South Plains College
Mathematics Department
College Algebra – MATH 1314
Course Syllabus
Spring 2018

Instructor: Tom Johnson
Email: tjohnson@southplainscollege.edu
Office Hours: by appointment.

Course Description: MATH 1314. COLLEGE ALGEBRA. (3:3:1) Prerequisite: Two units of high school algebra or MATH 0320. A standard course in college algebra. Quadratic equations; ratio and proportion; variation, binomial theorem; progressions; inequalities; complex numbers; theory of equations; determinants and matrices; linear programming; mathematical induction; permutations and combinations. (copied from the current SPC catalog)

Core Objectives:
Communication Skills: Effective development, interpretation, and expression of ideas through written, oral, and visual communication.
- Develop, interpret, and express ideas through written communication.
- Develop, interpret, and express ideas through oral communication.
- Develop, interpret, and express ideas through visual communication.

Critical Thinking: Creative thinking, innovation, inquiry, analysis, evaluation, and synthesis of information.
- Generate and communicate ideas by combining, changing, and reapplying existing information.
- Gather and assess information relevant to a question.
- Analyze, evaluate, and synthesize information.

Empirical and Quantitative Competency Skills: The manipulation and analysis of numerical data or observable facts resulting in informed conclusions.
- Manipulate and analyze numerical data and arrive at an informed conclusion.
- Manipulate and analyze observable facts and arrive at an informed conclusion.

Student Learning Outcomes/Competencies*:
Upon completion of this course and receiving a passing grade, the student will be able to:
(Textbook sections indicated in parentheses.)
1. Demonstrate and apply knowledge of properties of functions, including domain and range, operations, compositions and inverses. (2.1-2.4, 2.7)
2. Recognize and apply polynomial, rational, radical, exponential and logarithmic functions and solve related equations. (1.2-1.7, 3.1-3.6, 4.1-4.4)
3. Apply graphing techniques. (2.5-2.6, 3.1-3.6)
4. Evaluate all roots of higher degree polynomial and rational functions. (3.1-3.3)
5. Recognize, solve and apply systems of linear equations using matrices. (5.1-5.2, 5.4-5.5, 6.1, 6.5)

*Developed by the Texas Coordinating Board and the Faculty of South Plains College's Math and Engineering Department.

Course Objectives: Successful completion of this course should reflect mastery of the following objectives. Chapter and section numbers are indicated in parentheses.
1. Solve and graph problems involving linear, quadratic, exponential, and logarithmic functions; (1.2, 1.3, 1.5, 1.6, 2.1, 2.2, 2.3, 2.4, 3.1, 4.1, 4.2, 4.3, 4.4)
2. Solve and graph linear, quadratic, and rational inequalities; (1.7, 3.6, 5.5)
3. Identify and simplify complex numbers; (1.4)
4. Apply midpoint, distance, and circle formulas; (2.8)
5. Analyze and graph polynomial functions; (3.2, 3.3, 3.4)
6. Analyze and graph rational functions; (3.5)
7. Create and solve systems of equations with algebraic techniques, with matrix techniques, and with determinants; (5.1, 5.2, 5.4, 6.1, 6.5)
8. Apply the Binomial Theorem to expand binomials of higher degree. (8.5)

Textbook: The textbook needed for this course may be <u>any</u> one of the following:
- Blitzer, R. (2017). <u>College Algebra, 7th ed.</u> New Jersey: Pearson Prentice Hall. ISBN 978-0-134-46916-4.
- Blitzer, R. (2013). <u>College Algebra, 6th ed.</u> New Jersey: Pearson Prentice Hall. ISBN 978-0-321-78228-1.
- Blitzer, R. (2008). <u>College Algebra, 5th ed.</u> New Jersey: Pearson Prentice Hall. ISBN 0-321-55983-5.

Attendance: Attendance and effort are the most important activities for success in this course. Class attendance may be taken at any time during the class period, so please do not be late or leave early. You may be dropped from this course with a grade of X or F if you are absent four consecutive classes or if you exceed six absences throughout the semester. Be on time and turn off any cell phones or pagers before entering the classroom.

Assignments & Grading: Homework assignments will be made at each class meeting. Quizzes may be administered at any time. Keep all class materials (notes, handouts, homework, quizzes, and exams) organized in a notebook (3-ring binder). These materials are subject to be turned in for grading at any time. Please make certain all materials accompany you to each class meeting. <u>No late assignments will be accepted.</u> Daily work (homework, quizzes, notebook) will count for 40% of the final grade, while all exams count for 60% of the final grade. Expect four major exams (10% each) throughout the course and a cumulative final exam (20%) at the end of the course. Your final average in the course will determine the letter grade posted on your transcript. This grade is determined by the following scale:

A (90-100%), B (80-89%), C (70-79%), D (60-69%), F (0-59%).

