

South Plains College
Common Course Syllabus: MATH 1325
Revised August 2021

Department: Mathematics, Engineering, and Computer Science

Discipline: Mathematics

Course Number: MATH 1325

Course Title: Calculus for Business and Social Sciences

Available Formats: conventional, hybrid, and internet

Campuses: Levelland, Reese, and Dual Credit

Course Description: This course is the basic study of limits and continuity, differentiation, optimization and graphing, and integration of elementary functions, with emphasis on applications in business, economics, and social sciences. This course is not a substitute for MATH 2313 or 2413, Calculus I.

Prerequisite: Successful completion with a grade of 'C' or better in MATH 1324 or MATH 1314.

Credit: 3 **Lecture:** 3 **Lab:** 0

Textbook: *Mathematics with Applications in the Management, Natural, and Social Sciences*, Lial, Hungerford, Holcomb, and Mullins, 2019, 12th Edition, Prentice Hall/Pearson Education

Supplies: Please see the instructor's course information sheet for specific supplies.

This course partially satisfies a Core Curriculum Requirement: None

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. Apply calculus to solve business, economics, and social sciences problems.
2. Apply appropriate differentiation techniques to obtain derivatives of various functions, including logarithmic and exponential functions.
3. Solve application problems involving implicit differentiation and related rates.
4. Solve optimization problems with emphasis on business and social sciences applications.
5. Determine appropriate technique(s) of integration.

6. Integrate functions using the method of integration by parts or substitution, as appropriate.
7. Solve business, economics, and social sciences applications problems using integration techniques.

Student Learning Outcomes Assessment: A pre- and post-test questions will be used to determine the extent of improvement that the students have gained during the semester

Course Evaluation: There will be departmental final exam questions given by all instructors.

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 fails to meet these minimum requirements, 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 can not receive an X, the instructor will assign an F.

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.

COVID Syllabus Statement: It is the policy of South Plains College that as a condition of on-campus enrollment, all students are required to engage in safe behaviors to avoid the spread of COVID-19 in the SPC community. There will be no requirement for face coverings at any location on any South Plains College campus or classroom. Faculty, staff, or students may continue to wear a mask voluntarily, but there will be no requirements for face coverings in any circumstance. Students who believe they have been exposed or may be COVID-19 positive, must contact Health Services, DeEtte Edens, BSN, RN at (806) 716-2376 or dedens@southplainscollege.edu.

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.

Diversity Statement: In this class, the teacher will establish and support an environment that values and nurtures individual and group differences and encourages engagement and interaction. Understanding and respecting multiple experiences and perspectives will serve to challenge and stimulate all of us to learn about others, about the larger world and about ourselves. By promoting diversity and intellectual exchange, we will not only mirror society as it is, but also model society as it should and can be.

Disability Statement: Students with disabilities, including but not limited to physical, psychiatric, or learning disabilities, who wish to request accommodations in this class should notify the Disability Services Office early in the semester so that the appropriate arrangements may be made. In accordance with federal law, a student requesting accommodations must provide acceptable documentation of his/her disability to the Disability Services Office. For more information, call or visit the Disability Services Office at Levelland (Student Health & Wellness Office) 806-716-2577, Reese Center (Building 8) 806-716-4675, or Plainview Center (Main Office) 806-716-4302 or 806-296-9611.

Nondiscrimination Policy: South Plains College does not discriminate on the basis of race, color, national origin, sex, disability or age in its programs and activities. The following person has been designated to handle inquiries regarding the non-discrimination policies: Vice President for Student Affairs, South Plains College, 1401 College Avenue, Box 5, Levelland, TX 79336. Phone number 806-716-2360.

Title IX Pregnancy Accommodations Statement: If you are pregnant, or have given birth within six months, Under Title IX you have a right to reasonable accommodations to help continue your education. To [activate](#) accommodations you must submit a Title IX pregnancy accommodations request, along with specific medical documentation, to the Director of Health and Wellness. Once approved, notification will be sent to the student and instructors. It is the student's responsibility to work with the instructor to arrange accommodations. Contact the Director of Health and Wellness at 806-716-2362 or [email rcanon@southplainscollege.edu](mailto:rcanon@southplainscollege.edu) for assistance.

