South Plains College
Common Course Syllabus: MATH 1324
Revised December 2019

Department: Mathematics, Engineering, and Computer Science

Discipline: Mathematics

Course Number: MATH 1324

Course Title: Mathematics for Business and Social Sciences

Available Formats: conventional and internet

Campuses: Levelland, Reese, and Dual Credit

Course Description: The application of common algebraic functions, including polynomial, exponential, logarithmic, and rational, to problems in business, economics, and the social sciences are addressed. The applications include mathematics of finance, including simple and compound interest and annuities; systems of linear equations; matrices; linear programming; and probability, including expected value.

Prerequisite: Minimum score of 350 on the TSIA, TSI-exempt status, or a successful completion with a grade of 'C' or better in MATH 0320.

Credit: 3 **Lecture:** 3 **Lab:** 1

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: 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. Apply elementary functions, including linear, quadratic, polynomial, rational, logarithmic, and exponential functions to solving real-world problems.
2. Solve mathematics of finance problems, including the computation of interest, annuities, and amortization of loans.

3. Apply basic matrix operations, including linear programming methods, to solve application problems.
4. Demonstrate fundamental probability techniques and application of those techniques, including expected value, to solve problems.
5. Apply matrix skills and probability analyses to model applications to solve real-world problems.

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 Policy: Attendance and effort are the most important activities for success in this course. Records of your attendance are maintained throughout the semester. Five (5) absences, ***for any reason***, are allotted to the student for the semester. Tardies count as one-half (1/2) of an absence. Tardies will be applied for consistently being late to class, as deemed by the instructor and leaving class early. If this number is exceeded, the instructor has the right to drop you with a grade of F or an X, depending on their discretion.

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.

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 cgilster@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.

MATH 1324 Mathematics for Business and Social Sciences, Spring 2021

Instructor: Jason Groves **Office:** M107
e-mail: jgroves@southplainscollege.edu
Phone: 806-716-2739

Office Hours: MW: 12 pm - 1:30 pm (virtual only),
T,Th: 8 am - 11 am, 12 pm - 1pm,
Fri: 8 am - 11 am
or by appointment

Note that students are responsible for knowing the policies of SPC as an institution. This information is available in the student handbook. Policies specific to the math department are found in the common course policies preceding this document. Below are the course policies specific to this course section and this instructor.

Prerequisites: Instructor's permission and successful completion of MATH 0320 or appropriate TSI Math score.

Materials: Students must have regular and reliable access to the following materials:

Textbook: Mathematics with Applications by Lial, Hungerford, Holcomb, Mullins. This can be obtained digitally with your access to MyMathLab (see below).

Writing: Suitable writing instruments and paper for taking notes and completing assignments. Written work will be handed in virtually by use of blackboard or email (instructions for how to do this are in a later section). Turned in work should be done in pencil, dark enough to be clearly seen digitally.

Calculator: Calculators 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 ClassCalc are also available for low cost (or free). In many cases, Microsoft Excel (or equivalent software) can be used. Students with Google Drive access can use the spreadsheet app for free. A graphing calculator with matrix functions may be used, but is not required.

Computer: Regular access to a reliable computer and internet connection will be required for study and for completion of assignments. Access to a printer may be needed to print out some assignments. If you do not currently have a computer, or the technology you have becomes unusable, each computer lab at any of SPC's campuses will be available throughout the semester as well. Students will also need a scanner, or a scanning app for submitting written assignments. As part of their enrollment at SPC, all students have access to Microsoft OneDrive via their SPC email and login. Instructions on how to use OneDrive to scan and submit assignments can be found in the Syllabus and Materials section of the blackboard course.

MyMathLab: Students must have access to the MyMathLab system from Pearson. MyMathLab does include access to an electronic copy of the text. (MyMathLab does have an app for mobile devices, though a separate app is required to use the text.) Log in details are included further down in this document. For best results, make sure you are using the Google Chrome or Mozilla Firefox web browsers. Microsoft Edge and Safari for MacOS are not effective browsers to use in this course. Also, if you are using a Chromebook, it is recommended that you schedule your exam times in a computer lab or use a different computer for exams, as Chromebooks are not compatible with some of the testing software used in MyMathLab.

Blackoard: 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, and discussion boards. Students should be checking Blackboard daily for announcements and updates, and to access the homework. Blackboard utilizes students' SPC email, students should be checking their SPC email regularly. *While there is an app for blackboard access, some features in the mobile app are suppressed. Students should plan on accessing blackboard from a computer at least a few times each week.*

Class Attendance: This course is an asynchronous 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.

In order to have enough time to complete all assignments, as well as allow for additional review, questions, or communications with the professor or other class members, students should plan on spending at least a total of 3 hours per day, 5 - 6 days per week.

