



## MATH 1314 – COLLEGE ALGEBRA SYLLABUS

**CRN:**

**Semester:** Fall 2018

**Campus and Room:**

SaigonTech Tower, Room 305

**Meeting Time:**

Fri: 13:00 - 14:45, and 15:00 – 16:45

**Instructor:**

Dr. Truong Khac Tung

**Office Phone:**

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**Office Hours:**

By appointment

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### Course Description

Topics include quadratics, polynomial, rational, logarithmic and exponential functions, system of equations, matrices and determinants.

**Prerequisite:** GE Level 3

**Credits:** 3 (3 lecture hours)

**Total Course Contact Hours:** 48

**Type of Instruction:** Lecture

**Instructional Methods:** Face to Face

### Academic Discipline/CTE Program Learning Outcomes

1. Formulate algebraic and/or transcendental equations using variables to represent relations.
2. Apply mathematics skills to solve application problems.
3. Construct, manipulate, and utilize mathematical functions.

### Course Student Learning Outcomes (SLO)

1. Solve algebraic equations and inequalities involving linear and nonlinear expressions.
2. Examine and interpret the graphs of circles, and basic functions in Algebra and their transformations.

3. Apply the basic knowledge of a function in order to simplify functions, combine functions, and solve application problems involving linear and nonlinear functions including polynomial functions, rational functions, exponential functions and logarithmic functions.
4. Perform basic matrix operations and calculate determinants

## Learning Objectives (LO)

- 1.1. Solve Quadratic Equations in one variable by the method of factoring, square root property, completing the square and the quadratic formula.
- 1.2. Solve radical equations, fractional equations, and equations of quadratic form.
- 1.3. Solve linear inequalities and linear equations involving absolute value, state the solution in interval notation, and graph the solution.
- 1.4. Solve non-linear (quadratic and rational) inequalities, state the solution in interval notation, and graph the solution.
- 1.5. Solve exponential and logarithmic equations.
- 1.6. Solve systems of linear and nonlinear in two variables.
  
- 2.1. Find the distance and midpoint between two points in the Cartesian Plane.
- 2.2. Recognize the equation of a straight line, graph the equation of a straight line, find the slope and intercepts of a line, know the relationship between the slopes of parallel and perpendicular lines, and be able to determine the equation of a line from information such as two points on the line, or one point on the line and the slope of the line.
- 2.3. Graph linear functions, quadratic functions, piecewise-defined functions, absolute value functions.
- 2.4. Understand vertical and horizontal shifts, stretching, shrinking, and reflections of graphs of functions.
- 2.5. Recognize the equation of a circle, sketch the graph of a circle, and find the equation of a circle.
- 2.6. Determine the rational zeros of a polynomial.
  
- 3.1. Apply the definition of a function, determine the domain and range of a function, evaluate expressions involving functional notation, simplify expressions involving the algebra of functions,
- 3.2. Graph functions including polynomial functions, rational functions, exponential functions, and logarithmic functions by plotting points, use the definition of inverse functions, and given a function find its inverse.
- 3.3. Understand the inverse relationship between the exponential and logarithmic functions.
  
- 4.1. Perform addition, subtraction and scalar multiplication with matrices.
- 4.2. Perform multiplication of 2 matrices
- 4.3. Calculate determinants

## Textbook

Margaret L. Lial, John Hornsby , David I. Schneider , Callie Daniels, Teresa McGinnis, *Essentials of College Algebra (11th Edition)*, Pearson Addison, 2015.

## Course Requirements and Expectations

- All assignments of each week should be completed in Moodle before 12:30 Tuesday of the next week. The system will not allow you to take the quiz after this deadline. This will result in 0 point for the week's assignment.

- The projects are assigned to each student in the 3<sup>rd</sup> week of the semester. The projects must be submitted before 17:00 December 7<sup>th</sup>, 2018.
- *Class Attendance - It is important that you come to class!* Attending class regularly is the best way to succeed in this class. Research has shown that the single most important factor in student success is attendance. Simply put, going to class greatly increases your ability to succeed. You are expected to attend all lecture and labs regularly. You are responsible for materials covered during your absences. Class attendance is checked each time you go to class. Although it is your responsibility to drop a course for nonattendance, the instructor has the authority to drop you for excessive absences. Students may be dropped from a course after accumulating absences in excess of six (6) hours of instruction. The six hours of class time would include any total classes missed or for excessive tardiness or leaving class early. Absences may be such things as court appearances, illnesses, funerals, transportation issues, hospital stays, etc.

