**MATH 51 + MATH 5 OUTLINE**

**ELEMENTARY ALGEBRA with SUPPORT**

TEXT: Beginning Algebra, 1st Edition, Messersmith

*Approved: December 2018 Effective: Summer 2019*

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| **MATERIAL TO BE COVERED** | **SECTIONS FROM TEXT** | **TIME LINE** |
| Exponents, order of operations. Absolute Value. Real numbers - operations and properties. Algebraic expressions.  **Math 5 Support Topics:**  Arithmetic problems involving order of operations, exponents, absolute value, operations with whole numbers, integers, and rational numbers, translating word sentences to expressions. | 1.2, 1.4-1.7 | Math 51:  3 HOURS  Math 5:  1 HOUR |
| Rules of exponents, scientific notation.  **Math 5 Support Topics:**  Use of basic rules of exponents to simplify expressions. Multiplying by powers of 10. | 2.1 - 2.4 | Math 51:  2.5 HOURS  Math 5:  2 HOURS |
| Solving linear equations. Formulas. Applications of linear equations. Proportions and percent. Solving linear inequalities.  **Math 5 Support Topics:**  Solving linear equations having integer, decimal, and rational coefficients. Geometry concepts including: perimeter, area, volume, angles, and their applications. Translate word sentences to equations and additional support with application problems, solving for an indicated variable, use of formulas, proportions, ratios, rates, and percent. | 3.1 - 3.8 | Math 51:  6.5 HOURS  Math 5:  4 HOURS |
| Linear equations in two variables - graphing, slope. Writing linear equations. Functions.  **Math 5 Support Topics:**  Graphing linear equations in two variables by completing a table of values, finding intercepts, and using slope and y-intercept. Creating linear equations given properties of a line, graphing linear inequalities in two variables. | 4.1 - 4.6 | Math 51:  5.5 HOURS  Math 5:  2 HOURS |
| Solving linear systems by graphing, substitution and elimination methods. Applications of linear systems. Linear Inequalities in two variables. Optional: solving systems of linear inequalities.  **Math 5 Support Topics:**  Solve linear equations for a given variable, graph linear equations, use of order of operations, summary of techniques used to solve systems of linear equations, additional support with application problems. | 5.1 - 5.5 | Math 51:  6 HOURS  Math 5:  2 HOURS |
| Operations with polynomials. Optional: review of rules of exponents. Optional: graphing basic polynomials.  **Math 5 Support Topics:**  Exponent rules, polynomial vocabulary, evaluating polynomials and operations on polynomials. | 6.2 - 6.4 Optional: 6.1 | Math 51:  2.5 HOURS  Math 5:  1 HOUR |
| Factoring - GCF, grouping, trinomials, differences of squares, sums and differences of cubes. Solving quadratic equations by factoring. Applications of quadratic equations.  **Math 5 Support Topics:**  Identifying greatest common factor (GCF), factoring by GCF, arithmetic skills for factoring polynomials, use of special cases factoring formulas, Pythagorean Theorem. Summary of factoring techniques. | 7.1 - 7.6 | Math 51:  6.5 HOURS  Math 5:  4 HOURS |
| Rational expressions - fundamental property, operations. Complex fractions. Solving equations involving rational expressions. Applications of rational expressions. Direct and inverse variation.  **Math 5 Support Topics:**  Exponent properties, least common multiple (LCM), least common denominator (LCD), evaluating and simplifying rational expressions, operations on rational expressions, solving rational equations, extra support for application problems. | 8.1 - 8.7 | Math 51:  7 HOURS  Math 5:  5 HOURS |
| Roots and radicals - evaluating, operations and simplifying. Rationalizing denominators. Solving equations with radicals. Rational exponents.  **Math 5 Support Topics:**  Review of perfect squares and perfect cubes, prime factorization, exponent rules, simplify radical expressions, operations on radical expressions, and solving radical equations. | 9.1 - 9.7 | Math 51:  7 HOURS  Math 5:  3.5 HOURS |
| Solving quadratic equations by the square root property, completing the square and quadratic formula, (summary of different methods). Optional: Complex numbers. Optional: Graphing quadratic equations.  **Math 5 Support Topics:**  Order of operations, simplifying radicals, factoring perfect square trinomials, summary of solving quadratic equation techniques. | 10.1 - 10.3 Optional:  10.4-10.5 | Math 51:  5 HOURS  Math 5:  4 HOURS |

All hours listed are face-time; i.e. breaks are administered by the instructor separately and

are in addition to the hours listed.

Math 51 (4 units): 51.5 teaching hours + 6 hours exam + 2.5-hour final exam = 60 hours

Math 5 (2 units): 30 hours

### Math 5 is a 15-week course. The corequisite course does not meet during finals week.

**Math 5 Notes:**

\* The Math 5 outline does not include time for exams.

Exams in the support course are at the discretion of the professor.

\* Math 5 is a Pass/No Pass course and is not subject to department grading policy.

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Math Department Policy can be found at: <https://www.mtsac.edu/math/departmentpolicy.html>