Supplies: You will need a scientific or graphing calculator, graph paper, and a 3-ring binder. Calculators on cell phones, TI-89, TI-92, or TI-Inspire calculators, or any other electronic devices will <u>not</u> be allowed during testing without permission from the instructor.

Supplementary Course Information & Tutoring: Blackboard is the online course management system that will be utilized for this course. This course syllabus, as well as any class handouts can be accessed through Blackboard. Login at http://spc.blackboard.com. The user name and password should be the same as the MySPC and SPC email.

User name: first initial, last name, and last 4 digits of the Student ID
Password: Original CampusConnect Pin No. (found on SPC acceptance letter)

Free tutoring is available in Building 2 at the Reese Center. Check Blackboard often for the latest tutoring schedule and course supplements (handouts, online practice quizzes, additional notes, sample problems for practice, etc.).

Student Conduct: You are expected to be respectful to others in the classroom. Please assist in maintaining a classroom environment conducive to learning. Any student disrupting the learning environment will be asked to leave and may be dropped from the course.

Disability: 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. For more information, call or visit the Disability Services Office in the Student Health & Wellness Office, 806-716-2577.

Equal Opportunity: South Plains College strives to accommodate the individual needs of all students in order to enhance their opportunities for success in the context of a comprehensive community college setting. It is the policy of South Plains College to offer all educational and employment opportunities without regard to race, color, national origin, religion, gender, disability or age.

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.

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.

College Algebra Tentative Course Outline
MATH 1314 (Tuesday Nights)
Spring 2018

Week	Day	Date	Lesson / Tentative Assignment *(Daily/Homework = 40% -- Exams = 60%)*
1	Tuesday	16-Jan	Assignment 1: [1.2] Linear & Rational Equations
			Assignment 2: [1.3] Linear Models and Applications
2	Tuesday	23-Jan	Assignment 3: [1.4] Complex Numbers; [1.5] Quadratic Equations
			Assignment 4: [1.5] Quadratic Equations Part 2 of 2
3	Tuesday	30-Jan	Assignment 5: [1.6] Other Types of Equations
			Assignment 6: [1.7] Linear & Absolute Value Inequalities
4	Tuesday	6-Feb	**Exam 1 (10%)**
			Assignment 7: [2.1 & 2.2] Functions and Their Graphs
5	Tuesday	13-Feb	Assignment 8: [2.3 & 2.4] Linear Functions and Slope
			Assignment 9: [2.8] Distance, Midpoint, & Circles; [2.6] Combinations of Functions
6	Tuesday	20-Feb	Assignment 10: [2.6] Composite Functions, [2.7] Inverse Functions
			Assignment 11: [3.1] Quadratic Functions, [3.3] Synthetic Division
7	Tuesday	27-Feb	**Exam 2 (10%)**
			Assignment 12: [3.2] Polynomial Functions & Their Graphs; [3.4] Roots of Polynomials
8	Tuesday	6-Mar	Assignment 13: [3.5] Rational Functions & Their Graphs
			Assignment 14: [3.6] Polynomial & Rational Inequalities
9	Tuesday	20-Mar	Assignment 15: [4.1] Exponential Functions, [4.2] Logarithmic Functions
			Assignment 16: [4.3] Properties of Logarithms
10	Tuesday	27-Mar	Assignment 17: [4.4] Exponential & Logarithmic Equations
			Assignment 18: [Review of Chapters 3 and 4]
11	Tuesday	3-Apr	**Exam 3 (10%)**
			Assignment 19: [5.1] 2x2 Systems; [5.2] 3x3 Systems
12	Tuesday	10-Apr	Assignment 20: [6.1] Matrix Solutions to Systems
			Assignment 21: [6.5] Determinants & Cramer's Rule
			Assignment 22: [5.3] Partial Fractions
13	Tuesday	17-Apr	**Exam 4 (10%)**
			Assignment 23: [5.4] Nonlinear Systems; [5.5] Systems of Inequalities
14	Tuesday	24-Apr	Assignment 24: [8.5] The Binomial Theorem; [8.2] Arithmetic Sequences and [8.3] Geometric Series
			Assignment 25: Review for comprehensive final exam
15	Tuesday	8-May	**Final Exam (20%) from 5:30-7:30pm**