Herbert H. Lehman High School
John Powers, Principal

Mathematics Department
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Course Calendar for **Algebra II** (MRS21/MRS22)
2018-19 School Year

Teachers: Ms. Eckstein, Mr. Shuda

Textbook: HMH Algebra 2 published by Houghton Mifflin Harcourt, 2018

Date	Topics	Formal Assessments	Unit (Module)
Sept 3 - 7	Domain, Range, End Behavior		1: Functions (1.1 Domain, Range)
Sept 10 - 14	Increasing, Decreasing, Concavity, Extrema of Functions	Baseline Assessment (Algebra & Geometry)	1: Functions (1.2 Graph Characteristics)
Sept 17 - 21	Transformations of Graphs; Modeling with Quadratics; Inverses of Functions		1: Functions (1.3 Transformations / Modeling) 1: Functions (1.4 Inverses)
Sept 24 - 28	Graph Absolute Value Functions; Solve Absolute Value Equations	Module 1 Quiz (Analyzing Functions)	1: Functions (1.4 Inverses) 1: Functions (2.1 Graph Absolute Value Functions)
Oct 1 - 5	Solve Absolute Value Equations & Inequalities; Review Functions Unit	Module 2 Quiz (Absolute Value) Unit 1 Exam (Functions)	1: Functions (2.2 Solve Absolute Value Equations) 1: Functions (2.3 Solve Absolute Value Inequalities)
Oct 8 - 12	Solve Quadratic Equations, Introduce Imaginary Unit and Complex Numbers; Solve Quadratic Equations with Complex Solutions		2: Quadratics (3.1 Solve by Square Roots) 2: Quadratics (3.2 Complex Numbers) 2: Quadratics (3.3 Complex Solutions)
Oct 15 - 19	Graph Circles and Parabolas with transformations; Solve Quadrilinear Systems	Module 3 Quiz (Solving Quadratic Equations)	2: Quadratics (4.1 Circles) 2: Quadratics (4.2 Parabolas) 2: Quadratics (4.3 Linear-Quadratic Systems)
Oct 22 - 26	Solve Linear Systems in 3 variables by substitution, by elimination and by matrices; Review Quadratics Unit	Module 4 Quiz (Quadratic Relations / Systems) Unit 2 Exam (Quadratics)	2: Quadratics (4.4 Solve Linear Systems in 3 Variables)
Oct 29 - Nov 2	Graph Cubic and Polynomial Functions with transformations; Write Equations of Polynomial Functions from Graphs; Model Real-World Situations with Polynomial Functions; Add/Subtract Polynomial Expressions	Module 5 Quiz (Cubic / Polynomial Functions)	3: Polynomials (5.1 Cubic Functions) 3: Polynomials (5.2 Polnomial Functions) 3: Polynomials (6.1 Add/Subtract)

