divergence of sequences and series.
6. Use Taylor and MacLaurin series to represent functions.
7. Use Taylor or MacLaurin series to integrate functions not integrable by conventional methods.
8. Use the concept of polar coordinates to find areas, lengths of curves, and representations of conic sections.
9. Approximate definite integrals using the Midpoint, Trapezoid and Simpson's Rule;
10. Find the arc length of a function;
11. Find surface area of a solid of revolution;
12. Sketch the graph of a parametric curve;
13. Explore area, arc length, surface area, and tangent lines for parametric functions;
14. Express a series as a limit of partial sums;
15. Determine convergence/divergence and value of geometric series;
16. Determine if a series converges or diverges using any of the following tests: Divergence Test, Integral Test, Comparison Test, Limit Comparison Test, Alternating Series Test, Ratio Test, and Root Test;
17. Determine if a series converges absolutely;
18. Compute the radius and interval of convergence for a power series;
19. Graph basic equations in 3-D coordinate system;
20. Compute using basic vector arithmetic;
21. Compute the dot product of two vectors;
22. Compute the angle between two vectors;
23. Find the projection of one vector onto another;
24. Compute the cross product of two vectors;
25. Determine if two vectors are parallel or orthogonal;
26. Find the equation of lines and planes in 3-D space.

Core Curriculum Outcomes: Upon completion of this course, the student will demonstrate his or her abilities to think critically, communicate quantitative information, and apply mathematical concepts:

1. **Critical Thinking:** Develop a logical, consistent plan to solve a problem, recognize consequences of the solution, and articulate a reason for choosing solution method.
2. **Communication Skills:** Use and present quantitative information in connection with an argument or problem solution and explicate it in an effective format.
3. **Empirical and Quantitative:** Construct and present a detailed problem statement with evidence of relevant contextual factors and possible approaches for solving the problem, then implement a solution and review the results.

Lamar University expressly prohibits intimidation and harassment of students, faculty, staff, or applicants. <http://students.lamar.edu/academic-support/code-of-conduct.html>

Drop Policy: Please make note of the three dates indicated in this drop policy. Any drop will be your responsibility; I will not drop a student from the course.

September 13, 2017: (Census Date-Six Drop Rule does not apply) A student may drop or withdraw without consulting with the instructor. The Six Drop Rule does not apply to a drop before 5:00 PM.

September 29, 2017: (Six Drop Rule applies) A student may drop or withdraw from the course without academic penalty and receive a Q, however, the Six Drop Rule applies. The student will consult with the instructor and the Records Office to initiate a drop.

November 3, 2017: (Six Drop Rule applies) Last day to drop or withdraw with academic penalty; the student must be passing the course at the time of the requested drop in order to receive a Q. The drop form, including all required signatures, must arrive in the Records Office by no later than 4:00 PM. No drop is allowed after this date except in extreme extenuating circumstances. Any “late drop” must be approved by the instructor, department chair, college dean, and provost.

Academic Integrity: Students are expected to maintain complete honesty and integrity in their academic experiences both in and out of the classroom. Any student found guilty of dishonesty in any phase of academic work will be subject to disciplinary action. Students are specifically warned against all forms of cheating and plagiarism. The *Lamar University Student Handbook* clearly reads: “Any student found guilty of academic dishonesty in any phase of academic work will be subjected to disciplinary action. Punishable offenses include, but are not limited to, cheating on an examination or academic work which is to be submitted, plagiarism, collusion, and the abuse of source materials.” One aspect of the *Handbook’s* definition of cheating includes “purchasing or otherwise acquiring and submitting as one’s own work any research paper or other writing assignment prepared by an individual or firm.” Plagiarism is defined as “the appropriation and the unacknowledged incorporation of another’s work or ideas into one’s own and submitted for credit.” Faculty members in the College of arts and Sciences investigate all cases of suspected plagiarism. Any student who is found cheating in this course will receive a course grade of F. <http://students.lamar.edu/student-handbook.html>

Accommodations through the Disability Resource Center: Lamar University is committed to providing equitable access to learning opportunities for all students. The Disability Resource Center (DRC) is located in the Communications building room 105. Office staff collaborate with students who have disabilities to provide and/or arrange reasonable accommodations. If you have, or think you may have, a disability (e.g., mental health, attentional, learning, chronic health, sensory, or physical), please contact the DRC at [409-880-8347](tel:409-880-8347) or drc@lamar.edu to arrange a confidential appointment with the Director of the DRC to explore possible options regarding equitable access and reasonable

accommodations. If you are registered with DRC and have a current letter requesting reasonable accommodations, we encourage you to contact your instructor early in the semester to review how the accommodations will be applied in the course.

<http://www.lamar.edu/disability-resource-center/>

Incomplete Grades: The grade of "I" may be given when any requirement of the course, including the final examination, is not completed. Arrangements to complete deficiencies in a course should be made with the instructor prior to the end of the semester or term. Incomplete work must be finished during the next long semester or the Records Office will change the "I" to the grade of "F." While the extension may be granted by the instructor with the approval of his/her Department Chair and Academic Dean, once the "I" is changed to an "F" it cannot be changed back to an "I." In this case, either a "change of grade" procedure must be initiated or the course must then be repeated if credit is desired. The instructor may record the grade of "F" for a student who is absent from the final examinations and is not passing the course.

Campus Closure: In the event of an announced campus closure in excess of four days due to a hurricane or other disaster, students are expected to login to Lamar University's website's homepage for instructions about continuing courses remotely. <http://lamar.edu>

Emergency Procedures: Many types of emergencies can occur on campus; instructions for severe weather or violence/active shooter, fire, or chemical release can be found at:

<http://www.lamar.edu/about-lu/administration/risk-management/index.html>

Following are procedures for the first two:

Severe Weather:

- Follow the directions of the instructor or emergency personnel.
- Seek shelter in an interior room or hallway on the lowest floor, putting as many walls as possible between you and the outside.
- If you are in a multi-story building, and you cannot get to the lowest floor, pick a hallway in the center of the building.
- Stay in the center of the room, away from exterior walls, windows, and doors.

Violence/Active Shooter:

- **CALL** - 8-3-1-1 from a campus phone (880-8311 from a cell phone). Note: Calling 9-1-1 from either a campus phone or cell phone will contact Beaumont City Police Dispatch rather than University Police.
- **AVOID**- If possible, self-evacuate to a safe area outside the building. Follow directions of police officers.
- **DENY**- Barricade the door with desks, chairs, bookcases or any other items. Move to a place inside the room where you are not visible. Turn off the lights and remain quiet. Remain there until told by police it is safe.
- **DEFEND**- Use chairs, desks, cell phones or whatever is immediately available to distract and/or defend yourself and others from attack.

Course Evaluations: You will have an opportunity to evaluate all aspects of this course in a formal process to be completed online near the end of the term. You will receive an email reminder through your LU account.