If a student misses 4 discussion topics, 4 quizzes, or 2 exams without communication or arrangements made with the instructor, that student will be dropped from the course with an X or an F (depending on the student's current course average).

If a student wishes to drop the course on their own (which gives a mark of W) they may contact the registrar, Andrew Ruiz (email: `aruiz@southplainscollege.edu`). Give him the course name and section number (at the top of this document), and your SPC ID, and he will help you finish the process.

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 may not be able to repeat the course online, and must repeat the course in a traditional classroom setting.

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.

Office Hours: Specific hours are given at the head of this document. These hours are also listed in the "Office Hours" section of blackboard. For virtual office hours, the link is found there as well. Please note that all virtual office hours must be by appointment (so that I can make sure the link is active), and may be scheduled during non-virutal hours as well.

If these office hours are not suitable, I can possibly meet virtually at other times, so feel free to email so that we can schedule an appointment that works for you. *Note that I do not make appointments (or check email) on Sundays.*

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	5%
Quizzes	10%
Discussion	15%
Case Study	20%
Tests/Projects	30%
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. Assignments are not curved, but the final course average is rounded to the nearest percentage point. Details of each assessment type are given below.

Homework: Daily work is essential to developing mastery over the topics presented in this course. Homework assignments are due every Friday night with that week's quiz and/or exam. Each problem may be attempted an unlimited number of times, and has various videos and interactive figures associated with each assignment. It should be your goal to obtain the highest score possible on each assignment, as this is the first step in developing an intuition over the material which will be essential for quizzes, exams, and in future math courses.

As stated above, this course uses Pearson's MyMathLab for homework and quizzes. In order to access MyMathLab, click the "MyMathLab" link on the blackboard course. Clicking the links available will prompt you to create or link your Pearson account with blackboard. If you have a Pearson account already, simply log in. If you do not have an account, you can create one now.

You will then be prompted to either pay for access or enter an access code. Access codes may be purchased from the campus bookstore, if you do not want to pay Pearson directly. You may also click the link at the bottom for free temporary access for 17 days. This will allow you to access all of MyMathLab if you cannot acquire paid access immediately.

Quizzes: Quizzes will be given weekly in order to provide low-level assessment of related material learned throughout the week. Quiz problems are taken from the exact same pool of problems as the homework assignments. Quizzes may be taken up to two times, and MyMathLab will record the better result of the two attempts. Each attempt must be done in one sitting, and quizzes are not dropped. Missed quizzes are counted as a zero.

Discussions: Discussion boards are found in Blackboard(named in their appropriate content area) and serve as an opportunity for students to process information together. In these boards students will find a generic social forum, as well as forums for students to post their own questions.

Every week there will be at least one graded forums assignment that focuses on a particular topic that was covered during the week. 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 more posts from other classmates. Finally, after having received feedback, students are to correct errors and refine their posts. Specific instructions on what constitutes quality feedback will be given in the individual discussion forums.

Case Studies: Case Studies are assignments found in Blackboard. All work must be shown, and all explanations of steps or interpretations of results must be given in complete sentences. Due dates are given on the course calendar as well as on Blackboard, and late work will not be accepted (student will receive a 0).

Exams: Midterm exams are given during this course. Questions will consist of problems similar to the assigned quizzes, as well as conceptual questions in which students explain important ideas or interpret data. While you may use your textbook and written notes, it is expected that all students do the exam alone, without help from other people. Smartphone apps like Photomath are strictly prohibited (see statement on academic integrity below). Exams may only be attempted once, and must be done in one sitting. Students caught cheating will be dropped from the class with an F and disciplinary action will be pursued.

As stated above in the materials section, ensure that your computer and internet connection are *reliable* and make appropriate arrangements (in advance!) if they are not. Exams will typically be opened on the Wednesday of the week they are due, and will be due by Friday night. Students may not make up exams, nor take them late. Missed exams are automatically given a zero, and students that miss two exams will be dropped from the course (see Class Attendance, above).

From the time an exam is opened until its due date, I will not be available to answer questions about course material. I will however, be able to visit with students and answer questions about other course matters.

When taking exams, students must install and use the MyMathLab Lockdown Browser. Before starting the exam, make sure all browser tabs are closed, push notifications are disabled, and other internet-based programs are closed. Interruptions from such programs may cause Lockdown to glitch, and you may lose access to the exam.

Students must show all work when taking exams. All work should be done neatly and in pencil, and submitted scans should be of reasonable and legible quality. In the Exams area of blackboard will be an assignment given for each exam. Students are to upload their scanned work there to be graded. If an exam question involves use of definitions or reading data from given graphs, "showing work" will consist of explaining the answer choices made in complete sentences (see "Showing Work" for more details). Written

work for exams must be uploaded within fifteen minutes of completing the exam. The exam grade will be reduced by 10% after that, and an additional 10% for each day the work is late up to 50%.

