

South Plains College
Course Syllabus: Calculus II (MATH 2414)
Fall 2025

Department: Mathematics, Engineering, and Computer Science

Discipline: Mathematics

Course Number: MATH 2414

Section: 001 (Mondays and Wednesdays, 8:30-10:35am, Mathematics-Engineering building, room 108)

Course Title: Calculus II

Available Formats: conventional/flex

Campuses: Levelland and Lubbock Downtown Center. This class meets face-to-face on the Levelland campus in the Mathematics-Engineering building, room 108.

Course Description: This course studies differentiation and integration of transcendental functions; parametric equations and polar coordinates; techniques of integration; sequences and series; improper integrals.

Prerequisite: Successful completion with a grade of 'C' or better in MATH 2413 (Calculus 1).

Credit: 4 **Lecture:** 3 **Lab:** 2

Instructor: Jay Driver

Telephone: (806) 716-2780

Office: Math and Engineering building, office 114

Email: The instructor may be emailed through Blackboard or at jdriver@southplainscollege.edu.

Email Policy: All students at South Plains College are assigned a standardized SPC e-mail account. Although personal email addresses will continue to be collected, the assigned SPC e-mail account will be used as the official channel of communication for South Plains College. The Student Correspondence Policy can be found at www.southplainscollege.edu. To access the SPC student e-mail account, log in to portal.office.com. (Copied from SPC Student Guide)

- Since all students have an assigned SPC email, the instructor will only acknowledge, respond, and send emails to your assigned SPC email. This ensures all correspondence from the instructor is received by the intended recipient.

Virtual/Face-to-Face Office Hours:

- Mondays and Wednesdays, 2:30-3:30pm;
- Tuesdays and Thursdays, 10:45am-12:00pm, 1:30-2:30pm;
- Fridays, 10:00-11:30am.
- And by appointment (contact me).

Textbook: *Calculus, Volume 2*, Strang and Herman, OpenStax

The following message is from OpenStax.org:

Good news: your textbook for this class is available for free online, in web view and PDF format! You can also purchase a print version, if you prefer, via the campus bookstore or from OpenStax on Amazon.com.

You can use whichever formats you want. Web view is recommended -- the responsive design works seamlessly on any device. If you buy on Amazon, make sure you use the link on your book page on openstax.org so you get the official OpenStax print version. (Simple printouts sold by third parties on Amazon are not verifiable and not as high-quality.)

Calculus Volume 2 from OpenStax, Print ISBN 1938168062, Digital ISBN 194717214X,
<http://www.openstax.org/details/calculus-volume-2>

Supplies: You will need a scientific calculator and a small supply of graph paper. Calculators on cell phones, TI-89, TI-92, or TI-Inspire calculators, or any other electronic devices will not be allowed during testing without permission from the instructor. Make certain you have access to a scanner or scanning app. Gradescope is the recommended app.

Blackboard: Blackboard is the online course management system that will be utilized for this course. This course is supplemented online, so all access to course information and your instructor is through the Internet. This course syllabus, as well as all course materials can be accessed through Blackboard. Login at <https://southplainscollege.blackboard.com/>. The user name and password should be the same as the MySPC and SPC email.

User name: first initial, last name, and last 4 digits of the Student ID

Password: Original CampusConnect Pin No. (found on SPC acceptance letter)

Questions regarding Blackboard support may be emailed to blackboard@southplainscollege.edu or by telephone to 806-716-2180.

This course partially satisfies a Core Curriculum Requirement: Mathematics Foundational Component Area (020)

Core Curriculum Objectives addressed:

- **Communications skills**—to include effective written, oral and visual communication
- **Critical thinking skills**—to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information
- **Empirical and quantitative competency skills**—to manipulate and analyze numerical data or observable facts resulting in informed conclusions

Student Learning Outcomes: Upon completion of this course and receiving a passing grade, the student will be able to:

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.

Student Learning Outcomes Assessment: Pre- and post-test questions (assignments, labs, and major exams) will be used to determine the extent of improvement that the students have gained during the semester.

Attendance/Student Engagement Policy: Attendance and engagement are the most critical activities for success in this course. The instructor maintains records of the student's attendance and submission of assignments throughout the semester. The student is expected to attend at least eighty percent (80%) of the total class meetings **and** submit at least eighty percent (80%) of the total class assignments to have the best chance of success. If the student has more than six (6) absences or missed assignments, the instructor may remove the student from the class with an X, upon their discretion, to help the student from harming their GPA. If the student cannot receive an X, the instructor will assign an F.

Course Evaluation: There will be departmental final exam questions given by all instructors. Assignments, labs, and quizzes will count for 20% of the final grade, while exams count for 80% of the final grade. Expect assignments, labs, and 4 scheduled exams throughout the course. Your final average in the course will determine the letter grade posted on your transcript. This grade is determined by the following scale:
A (90-100%), B (80-89%), C (70-79%), D (60-69%), F (0-59%).

- Assignments/Labs/Quizzes = 20%
- Exam 1 (covering Assignments 1-5) = 20%
- Exam 2 (covering Assignments 6-11) = 20%
- Exam 3 (covering Assignments 12-16) = 20%
- Exam 4 (comprehensive final exam covering Assignments 1-22) = 20%.

