



**South Texas College**  
**Department of Mathematics**  
**Division of Math, Science & Bachelor Programs**  
**Math 1414 - College Algebra**  
**Syllabus: Fall 2023**

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**Instructor's Information:**

**Instructor Name:** *Edith Lerma*  
**Office Location:** *SHS – 421*  
**Telephone #:** *956-580-5300 Ext 1432*  
**Office Hours:** *Monday – Friday (8:00 – 9:30am)*  
**Department Web Page:** <https://ms.southtexascollege.edu/math/index.html>

**Course Information:**

**Course Name:** *College Algebra*  
**Course #:** *MATH 1414*  
**Room Location:** *SHS – 421*

**Course Description:**

This course is the study of quadratic, polynomial, rational, logarithmic, and exponential functions and includes the study of systems of equations, matrices. The focus of the course is the discovery and application of algebraic techniques, including graphing, to solve related equations. Additional topics may include sequences and series.

***Prerequisite:*** *Meet TSI college-readiness standard for Mathematics; 288 Course Descriptions or completion of MATH 0090 or MATH 0200 or MATL 0020 with a grade of "P" or "C" or better, or equivalent.*

**Program Learning Outcomes:**

- The student will be able to apply quantitative skills to synthesize, analyze, and evaluate mathematical equations.
- The student will be able to read and construct mathematical arguments and proofs.
- The student will be able to identify, formulate and analyze real-world problems with quantitative and statistical reasoning or mathematical techniques.
- The student will be able to utilize technology and computer skills appropriately as an effective tool in investigating, analyzing and solving problems.
- The student will be able to clearly communicate mathematical ideas in appropriate contexts visually, orally and in writing to a range of audiences.

**Course Learning Outcomes:**

**Upon successful completion of this course, student will:**

1. Demonstrate and apply knowledge of properties of functions, including domain and range, operations, compositions, and inverses.
  2. Recognize and apply polynomial, rational, radical, exponential and logarithmic functions and solve related equations.
  3. Apply graphing techniques.
  4. Evaluate all roots of higher degree polynomial and rational functions.
  5. Recognize, solve and apply systems of linear equations using matrices.
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**Required Core Objectives:**

**CRITICAL THINKING SKILLS:** to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information.

**COMMUNICATION SKILLS:** to include effective development, interpretation and expression of ideas through written, oral and visual communication.

**EMPIRICAL AND QUANTITATIVE SKILLS:** to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions.

**TEAMWORK:** to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal.

**SOCIAL RESPONSIBILITY:** to include intercultural competence, knowledge of civic responsibility, and the ability to engage effectively in regional, national, and global communities.

**PERSONAL RESPONSIBILITY:** to include the ability to connect choices, actions, and consequences to ethical decision-making.

**Evaluation:**

Homework: 10%	A = 90% -100%
Quizzes: 10%	B = 80% - 89%
Exams: 60% (Five chapter exams, lowest will be dropped. 15% per exam)	C = 70% - 79%
Final Exam: 15%	D = 60% - 69%
Other: 5%	F = < 60%
[classroom activities/interactions (Presentations, Discussion Board, Group work, Journal, etc; Not include attendance)]	

- All exams are in-class closed-book exams – No retest allowed!
- Exam results will be given within one week from the exam day
- Use of cell phones, cell phone calculators, iPod, or electronics is not allowed during exams or class time.
- TI-84 and TI-Nspire are allowed for Part B of the exam. Not for Part A.
- LATE work will not be accepted!

**Required Textbook & Resources:**

College Algebra –10th Edition by Lial/Hornsby/Schneider

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**Starfish Activation**

South Texas College uses the Starfish Early Alert System to help the students succeed in their courses and continue the path toward graduation. Starfish allows the students and the faculty to communicate with each other regarding their progress in the course. Students may login into Starfish, through the Jagnet student portal, to create or update their profile. For more information about Starfish, contact the South Texas College Starfish Administrator at (956) 872-1954 or email [starfish@southtexascollege.edu](mailto:starfish@southtexascollege.edu)

**Notice of Non-Discrimination**

South Texas College is an equal education and equal employment opportunity/affirmative action employer. South Texas College does not discriminate or tolerate discrimination against any employee, applicant for employment, student, or applicant for admission on the basis of race, color, national origin, ethnicity, religion, age, sex, sexual orientation, gender, gender identity, gender expression, pregnancy, parental status, disabilities, genetic information, veteran status, or any other protected category under applicable local, state, or federal law. Conduct that excludes participation, denies benefits or subjects others to discrimination is prohibited. The College complies with all applicable policies and state and federal legislation in order to combat discrimination.

