

# South Plains College

## Honors MATH 1314 – College Algebra for Scientists & Engineers

Sections 017, MW 11 – 12:45 pm

Math Bldg., Rm. 105

**Instructor:** S. Davis

**Office:** 103 MATH Bldg.

**Phone:** (806) 894 – 9611 ext. 2699

**E-mail address:** [sdavis@SouthPlainsCollege.edu](mailto:sdavis@SouthPlainsCollege.edu)

**Text:** College Algebra, 6<sup>th</sup> Edition, by Robert Blitzer, Pearson (ISBN: 978-0-321-78228-1)

**Supplies:** Scientific calculator (or graphing calculator), Graph paper, a ruler, (*at least a 3 in ring*) notebook, hole puncher, stapler, a staple puller, & a red pen/pencil.

(If your lack of responsibility results in you asking to borrow any of the supplies from me or anyone else then there will be automatic 5 point deduction from your final grade. **Bring your supplies to class everyday!**)

**Purpose:** This course is to provide a standard course in college algebra. Topics included are: quadratic equations, ratio & proportion, variation, the binomial theorem, progressions, inequalities, complex numbers, theory of equations, determinants & matrices, linear programming, mathematical induction, and permutations & combinations.

**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 4 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 and attempt the assignment before the next class. Please read the “Drops and Withdrawals” policies in the current South Plains College catalog.

### Organization:

Homework, quizzes, tests, and other useful material will be kept in a notebook.

**Notebook:** You will keep a notebook which 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. “Procedure” pages
4. Assignment sheet
  - ▶ Contains all homework assignments for the semester
  - ▶ Not the actual homework assignment
  - ▶ Grade sheet (could also include)
5. Notes
6. Work
7. Quizzes
8. Tests
9. Miscellaneous

Each section will be separated by a labeled divider and contain the appropriate procedure page corresponding to the section. The “procedure” pages are: the *notebook procedure*, the *classroom conduct*, the “*How to Study*” guide, “How is College Different than High School” sheet, the *hygiene etiquette*, the *note-taking procedure*, the *homework procedure*, the *classroom testing etiquette*, and the *grading policy*. All homework assignments are to be prepared by the homework procedure. The above order of the notebook does not constitute its order. Reference the notebook procedure for proper order. The notebook will be submitted before or during test dates throughout the semester (announcement will be made in class) with its average constituting a major test grade. **NO LATE WORK will be accepted!** The evaluation of the notebook will take into consideration

- a. How complete the notebook is,
- b. Its organization and neatness, and
- c. How well the directions were followed.

\*\*To print the above material, visit my **Blackboard**. All printed material needs to be read at least once during the term of this course.\*\*

### Office Hours:

Monday	Tuesday	Wednesday	Thursday	Friday
8 – 8:30a	9:30 – 11a	10:35 – 11a	9:30 – 11a	10 – 11:30a
12:45 – 1:15p	1:30 – 2:30p			
7 – 8p, Reese				

or by appointment

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 courteous call before coming to make sure I am there.

**Blackboard:** A plethora of information is provided to you regarding to this class on **Blackboard**. Syllabus (updated), homework assignments, worksheets (supplements), videos, previous semester student evaluations, etc. Please be responsible to log in to Blackboard and visit College Algebra Blackboard page and peruse through it to become familiar with all the items.

**Assessments:** Homework will be assigned daily. The homework assignments maybe graded periodically. Worksheets will also be distributed and subjected for grading. *Note that the practice is required in order to more fully understand each topic and to successfully negotiate the quizzes and the tests.* **Late homework is not accepted.**

There will be random quizzes given over the assigned homework in which no make-ups will be allowed. The total number of quizzes for the semester is unpredictable but only a portion will count as the quiz grade. **Make-up quizzes will NOT be given.**

**Tests:** There will be four tests (final exam exclusive). Any excused (notification must be made in advance) missed exam will be discussed with the instructor. The final exam will be comprehensive since the intent of this class is preparation for College Algebra. The final exam can replace your lowest non-zero (**H.E.R.**) test grade provided that it is greater than the lowest non-zero test grade.