Assignments and Exams: The following is a sequential list of the assignments and exams.

1. Volumes of Revolution
2. Lengths of Plane Curves and Surface Area of Revolution
3. Centers of Mass & Work
4. Transcendental Review and Hyperbolic Functions
5. Integration by Parts

Exam 1 (20%)

6. Integrals Involving Powers of Trig Functions
7. Trigonometric Substitution
8. Partial Fractions
9. Numerical Integration
10. L'Hopital's Rule and Improper Integrals
11. The Basics of Differential Equations and Separation of Variables

Exam 2 (20%)

12. Introduction to Sequences and Infinite Series
13. The Integral and Comparison Tests
14. Alternating Series and the Ratio and Root Tests
15. Power Series
16. The Maclaurin and Taylor Series
17. Taylor Series and Non-Elementary Integrals

Exam 3 (20%)

18. An Introduction to Parametric Curves
19. The Calculus of Parametric Curves
20. Polar Coordinates
21. Area and Arc Length in Polar Coordinates
22. Conic Sections in Rectangular and Polar Coordinates

Exam 4 (20%)

Assignment/Lab Format and Policy:

- Labs are administered in-class, while assignments are to be completed outside of the class meeting time. In the event of an absence, make certain to get the lab downloaded from Blackboard, worked, and submitted with the assignment.
- Labs and assignments are given after each lesson and are collected in Gradescope by the beginning of the next class meeting. Late assignments are **not** accepted. Make certain to complete the assignments with enough time to get help, if needed. At the end of the semester, the lowest four daily grades (assignment, quiz) will be dropped.
- With each exercise of the assignment show all necessary work and clearly mark your answer.
- Check your answers in Blackboard to make certain you are practicing the exercises correctly.
- Write your name at the top of each page of your work.
- Submit assignments/labs in Gradescope as a single pdf file, preferably using the Gradescope app.
- The following grading rubric is used for each assignment/lab submission.

100%	Completed assignment and lab; all work shown; selected exercises found accurate
95%	Completed assignment and lab; all work shown; missing accuracy on selected exercise
85%	Completed assignment and lab; all work shown; missing accuracy on a few selected exercises
75%	Completed assignment and lab; all work shown; missing accuracy on several selected exercises
75%	Lab missing
50%	Assignment incomplete and/or no work shown
0%	No assignment or lab submitted

Exam Format and Policy:

- There are four (4) units of study in this course. At the conclusion of each unit is a face-to-face examination on specified Wednesdays, 8:30-10:35am with the exception of the final exam, which is on Monday, December 8, from 8:00-10:00am.
- No electronic communication devices (phones, smart watches, headphones, earbuds, etc.) are permitted during examinations.
- The final exam is cumulative with no exemptions.

SPC Tutors

Tutoring is FREE for all currently enrolled students. Make an appointment or drop-in for help at any SPC location or online! Visit the link below to learn more about how to book an appointment, view the tutoring schedule, and view tutoring locations.

<http://www.southplainscollege.edu/exploreprograms/artsandsciences/teacheredtutoring.php>

Brainfuse Live Tutoring

You also have 180 FREE minutes of tutoring with Brainfuse Live Tutoring each week, and your hours reset every Monday morning. Log into Blackboard, click on the tools option from the left-hand menu bar. Click on the Brainfuse link and you will automatically be logged in for free tutoring. You may access Brainfuse tutors during the following times:

Monday – Thursday: 8pm-8am

6pm Friday – 8am Monday morning

For questions regarding tutoring, please email tutoring@southplainscollege.edu or call 806-716-2241.

Academic Integrity (Plagiarism and Cheating Policy): “Complete honesty is required of the student in the presentation of any and all phases of course work. This idea applies to quizzes of whatever length as well to final examinations, to daily reports, and to term papers.” (*SPC General Catalog*)

Plagiarism violations include, but are not limited to, the following:

1. Turning in a paper that has been purchased, borrowed, or downloaded from another student, an online term paper site, or a mail order term paper mill;
2. Cutting and pasting together information from books, articles, other papers, or online sites without providing proper documentation;
3. Using direct quotations (three or more words) from a source without showing them to be direct quotations and citing them; or
4. Missing in-text citations.

Cheating violations include, but are not limited to, the following:

1. Obtaining an examination by stealing or collusion;
2. Discovering the content of an examination before it is given;
3. Using an unauthorized source of information (notes, textbook, text messaging, internet, apps) during an examination, quiz, or homework assignment;
4. Entering an office or building to obtain an unfair advantage;
5. Taking an examination for another;
6. Altering grade records;
7. Copying another’s work during an examination or on a homework assignment;
8. Rewriting another student’s work in Peer Editing so that the writing is no longer the original student’s;
9. Taking pictures of a test, test answers, or someone else’s paper.

