

South Plains College
MATH 1324-003: Mathematics for Business and Social
Science Spring 2022

Instructor: Taek Hyun Jang, PhD.

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Office: 107 Math Building (Levelland)

Virtual/Face-to-Face Office Hours:

- Monday/Wednesday, 10:00 am-12:00 pm.
- Tuesday/Thursday, 1:30 pm - 2:30 pm.
- And by appointment (scheduled in Blackboard).

Class Schedule: Tuesday and Thursday (**12:30 PM – 2:15 PM**)
Math and Engineering Building (**RM: 108**)

Department: Mathematics, Engineering, and Computer Science

Discipline: Mathematics

Course Number: MATH 1324

Course Title: Mathematics for Business and Social Sciences

Available Formats: conventional, hybrid and internet

Campuses: Levelland, Downtown, Plainview, Lubbock Center 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 TSIA1, minimum score of 950 on the TSIA2, a diagnostic score of 6 on the TSIA2, TSI-exempt status, a successful completion with a grade of 'C' or better in MATH 0320, or successful completion of NCBM-0114.

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

Textbook: *Mathematics with Applications in Business and Social Sciences*, Hawkes Learning.

Supplies: A graphing calculator with the statistics package is required and you are required to bring your calculator to EVERY class. TI-83, TI-83+, TI-83+TI-84+ are preferred. For any other graphing calculator, you will need to read the manual to determine how to make the processes work. Cell phones and similar devices may NOT be used as calculators. If you have any questions about your calculator or software, check with the instructor.

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.

Assessment

In-Class (Quiz & Lab) Assignment:	10%
Homework:	15%
Exams (4):	Total 60%
Final Exam:	15%

Grading Scale

90 – 100	A
80 – 89	B
70 – 79	C
60 – 69	D
Below 60	F

Tentative Exam and Final Schedule:

- Exam 1: Chapters 2 and 3 (Date: 09/20/2022)
- Exam 2: Chapters 4 and 5 (Date: 10/11/2022)
- Exam 3: Chapters 6 and 7.1-2 (Date: 11/08/2022)
- Exam 4: Chapters 7.4-6 and 8 (Date: 12/08/2022)
- Final Exam: Comprehensive (Date: 12/15/2022)

Make-up: Make-up work is given at the discretion of the instructor. NO make-up exams are given without prior notification AND proper documentation. If are absent from class, have given prior notification and proper documentation of your absence, you MUST make arrangements to take the exam BEFORE the next class period.

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 rcaanon@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 Tentative Schedule – FALL 2022

Week	Date	Topic with New Textbook (Hawkes – updated)	Chapter
1	8/30	Syllabus 2.2 Linear Equations in Two Variables 2.3 Forms of Linear Equations 2.4 Parallel and Perpendicular Lines	Ch 2
	9/01	3.1 Introduction to Functions	Ch 3
2	9/06	3.3 Linear Functions and Application of Linear Functions	
	9/08	3.4 Quadratic Functions and Applications of Quadratic Functions 3.6 Transformation of Functions	
3	9/13	3.7 Polynomial Functions	
	9/15	3.8 Rational Functions	
4	9/20	Exam 1 (Chapter 2 & 3)	
	9/22	4.1 Exponential Functions and Graphs 4.2 Application of Exponential Functions	Ch 4
5	9/27	4.3 Logarithmic Functions and Graphs 4.4 Applications of Exponential Functions	
	9/29	5.1 Basics of Personal Finance 5.2 Simple and Compound Interest	Ch 5
6	10/04	5.3 Annuities: Present and Future Value	
	10/06	5.4 Borrowing Money (Loan & Amortization)	
7	10/11	Exam 2 (Chapter 4 & 5)	
	10/14	6.4 Basic Matrix Operations	Ch 6
8	10/18	6.1 & 2 Solving System of Linear Equations	
	10/20	6.3 Determinants and Cramer's Rule 6.3 Application of Systems of Linear Equations	
9	10/25	6.5 Inverses of Square Matrix	
	10/27	6.6 Leontief Input-Output Analysis	
10	11/01	7.1 Graphing Linear Inequalities in Two Variables 7.2 Linear Programming: The Graphical Method	Ch 7
	10/03	7.3 Applications of Linear Programming (Graphical Method)	
11	11/08	Exam 3 (Chapter 6 & 7.1 – 3)	
	11/10	7.4 The Simplex Method: Maximization	
12	11/15	7.5 Maximization Applications	
	11/17	7.6 The Simplex Method: Duality and Minimization	
13	11/22	7.7 The Simplex Method: Mixed Constraints	
	11/24	Thanksgiving Holiday (23 – 25): NO CLASS	
14	11/29	8.3 Introduction to Probability	Ch 8
	12/01	8.6 Probability Rules and Bayes' Theorem 8.7 Expected Values	
15	12/06	Markov Chains	
	12/08	Exam 4 (Chapter 7.4 – 7 & Chapter 8)	
16	12/13	Final Exam Week (12/12 – 12/15)	
	12/15	Final Exam (Comprehensive)	