**Marshall University**

**Math 127 Syllabus**

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| **Course Title/Number** | Math 127: College Algebra with Integrated Review |
| **Semester/Year** | Spring 2017 |
| **Days/Time** | MW 5:00-5:50, TR 5:00-6:15 |
| **Location** | MW Smith Hall 624, TR Smith Hall 513 |
| **Instructor** | Lauren Caldwell |
| **Office** | Smith Music Hall 115 |
| **Phone** |  |
| **E-Mail** | [Caldwell95@live.marshall.edu](mailto:Caldwell95@live.marshall.edu) |
| **Office Hours** | Tuesday 1pm, Thursday 4pm |
| **University Policies** | By enrolling in this course, you agree to the University Policies listed below. Please read the full text of each policy by going to [www.marshall.edu/academic-affairs](http://www.marshall.edu/academic-affairs) and clicking on “Marshall University Policies.” Or, you can access the policies directly by going to [www.marshall.edu/academic-affairs/policies/](http://www.marshall.edu/academic-affairs/policies/). Academic Dishonesty/Excused Absence Policy for Undergraduates/Computing Services Acceptable Use/Inclement Weather/Dead Week/Students with Disabilities/Academic Forgiveness/Academic Probation and Suspension/Academic Rights and Responsibilities of Students/Affirmative Action/Sexual Harassment |

**Course Description: From Catalog**

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| A brief but careful review of the main techniques of algebra. Polynomials, rational, exponential, and logarithmic functions. Graphs, equations and inequalities, sequences. |

**The table below shows the following relationships: How each student learning outcome will be practiced and assessed in the course.**

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| **Course Student Learning Outcomes** | **How students will practice this outcome** | **How students will be assessed on this outcome** |
| Identify and implement appropriate solution methods  for single-variable equations | Online homework, written assignments, in-class activities | Course exams and common final |
| Identify and graph standard  algebraic functions | Online homework, written assignments, in-class activities | Course exams and common final |
| Interpret graphs of functions | Online homework, written assignments, in-class activities | Course exams and common final |
| Construct functions to model applications | Online homework, written assignments, in-class activities | Course exams and common final |
| Communicate written mathematics using appropriate notation and explanation where appropriate | Online homework, written assignments, in-class activities | Course exams and common final |

**Required Texts, Additional Reading, and Other Materials**

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| College Algebra with Integrated Review ISBN: 978-1-944894-97-9 (with textbook) or 978-1-944894-98-6 (with e-book only) |

**Course Requirements/Due Dates**

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| **Hawkes Mastery-based Homework and Webtests:** Each textbook section corresponds to at least one homework (Certify) section in the Hawkes learning system. To sign in, go to learn.hawkeslearning.com and follow the onscreen prompts to enter your code. **All assignments must be completed this semester, even if you have some certifications from previous semesters.**  **Quizzes:** There will be 5 pop quizzes, spread throughout the semester.  **Exams:** There will be three midterm exams as outlined in the course schedule. Dates are February 3, March 3, and April 5.  **Common Final Exam:** The common final exam for MTH 127 will take place on **Saturday April 29** from 2-4 pm. You may use a scientific calculator (TI-30 or equivalent) but no graphing calculators or internet-connected devices (including cellphones) will be permitted. |

**Grading Policy**

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| Hawkes (common homework) | 20% |
| Exam 1 | 15% |
| Exam 2 | 15% |
| Exam 3 | 15% |
| Common Final Exam | 20% |
| Quizzes | 10% |
| Attendance | 5% |

**Attendance Policy**

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| Attendance is mandatory. Each unexcused absence will remove 1% from your final grade in the course, up to 5%. Make-up days will be allowed at instructor’s discretion. |