## Course Calendar

WEEK	TOPIC	ASSIGNMENTS
1 (Sep. 21)	Introduction to the course <b>0. CHAPTER R: REVIEW OF BASIC CONCEPTS</b> <b>1. CHAPTER 1: EQUATIONS AND INEQUALITIES</b> 1.1. Linear Equations 1.2. Applications and Modeling with Linear Equations	Quiz 1.1 Quiz 1.2
2 (Sep. 28)	1.4. Quadratic Equations 1.5. Applications and Modeling with Quadratic Equations 1.6. Other Types of Equations	Quiz 1.4 Quiz 1.5 Quiz 1.6
3 (Oct. 5)	1.7. Inequalities 1.8. Absolute Value Equations and Inequalities <b>Test 1 (Chapter 1)</b>	Quiz 1.7 Quiz 1.8
4 (Oct. 12)	<b>2. CHAPTER 2: GRAPHS AND FUNCTIONS</b> 2.1. Graphs of Equations; Circles 2.2. Functions 2.3. Linear Functions	Quiz 2.1 Quiz 2.2 Quiz 2.3
5 (Oct. 19)	2.4. Equations of Lines; Curve Fitting 2.5. Graphs of Basic Functions 2.6. Graphing Techniques	Quiz 2.4 Quiz 2.5 Quiz 2.6
6 (Oct. 26)	2.7. Function Operations and Composition <b>Test 2 (Chapter 2)</b>	Quiz 2.7
7 (Nov. 2)	<b>3. CHAPTER 3: POLYNOMIAL AND RATIONAL FUNCTIONS</b> 3.1. Quadratic Functions and Models 3.2. Synthetic Division 3.3. Zeros of Polynomial Functions <b>MIDTERM EXAM (Chapter 1, 2, 3)</b>	Quiz 3.1 Quiz 3.2 Quiz 3.3
8 (Nov. 9)	3.4. Polynomial Functions: Graphs, Applications, and Models 3.5. Rational Functions: Graphs, Applications, and Models	Quiz 3.4 Quiz 3.5
9 (Nov. 16)	<b>4. CHAPTER 4: EXPONENTIAL AND LOGARITHMIC FUNCTIONS</b> 4.1. Inverse Functions 4.2. Exponential Functions 4.3. Logarithmic Functions	Quiz 4.1 Quiz 4.2 Quiz 4.3

10 (Nov. 23)	4.4. Evaluating Logarithms and the Change-of-Base Theorem 4.5. Exponential and Logarithmic Equations <b>Test 3 (Chapter 4)</b>	Quiz 4.4 Quiz 4.5
11 (Nov. 30)	<b>5. CHAPTER 5: SYSTEMS AND MATRICES</b> 5.1. Systems of Linear Equations 5.2. Matrix Solution of Linear Systems 5.3. Determinant Solution of Linear Systems	Quiz 5.1 Quiz 5.2 Quiz 5.3
12 (Dec. 7)	5.4. Partial Fractions 5.5. Nonlinear Systems of Equations 5.6. Properties of Matrices <b>Test 4 (Chapter 5)</b>	Quiz 5.4 Quiz 5.5 Quiz 5.7
13 (Dec. 14)	Project Presentation <b>FINAL EXAM (Chapter: 1, 2, 3, 4, 5)</b>	
14 (Dec. 21)	Summary of Exams, Tests and Assignments	

## Grading Scheme

Item	Assignments	Project	Test 1	Test 2	Test 3	Test 4	Mid-term Exam	Final Exam	Total
Percent	20%	6%	6%	6%	6%	6%	20%	30%	100%

The standard grading scale will be used:

Grade	A	B	C	D	F
Score	90 - 100	80 - 89	70 - 79	60 - 69	< 60

The passing grade of this course is C.

## Late Assignment Policy

Late assignments will have score of **ZERO** for the assignments.

## Make-up Exam Policy

Make-up exams will not be given unless the student has a verifiable, valid excuse that has been discussed with the instructor in advance.

## Academic Dishonesty Policy

A student who is academically dishonest is, by definition, not showing that the coursework has been learned, and that student is claiming an advantage not available to other students. The instructor is responsible for measuring each student's individual achievements and also for ensuring that all students compete on a level playing field. Thus, in our system, the instructor has teaching, grading, and enforcement roles. You are expected to be familiar with the SaigonTech Policy on Academic Dishonesty, found in the catalog. What that means is: If you are charged with an offense, pleading ignorance of the rules will not help you. Students are responsible for conducting themselves with honor and integrity in fulfilling course requirements. Penalties and/or disciplinary proceedings may be initiated by school officials against a student accused of scholastic

dishonesty. "Scholastic dishonesty": includes, but is not limited to, cheating on a test, plagiarism, and collusion.

**Cheating** on a test includes the following:

- Copying from another students' test paper;
- Using materials not authorized by the person giving the test;
- Collaborating with another student during a test without authorization;
- Knowingly using, buying, selling, stealing, transporting, or soliciting in whole or part the contents of a test that has not been administered;
- Bribing another person to obtain a test that is to be administered.

**Plagiarism** means the appropriation of another's work and the unacknowledged incorporation of that work in one's own written work offered for credit.

**Collusion** mean the unauthorized collaboration with another person in preparing written work offered for credit. Possible punishments for academic dishonesty may include a grade of 0 or F in the particular assignment, failure in the course, and/or recommendation for probation or dismissal from SaigonTech.