

South Plains College

MATH 1324 – Mathematical Analysis I

{ Section 001, M W 11–12:45 pm
Section 002, M W 2:30 – 4:15 pm

{ Math Bldg., Rm. 105
Math Bldg., Rm. 105 , respectively

Instructor: Miss S. Davis
Office: 103 MATH Bldg.
Phone: (806) 894 – 9611 ext. 2699
E-mail address:
sdavis@SouthPlainsCollege.edu

Monday	Tuesday	Wednesday	Thursday	Friday
8 – 8:30a	9:15 – 9:30a	10:30 – 11a	9:15 – 9:30a	10 – 11:30a
10:30 – 11a	10:30 – 11a	4:15 – 5:15p		
4:15 – 5:15p	2:30 – 4:30p			
<i>or by appointment</i>				
At the times with this designation, I will be in my office to help you. You do not need an appointment to come see me at these times. When you come, I will be doing something else, but I will stop and help you. I am available at other times, but please give me a call before coming to make sure I am there.				

Text: Mathematics with Applications in the Management, Natural, and Social Sciences, 12th Edition by Lial, Hungerford, Holcomb, & Mullins, Pearson Publisher, 2019. (ISBN: 0-13-476762-8)

Supplies: Scientific calculator (preferably a TI-82 or higher), graphing paper, and a ruler.

Purpose: To provide a transferable course in Mathematical Analysis I for Business Administration majors and CIS majors; and to lay a foundation for the study of Mathematical Analysis II.

Attendance: Attendance and effort are the most important activities for success in this course. **Records of your attendance are maintained throughout the semester. *If your lack of attendance (i.e., excessive absences) is determined by the instructor to put you at risk of failing the course, you may be dropped from the class with a F as a final grade.*** Excessive absences consist of two consecutive weeks or 5 cumulative days. If you unfortunately happen to incur an absence, please contact the instructor either by phone or email and refer to the website to get the assignment before the next class. Please read the “Drops and Withdrawals” policies in the current South Plains College catalog.

Assignment Policy: Homework will be given daily. Although the homework assignments will be graded sporadically and will not always be graded, ***the practice is required in order to more fully understand each topic and to successfully negotiate the quizzes and the tests.*** Questions over the homework problems will be discussed at the beginning of each class meeting if time permits.

Notebook: Homework, quizzes, tests, and other useful material should be kept in a notebook in which the notebook will be used as a reference and study guide. The notebook will be brought to class everyday! The following material will be placed in the notebook in the order listed:

1. Cover sheet including Name, Class, and Semester
2. Syllabus
3. Assignment sheet
4. Notes
5. Work
6. Tests
7. Miscellaneous

Blackboard: Additional material for your notebook as well as the syllabus, homework, etc for this class exist on Blackboard. Please be responsible to log in to Blackboard and navigate to the appropriate site for this class and print any material that was not distributed during the first week of class. All material for your notebook needs to be read at least once during the term of this course.

Quizzes & Tests: There will be quizzes given over the assigned homework. The number of quizzes for the semester is undetermined but only a portion will count as the quiz grade. There will be four tests (final exam inclusive). The final exam will be comprehensive.

Make-up Policy: There is no automatic provision for making up exams. Only under extreme circumstances (e.g., death in the family or hospitalization) will make-up exams be given, and these circumstances must be documented. If at all possible, the instructor should be notified prior to missing an exam. If you happen to miss an exam, a grade of **0** will be administered, and under the **H.E.R.** (Honest Effort Rule), this missed exam of grade **0** will not be replaced by the final exam even if the final exam is greater.

STUDY: You should normally spend approximately 2-3 hours outside of class in study for each hour of lecture. Try to study the assigned lesson as soon after the class meets as is possible. Refer to the “How to Study” sheet for further detailed studying suggestions.

Tutoring: Free tutoring is available in the room 116 of the Mathematics-Engineering Building. For times and tutor names, please refer to posted tutor schedules in the math building or visit my **Blackboard** page for this class.

Videotapes: Videos for many topics in this course are available through the Mathematics Department on Blackboard. For username and password, please use *mvideos*.

