**MATH 71 + MATH 7 OUTLINE**

**INTERMEDIATE ALGEBRA with SUPPORT**

TEXT: Intermediate Algebra for College Students, 7th edition, by Blitzer

*Approved: December 2018* *Effective: Summer 2019*

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| **MATERIAL TO BE COVERED** | **SECTIONS**  **FROM TEXT** | **TIME LINE** |
| Algebraic expressions, operations with real numbers, graphic equations, linear equations, formulas, applications, exponents.  **Math 7 Support Topics**: Real numbers – operations and properties. Exponent rules for integer exponents. Simplifying algebraic expressions. Solving linear equations in one variable with applications. Solving literal equations. | 1.1-1.6 | Math 71: 6 hours  Math 7: 2 hours |
| Introduction to functions, algebra of functions, linear functions, equations of lines.  **Math 7 Support Topics:**  Functions and relations. Linear equations in two variables – graphing, slope. Writing linear equations in two variables with applications. Elementary algebra skills needed to work with functions at the intermediate algebra level. | 2.1 – 2.5 | Math 71: 6 hours  Math 7 : 3 hours |
| Systems of linear equations in two and three variables with applications.  **Math 7 Support Topics:** Solving linear systems in two variables by graphing, substitution, and elimination methods. Applications of linear systems. Elementary algebra skills needed to work with linear systems in three variables. | 3.1 – 3.3 | Math 71: 4.5 hours  Math 7: 2 hours |
| Linear inequalities, compound inequalities, equations and inequalities with absolute value, linear inequalities in two variables.  **Math 7 Support Topics:** Solving linear inequalities in one variable with applications. Solving linear inequalities in two variables. Elementary algebra skills needed to work with absolute value equations, compound and absolute value inequalities. | 4.1 – 4.4 | Math 71: 4 hours  Math 7: 3 hours |
| **\*\*\* CHAPTERS 1 – 4 SHOULD BE COMPLETED BY THE END OF WEEK FIVE \*\*\*** |  |  |
| Polynomial functions, multiplication and factoring of polynomials, polynomial equations with applications.  **Math 7 Support Topics:** Adding, subtracting, or multiplying polynomials. Factoring – GCF, grouping, trinomials, differences of squares, sums and differences of cubes. Solving quadratic equations by factoring. Applications of quadratic equations. | 5.1 – 5.7 | Math 71: 6 hours  Math 7: 3.5 hours |
| Rational Expressions, multiply, divide, add, subtract, complex rational expressions, polynomial division, rational equations, formulas and applications of ration equations. OPTIONAL: Synthetic Division  **Math 7 Support Topics:** Rational expressions – fundamental property, operations, complex fractions. Solving equations with rational expressions. Applications of rational expressions. | 6.1 – 6.4, 6.6, 6.7  Optional: 6.5 | Math 71: 6 hours  Math 7: 3 hours |
| Radical expressions, simplify, multiply, divide, add, subtract, functions, rational exponents, radical equations, complex numbers.  **Math 7 Support Topics:** Roots and radicals – evaluating, operations and simplifying. Solve equations with radicals. Elementary algebra skills needed to work with Radical Functions and Complex Numbers. | 7.1 – 7.7 | Math 71: 6.5 hours  Math 7: 3.5 hours |
| Quadratic equations, square root property, completion of the square, quadratic formula, quadratic functions and their graphs, equations quadratic in form, quadratic and rational inequalities.  **Math 7 Support Topics:** Focus on elementary algebra skills needed to work with discriminant, finding quadratic equation from solutions, solving equations in quadratic form, graphing quadratic functions, application of the vertex, solving polynomial and rational inequalities. | 8.1 – 8.5 | Math 71: 8 hours  Math 7: 4 hours |
| Exponential and logarithmic functions, composite and inverse functions, logarithmic properties, exponential and logarithmic equations, exponential growth, decay and modeling.  **Math 7 Support Topics:** Focus on elementary algebra skills needed to work with inverse, exponential and logarithmic functions. Properties of logarithms. Solving exponential and logarithmic equations with applications. | 9.1 – 9.6 | Math 71: 8 hours  Math 7: 4 hours |
| Distance and midpoint formula, circles, ellipse, hyperbola, parabola, identifying conics, systems of nonlinear equations.  **Math 7 Support Topics:** Focus on elementary algebra skills needed to use distance and mid-point formulas. Graphing circle, ellipse, hyperbola, parabola. Identifying conics. Systems of nonlinear equations. | 10.1 – 10.5 | Math 71: 6 hours  Math 7: 3.5 hours |
| Sequences, summation notation, Binomial Theorem.  **Math 7 Support Topics:** Focus on elementary algebra skills needed to work with sequences, summation notation, Binomial Theorem. | 11.1 & 11.4 | Math 71: 4 hours  Math 7: 2 hours |
| FINAL EXAM |  | 5 hours |

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

### 2-unit class: hours total 30 (15 x 2 hours) 0 hours subtracted for exams

### 5-unit class: hours total 72.5 (15 x 4 hours 50 minutes) – 4 hours for exams + 2.5 hour final

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### Math 71: The outline allows time for exams excluding the 2.5 final exam

### Math 7: The outline does not include time for exams. Exams in the support course are at the discretion of the professor.

### Math 7 is a 15-week course. The corequisite course does not meet during finals week.

Math 7 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>