It is the aim of the faculty of South Plains College to foster a spirit of complete honesty and a high standard of integrity. The attempt of any student to present as his or her own any work which he or she has not honestly performed is regarded by the faculty and administration as a most serious offense and renders the offender liable to serious consequences, possibly suspension. (*SPC General Catalog*)

Plagiarism and cheating are not tolerated in this course. Under the policies of South Plains College, punishment for cheating may include no credit (failing) on the assignment, quiz, exam, or the course.

Student Code of Conduct Policy: Any successful learning experience requires mutual respect on the part of the student and the instructor. Neither instructor nor student should be subject to others’ behavior that is rude, disruptive, intimidating, aggressive, or demeaning. Student conduct that disrupts the learning process or is deemed disrespectful or threatening shall not be tolerated and may lead to disciplinary action and/or removal from class.

COVID Response: South Plains College policies, return to campus plan, and protocols regarding COVID-19 can be found here: [COVID Response \(southplainscollege.edu\)](https://southplainscollege.edu/covid-response).

Diversity, disabilities, non-discrimination, Title IX Pregnancy Accommodations, Campus Concealed Carry: South Plains College policies concerning diversity, disabilities, non-discrimination, Title IX Pregnancy Accommodations, and Campus Concealed Carry Statements can be found here: [Syllabus Statements \(southplainscollege.edu\)](https://southplainscollege.edu/syllabus-statements).

Note: The instructor reserves the right to modify the course syllabus and policies, as well as notify students of any changes, at any point during the semester.

Tentative Course Calendar: Below is a calendar view of assignment and exam due dates and times.

Day (Mon/Wed), Date	What is due before arriving to class that day?	Topic(s) to be discussed that day	Work to be done?
Mon, Aug 25		Course Introduction; Lesson 1: Integration Review from Calculus 1 (including area and volumes of revolution)	Assignment 1
Wed, Aug 27	Assignment 1	Lesson 2: Lengths of Plane Curves and Surface Area	Assignment 2
Mon, Sep 1	<----- Labor Day holiday ----->		
Wed, Sep 3	Assignment 2	Lesson 3: Centers of Mass and Work	Assignment/Lab 3
Mon, Sep 8	Assignment/Lab 3	Lesson 4: Transcendental Review and Hyperbolic Functions	Assignment/Lab 4
Wed, Sep 10	Assignment/Lab 4	Lesson 5: Integration by Parts	Assignment/Lab 5
Mon, Sep 15	Assignment/Lab 5	Preparation for Exam 1	Study for Exam 1
Wed, Sep 17		Exam 1	Exam 1
Mon, Sep 22		Lesson 6: Integrating Powers of Trig Functions	Assignment 6
Wed, Sep 24	Assignment 6	Lesson 7: Trigonometric Substitution	Assignment/Lab 7
Mon, Sep 29	Assignment/Lab 7	Lesson 8: Partial Fractions	Assignment/Lab 8
Wed, Oct 1	Assignment/Lab 8	Lesson 9: Numerical Integration	Assignment/Lab 9
Mon, Oct 6		Lesson 10: L'Hopital's Rule and Improper Integrals	Assignment/Lab 10
Wed, Oct 8	Assignment/Labs 9 and 10 (submitted separately)	Lesson 11: Basics of Differential Equations; Separation of Variables	Assignment/Lab 11
Mon, Oct 13	Assignment/Lab 11	Preparation for Exam 2	Study for Exam 2
Wed, Oct 15		Exam 2	Exam 2
Fri, Oct 17	<----- Fall Break (SPC is closed) ----->		
Mon, Oct 20		Lesson 12: Introduction to Sequences and Infinite Series	Assignment 12
Wed, Oct 22	Assignment 12	Lesson 13: The Integral and Comparison Tests	Assignment/Lab 13
Mon, Oct 27	Assignment/Lab 13	Lesson 14: Alternating Series, Ratio and Root Tests	Assignment/Lab 14
Wed, Oct 29	Assignment/Lab 14	Lesson 15: Power Series	Assignment/Lab 15
Mon, Nov 3	Assignment/Lab 15	Lesson 16: Maclaurin and Taylor Series	Assignment 16
Wed, Nov 5	Assignment 16	Lesson 17: Taylor Series and Non-Elementary Integrals	Assignment 17
Mon, Nov 10	Assignment 17	Preparation for Exam 3	Study for Exam 3
Wed, Nov 12		Exam 3	Exam 3
Mon, Nov 17		Lesson 18: Parametric Equations	Assignment/Lab 18
Wed, Nov 19	Assignment/Lab 18	Lesson 19: The Calculus of Parametric Curves	Assignment/Lab 19
Mon, Nov 24	Assignment/Lab 19	Lesson 20: Polar Coordinates	Assignment/Lab 20
Wed, Nov 26	<----- Thanksgiving holiday ----->		
Mon, Dec 1	Assignment Lab 20	Lesson 21: Area and Arc Length in Polar Coordinates	Assignment/Lab 21
Wed, Dec 3	Assignment Lab 21	Lesson 22: Conic Sections in Rectangular and Polar Coordinates	Assignment/Lab 22; Study for Exam 4
Mon, Dec 8		Exam 4 This exam is the cumulative final exam that will be from 8:00-10:00am in M108.	Final Exam