Bossier Parish Community College
Master Syllabus

Course Prefix & Number: MATH 102 CR   **Credit Hours:** 3-3-0

Course Title: College Algebra

Course Prerequisites: ACT score of 17 or higher, acceptable placement test score, or grade of "C" or higher in MATH 099

Textbook(s): Blitzer, Robert. <u>College Algebra</u>, 8th edition. Pearson, 2021. ISBN: 9780136922148

Course Description: Topics from algebra including exponents; polynomials; factoring polynomials; complex numbers; radical and rational equations; linear and quadratic equations and inequalities; absolute value equations and inequalities; lines and slope; graphs; inverse, exponential, and logarithmic functions; systems of equations and inequalities; conics; applications.

Learning Outcomes:
At the end of this course, the student will:
- A. solve linear, rational, quadratic equations, other types of equations and linear inequalities;
- B. perform operations of functions, evaluate formulas; and graph linear equations;
- C. solve and graph exponential and logarithmic functions;
- D. solve systems of equations and inequalities; and
- E. graph circles, quadratic functions, and conics.

To achieve the learning outcomes, the student will or will be able to:
(The letter designations at the end of each statement refer to the learning outcome(s).)
1. simplify expressions using the power, product, quotient, zero exponent rules, and negative exponents; (A)
2. add, subtract, multiply, and divide polynomial expressions; (A)
3. solve linear equation containing parenthesis; (A)
4. simplify rational expressions; (A)
5. multiply and divide rational expressions; (A)
6. add and subtract rational expressions with like and unlike denominators; (A)
7. solve rational equation with variables in the denominator; (A)
8. solve linear application problems;(A)
9. simplify a square root of a negative number; (A)
10. perform addition, subtraction, multiplication and division of complex numbers; (A)
11. rationalize the denominator with the complex conjugate; (A)
12. factor polynomials using GCF and grouping; (A)
13. factor trinomials, difference of perfect squares, sum/difference of perfect cubes; (A)
14. factor polynomials using multiple rules; (A)
15. solve quadratic equations by factoring, square root method, completing the square, and/or quadratic formula; (A)
16. solve application problems involving quadratic equations; (A)
17. solve polynomial equation; (A)
18. evaluate and simplify radical expressions; (A)
19. solve radical equations; (A)
20. solve equation containing rational exponents; (A)
21. solve absolute value equation; (A)

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22. solve linear inequalities; (A)
23. solve compound inequalities; (A)
24. solve absolute value inequalities; (A)
25. state the domain and range of a relation; (B)
26. determine whether a relation is a function; (B)
27. evaluate function notation; (B)
28. identify intervals where a function is increasing, decreasing, or constant; (B)
29. identify even or odd functions; (B)
30. use graphs to locate relative maximum and/or minimum; (B)
31. evaluate piecewise functions; (B)
32. compute the slope of a line; (B)
33. graph a linear equation using t-tables, x- and y- intercepts, and/or slope-intercept form; (B)
34. write equation of lines in point-slope, slope-intercept, and standard form; (B)
35. write the equation of parallel and perpendicular lines; (B)
36. form the composition of functions; (B)
37. find the inverse of a function; (B)
38. find the distance between two points; (B)
39. find the midpoint of a segment; (B)
40. graph exponential functions; (C)
41. applications of exponential functions, i.e. compound interest; (C)
42. convert from exponential to logarithmic form; (C)
43. convert from logarithmic to exponential form; (C)
44. evaluate logarithmic expressions with and without a calculator; (C)
45. graph logarithmic functions; (C)
46. apply the properties of logarithms to condense and expand expressions; (C)
47. solve exponential equations with the same base; (C)
48. solve exponential equations using natural logs; (C)
49. solve logarithmic equations; (C)
50. solve logarithmic equations using the product and/or quotient rule; (C)
51. solve a system of linear equations in two variables using substitution and/or addition; (D)
52. solve a system of linear equations in three variables; (D)
53. solve a nonlinear system of equations; (D)
54. solve a linear and nonlinear system of inequalities by graphing; (D)
55. graph a circle in standard form; (E)
56. graph a circle in general form; (E)
57. write the equation of a circle in standard form; (E)
58. identify the following parts of a parabola: vertex, axis of symmetry, and x- and y- intercepts; (E)
59. graph a parabola in standard form; (E)
60. graph a parabola in general form; (E)
61. graph an ellipse from standard form; (E) and
62. graph a hyperbola from standard form; (E)

Course Requirements: All students are required to take a comprehensive final exam. When this course is taken in an online environment, the department has established a minimum grade of 60% on the final exam required to earn a grade of "C" or higher in the course. If this minimum score is not obtained by the student, then the student shall refer to the policy outlined in the course syllabus which will supersede the course grading scale shown below.

Course Grading Scale:

     90 – 100 = A
     80 – 89   = B
     70 – 79   = C
     60 – 69   = D
     0 – 59   = F

Attendance Policy: The college attendance policy is available in the BPCC Student Handbook.

Course Fees: This course is accompanied with an additional non-refundable fee for supplemental materials, laboratory supplies, software licenses, certification exams and/or clinical fees.

Nondiscrimination Statement: Bossier Parish Community College does not discriminate on the basis of race, color, national origin, gender, age, religion, qualified disability, marital status, veteran's status, or sexual orientation in admission to its programs, services, or activities, in access to them, in treatment of individuals, or in any aspect of its operations. Bossier Parish Community College does not discriminate in its hiring or employment practices.

Title VI, Section 504, and ADA Information
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