Nov 5 - 9	Multiply Polynomial Expressions; Binomial Theorem; Factoring Special Polynomials; Advanced Factoring Methods		3: Polynomials (6.2 Multiply) 3: Polynomials (6.3 Binomial Theorem) 3: Polynomials (6.4 Factoring)
Nov 12 - 16	Synthetic Substituion, Synthetic and Long Division, Remainder Theorem, Factor Theorems; Rational Solutions to Polynomial Equations (Rational Root Theorem)	Module 6 Quiz (Polynomial Operations)	3: Polynomials (6.5 Dividing) 3: Polynomials (7.1 Rational Solutions)
Nov 19 - 23	Use Synthetic/Long Division to Solve Polynomial Equations; Factor/Quadratic Formula to find Complex Solutions to Polynomial Equations; Write Function given Zeros of Polynomial Function		3: Polynomials (7.1 Rational Solutions) 3: Polynomials (7.2 Complex Solutions)
Nov 26 - 30	Solve Polynomial Equations containing Complex Solutions; Review Polynomials Unit	Module 7 Quiz (Solve Polynomial Equations) Unit 3 Exam (Polynomials)	3: Polynomials (5.1-6.4) 3: Polynomials (7.1 Rational Solutions) 3: Polynomials (7.2 Complex Solutions)
Dec 3 - 7	Graph Rational Functions, Simplify Rational Expressions with LCD, Add/Subtract Rational Expressions using LCD, Multiply/Divide Rational Expressions by Eliminating 'baby' denominators		4: Rationals (8.1 Simple Functions) 4: Rationals (8.2 Complex Functions) 4: Rationals (9.1 Add/Subtract Expressions) 4: Rationals (9.2 Multiply/Divide Expressions)
Dec 10 - 14	Solve Rational Equations by Eliminating Denominators; Review Rationals Unit; Find Inverses of Simple Radicals	Unit 4 Exam (Rationals)	4: Rationals (9.3 Solve Equations) 4: Rationals (8.1-9.3) 5: Radicals (10.1 Inverses)
Dec 17 - 21	Graph Square and Cube Root Functions, Discuss Domain, Range, and End Behavior; Write Radical Expressions using Rational Exponents; Simplify Radical Expressions		5: Radicals (10.2 Square Root Functions) 5: Radicals (10.3 Cube Root Functions) 5: Radicals (11.1 Rational Exponents) 5: Radicals (11.2 Simplify)
Dec 24 - 28	Winter Recess - Radicals Project		
Dec 31 - Jan 4	Solve Radical Equations by exponentiation, Review Radicals		5: Radicals (11.3 Solve Equations)
Jan 7 - 11	Review for Final Exam; Practice Regents Multiple Choice and FRQs on topics from first five units	Modules 10/11 Quiz Final Exam Part I	Units 1 - 5
Jan 14 - 18	Review for Final Exam; Practice Regents Multiple Choice and FRQs on topics from first five units; End of Semester Project	Final Exam Part II Semester Project on Units 1 - 5	Units 1 - 5
Jan 21 - 25	Regents Exams - No Classes		
Jan 28 - Feb 1	Explicit and Recursive Rules for Arithmetic and Geometric Sequences; Graph and Model Real-World Situations with Sequences; Find Sums of Finite Geometric Series		6: Exponents/Logarithms (12.1 Arithmetic Sequences) 6: Exponents/Logarithms (12.2 Geometric Sequences)

			6: Exponents/Logarithms (12.3 Geometric Series)
Feb 4 - 8	Graph exponential growth and decay functions with transformations; Fit Function to Data	Module 12 Quiz (Sequences and Series)	6: Exponents/Logarithms (13.1 Growth) 6: Exponents/Logarithms (13.2 Decay)
Feb 11 - 15	Graph e^x, Calculate Interest compounding "n" times per year and continuously; Review Growth/Decay	Module 13 Quiz (Growth / Decay, Compound Interest, base "e")	6: Exponents/Logarithms (13.3 Base "e") 6: Exponents/Logarithms (13.4 Compound Interest)
Feb 18 - 22	Mid-Winter Recess, Exponential Project		
Feb 23 - Mar 1	Fit Exponential Functions to Real-World Data; Use Calculator to Create Scatter Plots and Regression Equations; Choose equations of best fit; Explore and Evaluate New Notation for Inverses of Exponents = Logarithms	Module 14 Quiz (Modeling with Functions	6: Exponents/Logarithms (14.1 Fitting to Data) 6: Exponents/Logarithms (14.2 Model of Best Fit) 6: Exponents/Logarithms (15.1 Logarithmic Functions)
Mar 1 - 8	Graph Natural Logarithm Function, Define and Use 5 Logarithmic Properties to rewrite expressions and solve equations, Review		6: Exponents/Logarithms (15.2 Graph) 6: Exponents/Logarithms (16.1 Logarithm Properties) 6: Exponents/Logarithms (16.2 Solve Equations)
Mar 11 - 15	Solve Real-World Exponential Problems; Review ALL Exponents and Logarithms in Unit 6; Begin sketching Angles of Rotation and define Radian Angle Measure	Unit 6 Exam (Exponents / Logarithms)	6: Exponents/Logarithms (16.2 Solve Equations) 7: Trigonometric Functions (17.1 Angles of Rotation)
Mar 18 - 22	Explore Special Triangles and the Unit Circle; Use Reference Angles and Quadrant to determine Function values; Prove and Use Pythagorean Identities		7: Trigonometric Functions (17.2 Basic Trig Functions) 7: Trigonometric Functions (17.3 Pythagorean Identities)
Mar 25 - 29	Graph Sine and Cosine and stretch, compress, reflect them; Identify period, frequency and amplitude; Graph tangent and stretch, compress, reflect it; translate trigonometric graphs vertically and horizontally	Module 17 Quiz (Unit Circle Trigonometry)	7: Trigonometric Functions (18.1 Sine and Cosine Graphs) 7: Trigonometric Functions (18.2 Tangent Graphs) 7: Trigonometric Functions (18.3 Translations of Graphs)
Apr 1 - 5	Model Real-World Data and Solve Real-World Problems with Sine Functions; Review; Introduce Set Notation and Vocabulary for Probability	Unit 7 Exam (Trigonometric Functions)	7: Trigonometric Functions (18.3 Translations of Graphs) 8: Probability (19.1 Set Theory)
Apr 8 - 12	Permutations, Combinations, Fundamental Counting Principle, and using them to find Probabilities; Mutually Exclusive vs. Overlapping Events with Venn Diagrams and Two-Way Tables		8: Probability (19.2 Permuations) 8: Probability (19.3 Combinations) 8: Probability (19.4 Mutually Exclusive / Overlapping Events)