Campus Concealed Carry: Texas Senate Bill - 11 (Government Code 411.2031, et al.) authorizes the carrying of a concealed handgun in South Plains College buildings only by persons who have been issued and are in possession of a Texas License to Carry a Handgun. Qualified law enforcement officers or those who are otherwise authorized to carry a concealed handgun in the State of Texas are also permitted to do so. Pursuant to Penal Code (PC) 46.035 and South Plains College policy, license holders may not carry a concealed handgun in restricted locations. For a list of locations and Frequently Asked Questions, please refer to the Campus Carry page at: <http://www.southplainscollege.edu/campuscarry.php> Pursuant to PC 46.035, the open carrying of handguns is prohibited on all South Plains College campuses. Report violations to the College Police Department at 806-716-2396 or 9-1-1.

SPC Bookstore Price Match Guarantee Policy: If you find a lower price on a textbook, the South Plains College bookstore will match that price. The difference will be given to the

student on a bookstore gift certificate! The gift certificate can be spent on anything in the store.

If students have already purchased textbooks and then find a better price later, the South Plains College bookstore will price match through the first week of the semester. The student must have a copy of the receipt and the book has to be in stock at the competition at the time of the price match.

The South Plains College bookstore will happily price match BN.com & books on Amazon noted as *ships from and sold by Amazon.com*. Online marketplaces such as *Other Sellers* on Amazon, Amazon's Warehouse Deals, *fulfilled by Amazon*, BN.com Marketplace, and peer-to-peer pricing are not eligible. They will price match the exact textbook, in the same edition and format, including all accompanying materials, like workbooks and CDs.

A textbook is only eligible for price match if it is in stock on a competitor's website at time of the price match request. Additional membership discounts and offers cannot be applied to the student's refund.

Price matching is only available on in-store purchases. Digital books, access codes sold via publisher sites, rentals and special orders are not eligible. Only one price match per title per customer is allowed.

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.

Calculus for Business and Social Sciences, Spring 2024

Instructor: Jason Groves **Office:** 2032 (LDTC)
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Phone: 806-716-2739
Office Hours: Mon - Thurs: 9 am - Noon, Fri: 8 am - 11 am
or by appointment

Students are responsible for knowing the policies of SPC as an institution, and this information is available in the student handbook. Policies that are applied to all sections of this course per the Department of Math and Engineering are found in the common course policies preceding this document. Below are the course policies specific to this course section and this instructor.

Materials: The following materials are required for this course

Writing: Pencil and paper are required for taking notes during videos, while reading the text, or during class meetings, as well as taking quizzes and exams. Generally, I recommend having a spiral notebook dedicated to notes and solving problems for this class, and a folder for receiving returned/graded work.

Textbook: We will be using Mathematics with Applications in Business and Social Sciences from Hawkes Learning in this class. You will find a digital copy of this on Blackboard if necessary.

Calculators: You will need a calculator with e^x and \ln keys will be required. These can be found on scientific calculators (inexpensively obtained from Wal-Mart or any other big-box store) or graphing calculators. Online options such as Wolfram Alpha (wolframalpha.com), Desmos (www.desmos.com) Desmos also has smartphone apps) or GeoGebra (www.geogebra.org). Smartphone apps such as Panecal or Class-Calc are also available for low cost (or free). All are great for doing homework or studying. ***Please note that computer software and mobile apps will not be allowed on exams.***

Computer: Access to a computer with stable internet connection will be required for viewing course materials as well as using other software (see “Calculators” above and “Blackboard” below). The use of Chromebooks or other computers running the Chrome Operating System (ChromeOS) is discouraged, as ChromeOS is not always compatible with the software we may be using during this course. Students who do not have a computer may find success using mobile devices in some cases, and also have access to suitable computers via the computer labs found at every SPC campus.