**Course Schedule**

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| Week 1 | M | Introduction to the course 4.R.1 - Order of Operations |
| T | **1.1 The Real Number System** Topics:  1: Number systems 2: The real number line 3: Inequalities 4: Set-builder and interval notation 5: Absolute value |
| W | *4.R.2-Variables and Algebraic Expressions 4.R.3 - Simplifying expressions* |
| R | **2.1a Linear Equations in One Variable** 1: Solutions to equations 2: Solving linear equations 4: Solving linear equations for one variable |
| Week 2 | M | NO CLASS - MLK Day |
| T | **2.1b Applications of Linear Equations in One Variable** (Topic 5) |
| W | *4.R.4 - Translating Pharases into Algebraic Expressions  1.R.1 - Exponents, Prime Numbers, LCM* |
| R | **2.2 Linear Inequalities in One Variable** 1: Solving linear inequalities 2: Solving compound linear inequalities |
| Week 3 | M | *2.R.2-Addition and Subtraction with Fractions* |
| T | **3.1 Cartesian Coordinate System** 1: Cartesian coordinate system 2: The graph of an equation 3: Distance and midpoint formulas **3.2 Linear Equations in Two Variables** 1: Recognizing linear equations in two variables 2: x and y intercepts |
| W | *1.R.2 - Reducing Fractions  2.R.1 - Multiplication and Division with Fractions* |
| R | **3.2 Linear Equations in Two Variables** 3: Horizontal and vertical lines **3.3 Forms of Linear Equations** 1: The slope of a line 2: Slope-intercept form of a line 3: Point-slope form of a line |
| Week 4 | M | *5.R.1 - GCF of Two or More Terms* |
| T | **3.4 Parallel and Perpendicular Lines** 1: Slopes of parallel lines 2: Slopes of perpendicular lines |
| W | *5.R.2 - Factoring Trinomials by Grouping* |
| R | Test 1 |
| Week 5 | M | *5.R.3 - Additional Factoring Practice* |
| T | **3.6 Introduction to Circles** 1: Standard form  2: Graphing circles (omit completing the square to write in standard form) **2.3 Quadratic Equations in One Variable (Real Solutions Only)** 1: Solving quadratic equations by factoring |
| W | *6.R.1 - Rational Expressions* |
| R | **2.3 Quadratic Equations in One Variable (Real Solutions Only)** 2: Solving "perfect square" quadratic equations 4: The quadratic formula |
| Week 6 | M | *1.R.4 - Simplifying Radicals* |
| T | **2.4 Higher Degree Polynomial Equations** 2: General polynomial equations of the form ax^n=b, or cubics that have a common factor of x only, real solutions only  **2.5 Rational Expressions and Equations** 1: Simplifying rational expressions 2: Combining rational expression |
| W | *6.R.2 - Special Products* |
| R | **2.5 Rational Expressions and Equations** 4: Solving rational equations **2.6 Radical Equations** 1: Solving radical equations (with only one radical expression) |
| Week 7 | M | *6.R.3 - Special Factorizations* |
| T | **4.1 Relations and Functions** 1:Relations, domains, and ranges 2: Functions and the vertical line test 3: Functional notation and evaluation |
| W | *1.5 - Polynomials and factoring (Extra factoring practice)* |
| R | **4.1 Relations and Functions** 4: Implied domain of a function **4.2 Linear and Quadratic Functions** 1: Linear functions and graphs 2: Quadratic functions and graphs (through page 276) |
| Week 8 | M | *1.3a - Properties of Exponents (Topics 1,2)* |
| T | **4.2 Linear and Quadratic Functions** 2: Vertex form (by formula, not completing the square) 3: Max/min problems |
| W | *1.3b - Properties of Exponents (Topics 3,4)* |
| R | Test 2 |
| Week 9 | M | *Graphing practice (???)* |
| T | **4.3a Other Common Functions** 1: Commonly occuring functions: ax^n, ax^(1/n), absolute value only **4.4 Transformations of Functions** 1: Shifting and reflecting only |
| W | *Practice with transformations (???)* |
| R | **4.4 Transformations of Functions** 1: Shifting and reflecting only 2: Symmetry of functions and equations 3: Intervals of monotonicity |
| Week 10 | M | *1.2 - Arithmetic of Algebraic Expressions* |
| T | **5.1 Polynomial Equations and Graphs** 1: Zeros of polynomials 2: Graphing factored polynomials **5.2 Polynomial Division and the Division Algorithm (Omit Division!)** 3: Constructing polynomials with given zeros **5.4 The Fundamental Theorem of Algebra** 1: The fundamental theorem of algebra 2: Multiple zeros and their geometric meaning |
| W | *7.R.1 - Simplifying Integer Exponents 1* |
| R | **6.1 Rational Functions** 1: Definitions 2: Vertical asymptotes |
| Week 11 | M | *7.R.2 - Simplifying Integer Exponents 2* |
| T | **6.1 Rational Functions** 3: Horizontal asymptotes (no oblique) 4: Graphing rational functions **4.5 Combining Functions** 2: Composing functions |
| W | *7.R.3 - Rational Exponents* |
| R | **4.5 Combining Functions** 2: Composing functions **4.6 Inverses of Functions** 2: Inverse functions and the horizontal line test 3: Finding inverse function formulas (basic only) |
| Week 12 | M | *1.4 - Properties of Radicals* |
| T | Test 3 |
| R | *1.R.3 - Decimals and Percents* |
| T | **7.1 Exponential Functions and Their Graphs** 1: Definition  2: Graphing 3: Solving basic equations |
| Week 13 | M | *Practice with applications???* |
| T | **Review 7.1 7.2 Applications of Exponential Functions** 3: Compound interest **7.3 Logarithmic Functions** 1: Definition of logarithmic functions 4: Common and Natural logarithms |
| W | *Logarithm practice???* |
| R | **7.3 Logarithmic Functions** 2: Graphing logarithmic functions **7.3 Logarithmic Functions** 3: Evaluating elementary logarithmic expressions |
| Week 14 | M | *Practice with log properties???* |
| T | **7.4 Properties of Logarithms** 1: Properties of logarithms 3: Applications (Richter Scale only) **7.5 Exponential and Logarithmic Equations** 1: Converting between exponential and logarithmic forms |
| W | *Review linear equations and graphing lines???* |
| R | **7.5 Exponential and Logarithmic Equations** 1: Converting between exponential and logarithmic forms **7.5 Exponential and Logarithmic Equations** 2: Further applications (Interest only) |
| Week 15 | M | *8.R.1 - Solving systems by graphing* |
| T | **8.1 Systems of Linear Equations** 1: Definition and classification 2: Solving by substitution |
| W | Review for Final Exam |
| R | **8.1 Systems of Linear Equations** 2: Solving by substitution, applications |