The topics available for this class are

For Math Analysis:

1. Linear Programming – Graphical Method
2. Linear Programming – Standard Simplex Method
3. Nonstandard Simplex

From College Algebra:

- | | | |
|---|---|-----------------------------|
| 8. Quadratic equations | 11. Inequalities | 12. Lines (Slopes, etc.) |
| 9. Functions | 13. Graphing | |
| 16. Exponential & Logarithmic Functions | | |
| 17. 2 x 2 Systems | 18. 3 x 3 Systems | 19. Systems of Inequalities |
| 20. m x n Systems | 21. Solving Systems of Equations using Matrices | |
| 22. Operations with Matrices | 23. Determinants | 24. Cramer's Rule |

Grading Scale:

$$\text{Average} = \frac{\text{Test 1} + \text{Test 2} + \text{Test 3} + \text{Quiz Avg} + \text{Final}}{5}$$

A: 90 and above	D: 60 – 69
B: 80 - 89	F: 59 or below
C: 70 - 79	

Borderline Grades: These grades will be evaluated with regard to attendance and mature conduct in class.

Critical Dates:

Jan 20	MLK, Jr.			WEB Pre-registration for Spring Interim, Summer, & Fall 2020
March 16 – 20	SPRING Break	April 20		
April 13	Easter			Final Exams
April 17	UIL – No office hours	001	May 4	(10:15 – 12:15 p, Monday)
April 23	Last Day to Drop	002	May 4	(1 – 3 p, Monday)

Student Responsibilities:

- Attend class and be aware of announcements made in class.
- Work homework problems early enough to seek help if needed.
- Read and know the attendance policy.
- Form study groups.
- Attend math tutoring lab sessions.
- **** Please, turn off cell phones and pagers during class! ****
 - If the instructor determines that activation of a cell phone, pager, PDA, Ipod, laptop, or any electronic device interrupts the lecture or classroom discussion or impedes the progress of any student then the instructor may confiscate the cell phone, pager, PDA, or laptop until the end of class and/or ask the student to leave.
- **No technologic devices such as cell phones, PDA's, etc. are to be used during tests or in-class quizzes.**
- **Follow the classroom policy, no food or drink allowed in the classroom if posted.**
- **In addition to the No Food or Drink classroom policy, no tobacco products are to be consumed in class.**
- **Do not dress for the beach or bed.**
- **You will obtain your final grade for the class through Texan Connect &/or Colleague.**

Cell Phone Policy: All students will, during each class period and for its duration, place and keep their cell phone in its deactivated state, provided that they are at the present time in possession of said device, face-down in the right-hand corner and on the top surface of their desk. If a student's cell phone activates and/or the student engages in text messaging during class at anytime during the semester, the student, by the instructor's discretion, could be permanently dismissed from the class for the remainder of the semester. If a student's cell is activated during class and/or the student engages in text messaging determined by the instructor, and **the student chose not to place their phone on top of their desk as mentioned above** then the student will be dismissed from the class by the instructor permanently.

Academic Misconduct: Complete honesty is required from students in all facets of course work including homework assignments, tests, and the final exam. See the South Plains College Catalog for more detail.

Sanctions for Cheating or Plagiarizing: A grade of "F" in the course will be assigned to any student caught cheating or plagiarizing; additional sanctions may also be considered. Students are responsible for understanding the meanings of the words cheating and plagiarizing.

Special Requests: If you happen to become **ill** during the semester, please respect your instructor and your classmates by making your best effort to prevent contamination of the rest of the class including the instructor.

Questions: I invite all your questions **except** the following:

1. I wasn't able to make it to class. [Did I miss anything?](#) (Yes.)
2. Is this going to be on the test? (Perhaps, not directly, but if the ideas were not important, I would not be discussing them in class.)
3. Do you have the test graded? (I normally have the tests graded by the next class day. However,
4. there are times that I do not have them graded but I will have them graded as soon as I can.)

Course Objectives: Upon completion of this course and obtaining a passing grade, the student will have mastered at least 70% of the course objectives. The course objectives state that the student will be able to:

- h.* Graph and name linear functions.
- g.* Set up and solve problems using a linear model.
- f.* Define, evaluate, and graph a function.
- e.* Graph and name a quadratic function.
Solve systems of equations by graphing, Elimination, Gauss-Jordan elimination, Cramer's rule using determinants, and Inverse
- d.* Matrix Method
- c.* Perform matrix operations, evaluate a determinant, and find the inverse of a matrix
- b.* Solve a linear programming problem graphically and using the Simplex Method.
- a.* Use business formulas to calculate simple interest, compound interest, and evaluate annuities in order to solve finance problems.

Diversity: 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 Special 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 Special Services Coordinator. For more information, call or visit the Special Services Office in the Student Services Building, 894-9611 ext. 2529.