**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.

**Grading Policy:** Homework will be graded either by completion or by correctness. If the homework procedure is not followed, deductions will be made. Below is the legend for homework graded on completion

√++	<b>100</b>
√+	<b>75</b>
√	<b>50</b>
√-	<b>25</b>

**Grading Scale:**

Quizzes:	35%	A: 90 and above	
Tests:	45%	B: 80 - 89	D: 60 – 69
Final:	20%	C: 70 - 79	F: 59 or below

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

**STUDY:** You should normally spend approximately 2-3 hours outside of class in study for each hour of lecture. Some material will require more time than other material. Also, your mathematical background is a major factor in the time spent completing the homework. Try to study the assigned lesson as soon after the class meets as is possible. In your all possible effort, try not to get behind on the homework!

**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 website.

**Videotapes:** Videotapes for many topics in this course are available on Blackboard. The web address for the online videos is as follows (<http://spc.blackboard.com/webct/entryPageIns.dowebct>). For username and password, please use *mvideos*.

Tape	Topic	Tape	Topic
<b>College Algebra</b>			
39, 60, 105, 106, 107	Factoring	132, 133	Exponential & Logarithmic Functions
122, 301	Lines & Slope	146	Binomial Theorem
49, 124	Functions	134	2 x 2 systems
	Functions – Domain – Range Part 1	135	3 x 3 systems
	Functions – Domain – Range Part 2	137	m x n systems
67, 116	Complex Numbers	140	Operations with matrices
64, 110	Linear Equations	50, 138	Solving systems of equations using matrices
112, 113, 114	Quadratic Equations	142	Determinants
118	Other Types of Equations	144	Cramer’s Rule
<b>Analytical Geometry</b>			
310	Parabolas		Parametric Equations
320	Ellipses	335	Polar coordinates
325	Hyperbolas		

**Critical Dates:**

Sept 3	Labor Day	Nov 12	WEB Pre-registration for Spring 2020
Oct 12	Fall Break	Nov 9	Advising Day for Math, Computer Science, & Engineering majors only
Nov 14	Last day to drop	Final Exams	
Nov 27 – 29	Thanksgiving	Dec 9	(10:15 – 12:15, Monday)

**Student Responsibilities:**

- Attend class and be aware of announcements made in class.
- Work homework problems early enough to seek help if needed.
- Form study groups.
- Read and know the attendance policy.
- **\*\* 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 ask the student to leave the class temporarily or permanently.
  - **No technologic devices such as cell phones, PDA's, etc. are to be used during tests.**
- **Follow the classroom policy, no food or drink allowed in the classroom if posted.**
- **In addition to the No Food or Drink classroom policy and in accordance to campus policy, no tobacco products are to be permitted and consumed in class.**
- **Do not dress for the beach or for bed.**
- **You will obtain your final grade for the class through MySPC and TexanConnect.**

**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, 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 receiving 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:

- |  |   |
|--|---|
| a.) Perform arithmetic with complex numbers  | b.) Solve quadratic equations   |
| c.) Solve linear and absolute value inequalities                                   | d.) Solve quadratic and rational inequalities                                   |
| e.) Graph relations and functions (polynomial & rational)                          | f.) Find the zeros, asymptotes and domains of polynomial and rational functions |
| g.) Use exponential properties to solve exponential equations                      | h.) Use the properties of logarithms to solve logarithmic equations             |
| i.) Solve systems of linear equations using substitution, elimination and graphing | j.) Solve systems of nonlinear equations using substitution                     |
| k.) Solve linear systems using matrices  | l.) Use matrix operations to solve matrix equations                             |
| m.) Determine the inverse of a square matrix                                       | n.) Find the determinant of a matrix.   |
| o.) Apply midpoint, distance, and circle formulas                                  | p.) Use the Binomial Theorem to expand binomials of higher degree               |

**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 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 [lcleavinger@southplainscollege.edu](mailto:lcleavinger@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 [lcleavinger@southplainscollege.edu](mailto:lcleavinger@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](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.