Blackboard: Blackboard (accessible via the SPC website) will be used as a central hub for the course. Students will find this syllabus, and all other course materials, as well as assignments, grading rubrics, etc. Students should be checking Blackboard daily for announcements and updates, and to access the homework. Blackboard utilizes students’ SPC email, thus students should also be checking their SPC email regularly.

Gradescope: Gradescope is an app that will be used for submitting written work of any form during this course. It will be how assignments are submitted, and how feedback from the grading process is viewed. If you do not have a smartphone or other mobile device, please speak with your instructor as soon as possible.

Hawkes Learning: We will be using Hawkes Learning for you to practice concepts and do most assignments. Use the “single sign-on” link to begin. Make sure you have full access as soon as possible.

Assessment: Grading will be done according to the standard 10 percent scale (i.e. 100% - 90% is an A, etc.) with assignments weighted as follows:

Homework	25%
Discussion	15%
Tests	40%
Final Exam	20%

Grades are calculated by taking the average of all of the grades in that assessment type, and then weighing them according to the proportions given above. Details of each assessment type are given below.

Class Attendance: This course is an asynchronous (not at the same time) online course, so there is no formal class to attend. Attendance is instead managed by participation in the course. Students should be involved with working the course material as often as possible in order to develop mastery of the topics presented. To account for the lack of a formal Lecture/Lab setting, to achieve the same result, students should expect to spend at least 15 hours per week on this course to complete it successfully. Successful students usually break this down into 3 hours per day, 5-6 days per week working on this course (note that the 3 hours do not have to be continuous, but that amount of time should be accumulated each day for best results.) If a you miss more than 5 assessment items (quizzes, case studies, exams), you may be dropped from the course with an X or an F.

If a you wish to drop the course on your own (which gives a mark of W) there are instructions in the Syllabus section of the Blackboard course.

It is the policy of the South Plains College math department that online math courses cannot be repeated, regardless of success in or completion of the course. Therefore if a student fails, drops, or is administratively dropped, they will not be able to repeat the course online, and must repeat the course in a traditional classroom setting.

Students should plan their work time at the beginning of each week so that they are committed in advance to the completion of their assignments. It has been well documented that spreading out study and practice over a longer period of time helps to retain knowledge, create new connections, and gain additional insights into the material. This can also help with quizzes (see below). **Make arrangements now and plan ahead for what you will do in the event that your own computer or internet connection becomes unavailable or unreliable.**

Homework: Daily homework is essential to developing mastery over the topics presented in this course. All homework assignments are available from the first day of classes. Homework problems may be attempted an unlimited number of times in order to achieve mastery over the topic, and have a due date of the end of the term to allow unlimited practice and improvement. Each homework assignment has embedded within it various videos and interactive figures to help students understand the concepts, which they can then apply directly to the homework. Unlimited repetition allows for self-assessment and mastery. A primary use of the homework is to start building an intuition regarding each of the topics discussed in this course. This intuition can then be used to gain insights into material in future classes, so it is essential that students achieve as much mastery over the topics as possible. For best results, students should keep a notebook of all correctly worked homework problems to use as a study guide for quizzes, exams, and projects.

In the Hawkes system, learning occurs across three modules: Learn, Practice, and Certify. Learn is where the previously mentioned videos and content are placed. Practice is where you may practice problems that apply the material from the Learn section, and then Certify is where students demonstrate their mastery. Each lesson is graded based on whether or not you have scored appropriately in the Certify module for each lesson. You may reattempt the certification of any lesson throughout the semester.

Students will also need to submit their notes and worked problems for the week on Gradescope. The due date for these submissions is the Monday of the following week. Details are in the homework policy document in Course Resources or the Getting Started folder.

Discussions: Discussion boards are available in Blackboard (named in their appropriate content area) that serve as an opportunity for students to process information together. These graded forums focus on a particular topic that has been covered. These particular forums serve as a way for students to modify how they process the content and to demonstrate their knowledge in group settings with feedback from classmates, in a different way than just rote calculation. The grade in these discussions will be based on the quality of the student's initial post (all other posts in a forum are invisible until the student makes their first post in the forum), as well as the quality of feedback given to one or two posts from other classmates. Finally, after having received feedback, students should correct errors and refine their posts, if necessary.