For inquiries or more information, contact the Executive Director of Human Resources and Talent Development or visit the Notice of Non-Discrimination website.

**Title IX Statement:**

*Title IX of the Education Amendments 1972 (20 U.S.C. s1681 et seq.) and its implementing regulations, 34 C.F.R. Part 106 (Title IX) state the following: “No person in the United States shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity receiving Federal financial assistance.”*

*South Texas College does not discriminate or tolerate discrimination against any student, or applicant for admission, employee, or applicant for employment on the basis of sex in the College’s education programs, activities, admissions, financial aid, work-study, athletics, counseling, or employment. South Texas College strives to maintain a healthy and safe environment where all members of the community, students, faculty, and staff feel welcome on the College’s campuses and classrooms. Students, faculty, and staff are thus prohibited from conducting themselves in a way that results in any form of sexual harassment, sex-based harassment, and/or sexual violence, including sexual assault, dating violence, domestic violence, or stalking. Sexual harassment can occur in any sex or gender configuration without regard to gender identity, gender expression or sexual orientation, and may include conduct off-campus or online.*

*Resources, questions, or requests for information regarding Title IX, including complaints of sexual harassment, sexual assault, sexual violence, or other sexual misconduct should be directed to the Title IX Coordinator or Title IX Deputy Coordinators listed on the Title IX website.*

*For further information, refer to Policy 4216: Sex Discrimination, Sexual Harassment, Domestic Violence, Dating Violence, Stalking and Retaliation Prohibited, DIAA — Freedom from Discrimination, Harassment, and Retaliation: Sex and Sexual Violence, and DIAB — Freedom from Discrimination, Harassment, and Retaliation: Other Protected Characteristics.*

**Pregnant and Parenting Students:**

*Students are protected from harassment based on sex, gender, gender identity, gender expression, pregnancy or parental status. Harassing conduct can take many forms, including verbal acts and name-calling, graphic and written statements, and other conduct that may be humiliating or physically threatening or harmful. Specifically, Title IX prohibits discrimination against a student based on pregnancy, childbirth, false pregnancy, termination of pregnancy, or recovery from any of these conditions.*

*Pregnant or parenting students requiring assistance or access to receive services should contact Counseling & Student Accessibility Services immediately at 956-872-2173 or at [disability@southtexascollege.edu](mailto:disability@southtexascollege.edu). You may also refer to Policy 4216: Sex Discrimination, Sexual Harassment, Domestic Violence, Dating Violence, Stalking and Retaliation Prohibited for further information, DIAA — Freedom from Discrimination, Harassment, and Retaliation: Sex and Sexual Violence, and DIAB — Freedom from Discrimination, Harassment, and Retaliation: Other Protected Characteristics.*

**ADA Statement:**

*The College complies with Section 504 of the Rehabilitation Act of 1973 and with the Americans with Disabilities Act, and does not discriminate on the basis of a disability in the areas of admissions, accessibility, treatment, and employment. Individuals with disabilities, as defined under the law, who are otherwise qualified to meet the institution's academic and employment requirements will be provided with services and resources accordingly. Section 504 of the Rehabilitation Act of 1973 / Americans with Disabilities Act | South Texas College*

*Students with disabilities requiring assistance or access to receive services should contact Counseling & Student Accessibility Services at (956) 872-2173. You may refer to DAA - Employment Objectives: Equal Employment Opportunity for further information.*

**Veterans Statement:**

*The STC Office of Veterans Affairs provides support services to our military veterans and their dependents, and assists them in applying for and obtaining their educational benefits. Contact the Office of Veterans Affairs at 956-872-6723 for questions or to set an appointment.*

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**Veterans Statement**

*The STC Office of Veterans Affairs provides support services to our military veterans and their dependents and assists them in applying for and obtaining their educational benefits. Contact the Office of Veterans Affairs at (956) 872-6723 or [vaoffice@southtexascollege.edu](mailto:vaoffice@southtexascollege.edu) for questions or to set an appointment.*

**Developmental Studies Policy Statement**

*The College's Developmental Education Plan requires TSI Liable students who have not met the college readiness or exemption standards in reading, writing, and/or mathematics to enroll in Developmental*

*Studies courses including College Success. Failure to attend these required classes may result in the student's withdrawal from ALL college courses.*