Note: the exams on MyMathLab are the questions that must be answered. But all grading is done based off of the written work submitted to blackboard. If a question is left off of the written work, that question will receive 0 credit.

Projects: Projects are assigned over the finance, linear programming, and probability units of the course. They may be submitted in place of taking the exam over that material (as noted in the course calendar). Students have the option of submitting both an exam over that unit and a project. In this event the higher of the two scores will be taken.

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. Students have 4 hours to complete the final exam. While the average student may not need all 4 hours, make all efforts *now* to ensure that there will be 4 hours of uninterrupted time to take the final exam.

As with midterm exams, all work must be shown and submitted via email by the due date. The Final Exam will be due Wednesday, May 12, at 11:00 pm

Email: The email at the header of the syllabus is the best way to get into contact with the instructor. This email is also available on Blackboard in the "Send Email" tool link on the sidebar 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 is down. Students may also email incomplete parts of projects and case studies in order to get feedback from the instructor 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" or "Math 1324-151 Chapter 3 Case Study"). 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.

Students that have questions while doing homework on MyMathLab may use the "Ask Your Instructor" link found in the "Question Helps" menu at the top of the problem being worked on. This sends the instructor an email link to the specific version of the problem being worked, and allows a space for the student to describe the issue they have encountered. Emails sent this way have already been marked as "safe" and will not be caught by email filters.

Submitting Written Work: When submitting written assignments blackboard, submissions should be formatted with the course and section number, *your* first initial and last name, and the assignment. For example, if I were to submit an attachment for the chapter 3 case study, the file would be named: `1324151-jgroves-casestudy3`. As an additional measure, it is encouraged that you write your name at the top of each page of written work submission. Work must be clearly scanned, and submitted as a .pdf document only. Do not post "share" links from remote harddrives or online storage services, as these can create file errors when being imported into SPC's blackboard servers.

As mentioned above, all SPC students have access to Microsoft OneDrive via their SPC accounts, and instructions for scanning and submitting assignments via OneDrive are included in the Syllabus and Material section of the blackboard course.

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. Students may view the document titled "Mathematical Writing" in the syllabus content area for specific examples of properly showing work.

Students may notice a module during quizzes and exams entitled "show work." This module has only been enabled to facilitate instructor feedback and scoring of exams, and should not be used by students. Work shown on exams must be written and submitted via the appropriate assignment link on Blackboard.

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 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 gently 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: Students have access to tutoring at all SPC campuses, specifically in room M116 in the Math and Engineering building on the Levelland campus, or Building 2 (rooms 206 and 208) on the Reese campus. The Lubbock Center's tutoring is available in the common study room near the front of the building.

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.

Business Math

	Dates	Topics	Assignments Due
Week 1	1/19 - 1/22	Chapter 2: Graphs, Lines and Inequalities	Introductory Survey (due 8/25), How to Enter Answers into MyMathLab, Homework: 2.1, 2.2, Quiz 1
Week 2	1/25 - 1/29	lines and inequalities	2.3, 2.4, 2.5, quiz 2, Discussion Board 1, case study 2
Week 3	2/1 - 2/5	Systems of Linear Equations and Matrix Methods	Hwk 6.1 – 6.3, quiz 3
Week 4	2/8 - 2/12	Matrix Arithmetic and Matrix Algebra	6.4 – 6.6, quiz 4, exam 1, Discussion Board 2, case study 6
Week 5	2/15 - 2/19	Linear Programming with Graphs	7.1 – 7.3, quiz 5
Week 6	2/22 - 2/26	Linear Programming with the Simplex Method	7.4, 7.5, Discussion Board 3, quiz 6
Week 7	3/1 - 3/5	Non-standard Simplex Method Problems	7.6, 7.7, quiz 7, exam 2/Project(diet problem), case study 7
Week 8	3/8 - 3/12	Functions, part 1	3.1 – 3.3, Discussion Board 4, quiz 8
Week 9	3/15 - 3/19	SPRING BREAK	
	3/22 - 3/26	Functions, part 2	3.4 – 3.6, Discussion Board 5, quiz 9
Week 10	3/29 - 4/2	Exponential and Logarithmic Functions	4.1 – 4.3, quiz 10
Week 11	4/5 - 4/9	Exponential and Logarithmic Equations, Simple and Compound Interest	4.4, 5.1, 5.2, Discussion Board 6, quiz 11
Week 12	4/12 - 4/16	Annuities	5.3, 5.4, quiz 12, exam 3/project(equity, investment, and windfall), case study
Week 13	4/19 - 4/23	Probability	8.1 – 8.4, Discussion Board 7, quiz 13
Week 14	4/26 - 4/30		
Week 15	5/3 - 5/7	Expected Value, Binomial Probabilities, Markov Chains	9.1, 9.5, quiz 14, Probability Project due
Week 16	5/10 - 5/13		Final Exam Due