*"It's not that I'm so smart; it's just that I stay with problems longer." -- Albert Einstein*

<b>Course Outline</b>		
This schedule is tentative and subjective to change. Changes will be announced in class.		
Week	Date	Topics and Sections Covered
1	8/26, Tues	<b>ASSESSMENT TEST</b> P.2 Scientific Notation 8.5 Binomial Theorem
	8/28, Thurs	Set Notation & Set Theory
2	<b>9/2, Tues</b>	<b>Labor Day</b>
	9/4, Thurs	Set Notation & Set Theory contd. 1.4 Complex Numbers P.5 Factoring
3	9/9, Tues	1.2 Linear & Rational Equations 1.3 Models & Applications (one variable only) <b>Literal Equations</b>
	9/11, Thurs	1.5 Quadratic Equations 1.6 Other Types of Equations
4	9/16, Tues	1.7 Linear & Absolute Value Inequalities 3.6 Polynomial & Rational Inequalities
	<b>9/18, Thurs</b>	<b>TEST 1 (Equations)</b>
5	9/23, Tues	2.1 Basics of Functions 2.2 More on Functions & their Graphs
	9/25, Thurs	2.3 Lines & Slope 2.4 More on Slope
6	9/30, Tues	3.7 Modeling Using Variation 2.6 Composition of Functions 2.7 Inverse of Functions
	10/2, Thurs	2.5 Transformations of Functions 2.8 Distance & Midpoint Formulas; Circles
7	10/7, Tues	3.1 Quadratic Functions 3.2 Polynomial Functions & their Graphs 3.3 Dividing Polynomials: Remainder and Factor Theorem
	10/9, Thurs	3.4 Zeros of Polynomial Functions 3.5 Rational Functions & Their Graphs
8	10/14, Tues	4.1 Exponential Functions 4.2 Logarithmic Functions
	<b>10/16, Thurs</b>	<b>TEST 2 (Functions)</b>
9	10/21, Tues	4.3 Properties of Logarithms 4.4 Exponential & Logarithmic Equations 4.5 Exponential Growth & Decay: Modeling Data
	10/23, Thurs	5.1 Systems of Linear Equations in Two Variables 1.3 Formulas (Models) & Applications (two variables only) 5.4 Systems of Nonlinear Equations in Two Variables
10	10/28, Tues	6.1 Matrix Solutions to Linear Systems (GJE) 6.5 Determinants & Cramer's Rules
	10/30, Thurs	6.2 Inconsistent & Dependent Systems & their Applications Non-Square Systems
11	11/4, Tues	5.5 Systems of Inequalities 5.6 Linear Programming (Simplex Method)
	11/6, Thurs	5.3 Partial Fractions
12	11/11, Tues	8.1 Sequences 8.2 Arithmetic Sequences 8.3 Geometric Sequences
	<b>11/13, Thurs</b>	<b>TEST 3 (Systems of Equations)</b>
13	11/18, Tues	8.4 Mathematical Induction
	11/20, Thurs	7.3 Parabola 7.1 Ellipse
14	11/25, Tues	7.1 Ellipse contd. 7.2 Hyperbola
	<b>11/27, Thurs</b>	<b>Thanksgiving</b>
15	12/2, Tues	Logic – Truth Tables & Gates
	12/4, Thurs	Graph Theory Review for FINAL Exam
<b>Finals</b>	<b>12/9, Mon</b>	<b>FINAL EXAM: 10:15 – 12:15 p</b>

MATH 1314 (3:3:1)  
COLLEGE ALGEBRA

**MATHEMATICS DEPARTMENT**

Division of Arts & Sciences

*South Plains College*

**FALL 2019**

Shirley Davis