Exams: There are four midterm exams and one final exam. All exams are to be taken in person. For each exam, a survey will go out 2-3 weeks prior to the exam date for students to choose when they will take the exam. Please note the following:

- All students who reside within 75 miles of any SPC campus must appear in person to take exams.
- All students who live farther than 75 miles from any SPC campus are responsible for finding their own proctor for exams (a form is available in the Course Resources with instructions).
- If you are unable to appear for an exam, it is your responsibility to coordinate with me an alternative *before* the due date of the exam.

Final Exam: The final exam is comprehensive, and a required part of the course. Failure to take the final exam results in an automatic F. The Final Exam must be turned in by Tuesday, May 7.

Email: The email at the header of the syllabus is the best way to get into contact with me. This email is also available on Blackboard in the “Instructor Information” section of the Blackboard course. This should be used as often as necessary to ask questions, schedule appointments for office hours (physical or virtual) or turn in written assignments in the event that Blackboard or Gradescope are down. You may also email incomplete parts of assignments in order to get feedback on how to proceed.

All emails should be formatted with the course number and section, and an adequate heading (i.e. “Math 1324-151 project questions”). Failure to format the subject line properly may result in emails being caught by SPC’s email filter. Neither the instructor nor SPC is responsible for emails lost due to improper formatting.

Be sure to confirm that all relevant attachments are sent with the email and that the body of the email contains all relevant information for that correspondence.

Showing Work: In all written assignments submitted (exam work, case studies, projects) work of one kind or another needs to be shown in order for the instructor to properly assess how much of the content has been properly learned and implemented. *When submitting written work any question or component that does not have work associated with it will be given reduced (or no) credit.* The Course Resources area has further instructions and examples of properly showing work.

Civility in the classroom: Students are expected to assist in maintaining a classroom environment that is conducive to learning. Given that this is an online course, “the classroom” is defined as any set of interactions that students will have with one another (primarily discussion boards). Students who are found to be intentionally hurtful or disrespectful, or repeatedly detract from the focus of the discussion boards will have their grade in this category penalized (up to zero credit for a discussion assignment), and may be administratively dropped from the course (with an X or F) for creating a hostile learning environment.

It is important to note the role that students play in their own mathematical education. Just as everybody has had (and continues to have) different life experiences, we all have different mathematical experiences as well. And while it is important that the systems and institutions that people interact with (of which this class is one) are impartial, to expect such from human beings borders on impossible. To that end, it is imperative that all students give space for their classmates to come into the material from where they are, and that we seek to understand each other. The most important capacity students can give each other is the space to be wrong, and to be guided out of misconceptions or errors. Both instructor and student are not just the product of their own hard work and thinking, but also of what their environments (both past and present) allowed them to work or think hard about.

Students in disagreements over results or processes must disagree professionally. Blanket statements (“you’re wrong” or “that doesn’t work”) cannot be given without explicit evidence, and should still be framed more in terms of your own understanding: phrases like “I think the problem is asking for...” or “did you consider...” are more appropriate phrases to use when correcting and/or helping other students. People cannot escape their biases, but everybody can recognize that people do not always look at a problem the same way. As the saying goes: “Above all else, be kind.”

Honesty: “Scholastic dishonesty” includes but is not limited to cheating, plagiarism, collusion, falsifying academic records, misrepresenting facts, and any act designed to give unfair academic advantage to the student. Incidents of academic dishonesty will be promptly reported and dealt with.

The ethics and appropriateness of the use of apps such as photomath on quizzes are discussed in one of the first discussion assignments. That being said, it is the policy of this class that use of these apps is strictly prohibited on all quizzes and exams.