### **Student Handbook Statement**

*The Student Handbook is your guidebook to support you as you continue to work toward your degree and contains helpful information such as student rights and responsibilities, the Student Code of Conduct, Conflict Resolution services and other support services for students.*

### **Institutional Continuity Statement**

*In the event of a major crisis, such as a pandemic, hurricane, or other unforeseen emergency, course meeting times/dates, requirements, and method of delivery may change according to county, state, and/or federal guidelines to ensure the safety of the South Texas College Community. Up-to-date information related to crisis events, including COVID-19 can be found on the South Texas College website.*

### **Additional Items**

*South Texas College Board Policy 3335 - Student Attendance:*

*Class attendance and participation are essential to student success. Regular and punctual class attendance is expected at South Texas College. Student absences will be recorded from the first day the class meets. It is imperative that students attend on the first day of class. This is when the course syllabus, schedule, deadlines, and class expectations will be discussed. In case of absence, it is the student's responsibility to contact the instructor prior to the absence. The student is expressly responsible for any work missed regardless of the cause of the absence. The student must discuss such work with the instructor and should do so immediately on returning to school. Communication between the student and faculty member is most important, and it is the student's responsibility to initiate such communication. The faculty member will determine, based on policies outlined in the course syllabus, whether the student will be permitted to make up work and will decide on the time and nature of the makeup. If a student does not appear at the prearranged time or meet the prescribed deadline for makeup work, they forfeit their rights for further makeup of that work. A student who stops attending class for any reason should contact the faculty member and the Admission's office to officially withdraw from the class. Failure to officially withdraw may result in a failing grade for the course.*

### **Department Chair Information:**

**Name of Chair:** Mario J. Morin  
**Office Location:** Pecan Campus Bldg. J Room 2.804-B  
**Telephone #:** 956-872-7258  
**Fax #:** 956-872-6774 Math Department

### **Syllabus Disclaimer:**

Information contained in this syllabus is, to the best knowledge of this Instructor, considered correct and complete when distributed to the student. The Instructor reserves the right, acting within policies and procedures of South Texas College, to make necessary changes in course content or instructional techniques without prior notice or obligation to the student. Any changes made would be communicated accordingly.

**Departmental Course Requirements: Required Sections & Recommended Exercises:**

<b>MATH 1414 – College Algebra</b>		
<b>Chapter 1</b>	<b>DESCRIPTION</b>	<b>RECOMMENDED PROBLEMS</b>
1.3	Complex Numbers	Assigned by Instructor
1.4	Quadratic Equations	
1.5	Applications & Modeling w/Quad. Equations	
1.6	Other Types of Equations & Applications	
1.7	Inequalities	
1.8	Absolute Value Equations & Inequalities	
-----TEST 1-----		
<b>Chapter 2</b>	<b>DESCRIPTION</b>	<b>RECOMMENDED PROBLEMS</b>
2.1	Rectangular Coordinates & Graphs	
2.2	Circles	
2.3	Functions	
2.4	Linear Functions	
2.5	Equations of Lines and Linear Models	
2.6	Graphs of Basic Functions	
2.7	Graphing Techniques	
2.8	Function Operations and Composition	
-----TEST 2-----		
<b>Chapter 3</b>	<b>DESCRIPTION</b>	<b>RECOMMENDED PROBLEMS</b>
3.1	Quadratic Functions and Models	
3.2	Synthetic Division	
3.3	Zero of Polynomial Functions	
3.4	Polynomial Functions: Graphs, App. & Models	
3.5	Rational Functions: Graphs, App. & Models	
-----TEST 3-----		
<b>Chapter 4</b>	<b>DESCRIPTION</b>	<b>RECOMMENDED PROBLEMS</b>
4.1	Inverse Functions	
4.2	Exponential Functions	
4.3	Logarithmic Functions	
4.4	Evaluating Logarithms and Change of Base Theorem	
4.5	Exponential & Logarithmic Equations	
4.6	Applications & Models of Exponential Growth & Decay	
-----TEST 4-----		
<b>Chapter 5</b>	<b>DESCRIPTION</b>	<b>RECOMMENDED PROBLEMS</b>
5.1	Systems of Linear Equations	
5.2(*)	Matrix Solution of Linear Equations	
5.3	Determinant Solutions of Linear Equations	
5.7	Properties of Matrices	
5.8	Matrix Inverses	
-----TEST 5-----		
<b>Comprehensive Final Exam over Chapters 1, 2, 3, 4, and 5.</b>		
Sections with (*) are optional and covered if time permits		