Apr 15 - 19	Conditional Probability (two-way tables and formula), Independent Events and their Probabilities	Module 19 Quiz (Basic Probability)	8: Probability (20.1 Conditional Probability) 8: Probability (20.2 Independent Events)
Apr 22 - 26	Spring Recess - Probability Project		
Apr 29 - May 3	Dependent Events, Making Fair Decision without Bias, Analyzing Decisions, Bayes' Theorem		8: Probability (20.3 Dependent Events) 8: Probability (21.1 Making Fair Decisions) 8: Probability (21.2 Analyzing Decisions)
May 6 - 10	Review ALL Probability, Data-Gathering Techniques, Analyze Distribution Shape, Create Histogram and Box Plot	Unit 8 Exam (Probability)	9: Statistics (22.1 Data-Gathering Techniques) 9: Statistics (22.2 Shape, Center and Spread of Data)
May 13 - 17	Simulations vs. Theoretical Probability, Area Under the Curve, Standard Deviation, Standard Error of Mean / Proportion, Find Confidence Interval and Determine Margin of Error	Modules 22/23 Quiz (Distribution of Data)	9: Statistics (23.1 Probability Distributions) 9: Statistics (23.2 Normal Distributions) 9: Statistics (23.3 Sampling Distributions) 9: Statistics (24.1 Confidence Intervals / Margins of Error)
May 20 - 24	Identify Study Type and Error; Discuss Null Hypothesis; Permutation Test to Analyze Experimental Results, Review ALL Statistics	Unit 9 Exam (Statistics)	9: Statistics (24.2 Surveys / Experiments / Observations) 9: Statistics (24.3 Analyzing Results of Experiments)
May 27 - 31	Review Units 1 - 3 (Functions, Quadratics, and Polynomials)		Units 1 - 3
June 3 - 7	Review Units 1 - 3 (Functions, Quadratics, and Polynomials)	MOCK REGENTS EXAM - MULTIPLE CHOICE	Units 1 - 3
June 10 - 14	Review Units 4 - 6 (Rationals, Radicals, Exponents / Logarithms) and Review Units 5 - 9 (Trigonometry, Probability, Statistics)	MOCK REGENTS EXAM - FRQs	Units 4 - 6 and 5 - 9
June 17 - 21	Review Units 5 - 9 (Trigonometry, Probability, Statistics), Prepare for Regents Exam on June 21 at 1:00pm	REGENTS EXAM - June 21 at 1:00pm	
June 26 - 28	Last Day of School for Students on June 26		

Grading Rubric

60% Exams (including Regents), Quizzes, and Projects
20% Homework
10% Classwork
10% Participation