Student Resources: To schedule a face-to-face or virtual meeting with SPC tutors, go to the SPC webpage, click Student Services, and click on Tutoring. There students may choose at which center they wish to have tutoring or if they wish to have a virtual session (face-to-face sessions only require an open spot, while virtual sessions require 4 hours notice). Click the Booking link and log in with SPC credentials. Students can then choose the subject and tutor.

Students also have access to the use of Tutor.com for a few hours each week. Students can access Tutor.com directly from the blackboard homepage, or from the Help section of this Blackboard course.

Week	Sections Covered	Due Dates (Assignments due 11 pm on the listed day)
Week 1 1/16 - 1/19	Lessons 10.1 - 10.3: Limits	1/17 - Introductory Survey (first attempt) 1/22 - Certify lessons 10.1 - 10.3 1/22 - Discussion Board: Understanding Limits
Week 2 1/22 - 1/26	Lessons 10.4, 10.6, 10.7: Continuity Instantaneous Rate of Change and the Derivative	1/29 - Certify lessons 10.4, 10.6, 10.7 1/29 - Discussion Board: Continuity and Differentiability
Week 3 1/29 - 2/2	Lessons 10.8, 10.9: Derivative Techniques and Applications Exam 1 (10.1 - 10.4, 10.6, 10.7)	1/30 - Exam 1 sign-up submitted 2/5 - Certify lessons 10.8, 10.9 2/5 - Discussion Board: Thinking About Margins
Week 4 2/5 - 2/9	Lessons 11.1, 11.2: More Derivative Rules	2/12 - Certify lessons 11.1, 11.2
Week 5 2/12 - 2/16	Lesson 11.3: Implicit Differentiation and Related Rates Exam 2 (10.8, 10.9, 11.1, 11.2)	2/13 - Exam 2 sign-up submitted 2/19 - Certify Lesson 11.3
Week 6 2/19 - 2/23	Lessons 11.4 - 11.6: First Derivative Properties and Extrema	2/26 - Certify lessons 11.4 - 11.6 2/26 - Discussion Board: Max or Min?
Week 7 2/26 - 3/1	Lessons 12.1, 12.2: Second Derivative Properties and Concavity	3/4 - Certify lessons 12.1, 12.2
Week 8 3/4 - 3/8	Lessons 12.3, 12.4: Curve Sketching Exam 3 (11.3 - 11.6, 12.1, 12.2)	3/5 - Exam 3 sign-up submitted 3/11 - Certify lessons 12.3 and 12.4
Week 9 3/18 - 3/22	Lessons 12.5, 12.6: Other Applications of the Derivative	3/25 - Certify lessons 12.5, 12.6 3/25 - Discussion Board: Maximizing Profit and Revenue
Week 10 3/25 - 3/29	Lessons 13.1, 13.2: Derivatives of Exponential and Logarithmic Functions	4/1 - Certify lessons 13.1, 13.2 4/1 - Discussion Board: Percentage Rate of Change
Week 11 4/1 - 4/5	Lessons 13.4, 13.6: Price-Elasticity of Demand, Differentials	4/8 - Certify lessons 13.4, 13.6
Week 12 4/8 - 4/12	Lessons 14.1, 14.2: Antiderivatives, or the Indefinite Integral Exam 4 (12.3 - 12.6, 13.1, 13.2, 13.6)	4/9 - Exam 4 sign-up submitted 4/15 - Certify lessons 14.1, 14.2
Week 13 4/15 - 4/19	Lessons 14.3, 14.4: Area Under the Curve or the Definite Integral	4/22 - Certify lessons 14.3, 14.4 4/22 - Discussion Board: Zero Area Functions
Week 14 4/22 - 4/26	Lessons 14.5, 14.6: Applications of the Integral	4/29 - Certify lessons 14.5, 14.6
Week 15 4/29 - 5/3	Lessons 15.1, 15.2: Integration by Parts and Applications	5/3 - Final Exam sign-up submitted 5/6 - Certify lessons 15.1, 15.2 5/6 - Discussion Board: Integration Techniques
Week 16 5/6 - 5/9	Final Exam (comprehensive) Must be taken no later than 5/7 at 10 am	