Confidentiality: As a faculty member, I am deeply invested in the well-being of each student I teach. I am here to assist you with your work in this course. If you come to me with other non-course-related concerns, I will do my best to help. It is important for you to know that all faculty members are mandated reporters of any incidents of sexual misconduct. That means that I cannot keep information about sexual misconduct confidential if you share that information with me. Dr. Lynne Cleavinger, the Director of Health & Wellness, can advise you confidentially as can any counselor in the Health & Wellness Center. They can also help you access other resources on campus and in the local community. You can reach Dr. Cleavinger at 716-2563 or lclevinger@southplainscollege.edu or go by the Health and Wellness Center. You can schedule an appointment with a counselor by calling 716-2529.

Sexual Misconduct

It is important for you to know that all faculty members are mandated reporters of any incidents of sexual misconduct. That means that I cannot keep information about sexual misconduct confidential if you share that information with me. Dr. Lynne Cleavinger, the Director of Health & Wellness, can advise you confidentially as can any counselor in the Health & Wellness Center. They can also help you access other resources on campus and in the local community. You can reach Dr. Cleavinger at 716-2563 or lclevinger@southplainscollege.edu or go by the Health and Wellness Center. You can schedule an appointment with a counselor by calling 716-2529.

Campus Concealed Carry: 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, please refer to the SPC policy at: (http://www.southplainscollege.edu/human_resources/policy_procedure/hhc.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.

		Course Outline	
		This schedule is tentative and subjective to change. Changes will be announced in class.	
	Week	Topics and Sections Covered	
1	1/13, Mon	Introduction, Misc 2.2 Linear Equations 2.4 Linear Inequalities	
	1/15, Wed	3.1 Functions 3.2 Graphs of Functions	
2	1/20, Mon	MLK, Jr.	
	1/22, Wed	3.2 Graphs of Functions contd. 3.3 Applications of Linear Functions	
3	1/27, Mon	2.3 Linear Models (Linear Regression)	
	1/29, Wed	3.4 Quadratic Functions & Applications	
4	2/3, Mon	3.5 Polynomial Functions 3.6 Rational Functions	
	2/5, Wed	4.1 Exponential Functions 4.2 Applications of Exponential Functions	
5	2/10, Mon	4.3 Logarithm Functions	
	2/12, Wed	4.4 Logarithmic & Exponential Functions	
6	2/17, Mon	5.1 <i>Simple Interest & Discount</i> 5.2 <i>Compound Interest</i>	
	2/19, Wed	Review for Test 1	
7	2/24, Mon	TEST #1 (Linear Equations & Functions)	
	2/26, Wed	5.2 Compound Interest contd. 5.3 Annuities & Future Value	
8	3/2, Mon	5.4 Present Value of an Annuity: Sinking Funds & Amortization Mixture: Future Value & Present Value	
	3/4, Wed	6.4 <i>Matrices: Basic Operations</i> 6.5 <i>Matrix Products & Inverses</i> 6.1 <i>Systems of Linear Equations in Two Variables</i>	
9	3/9, Mon	TEST #2 (Math of Finance)	
	3/11, Wed	6.2 Larger Systems of Linear Equations – Cramer’s Rule and Systems of Linear Equations in Three Variables – Gauss-Jordan Elimination (GJE)	
		3/16 - 3/20 Spring Break	
10	3/23, Mon	6.6 Application of Matrices 6.3 Applications of Systems of Linear Equations	
	3/25, Wed	7.1 <i>Graphing Linear Inequalities in Two Variables</i> 7.2 <i>Linear Programming: The Graphical Method (A Geometric Approach)</i>	
11	3/30, Mon	TEST #3 (Systems of Equations)	
	4/1, Wed	7.3 Applications of Linear Programming	
12	4/6, Mon	7.4 Simplex Method: Maximization	
	4/8, Wed	7.5 Simplex Method: Maximization Applications	
13	4/13, Mon	EASTER	
	4/15, Wed	7.6 Simplex Method: Duality & Minimization	
		4/17, Fri UIL – No office hours	
14	4/20, Mon	7.7 Simplex Method: Nonstandard Problems	
	4/22, Wed	8.3 Introduction to Probability 8.4 Basic Concepts of Probability	
15	4/27, Mon	9.1 Probability Distributions & Expected Value	
	4/29, Wed	9.5 Markov Chains	
Final(s)	5/4	001	Monday, 10:15 – 12:15p
		002	Monday, 1 – 3p

MATH 1324 (3:3:0)
MATHEMATICAL ANALYSIS I

MATHEMATICS DEPARTMENT

Division of Arts & Sciences

South Plains College

Spring 2020

Shirley Davis