



Syllabus: Practices & Policies

2021-2022		Franklin High School	
Section 1: Course Overview			
<i>Course Title</i>	Advanced Algebra 3-4		
<i>Instructor Info</i>	Name: Maggie Ordaz	Contact Info: mordaz@pps.net	
<i>Grade Level(s)</i>	11		
<i>Room # for class</i>	Room: S-023		
<i>Credit</i>	Type of credit: Math	# of credits per semester: 0.5	
<i>Prerequisites (if applicable)</i>	Algebra 1-2		
<i>General Course Description</i>	This course emphasizes modeling data and problem situations with functions, specifically linear, quadratic, polynomial, exponential, rational, radical and logarithmic functions. The course also introduces students to topics which may include sequences and series, solving systems with and without matrices, complex numbers, problems in trigonometry, and some discrete topics such as probability. Students deepen their understanding of these topics as they work both individually and in groups to solve problems, apply the mathematics, and communicate their reasoning. Students will use the TI-84 graphing calculator in class to study these topics.		
Section 2: Welcome Statement & Course Connections			
<i>Personal Welcome</i>	Welcome to Advanced Algebra! I look forward to working with you this year!		



<p>Course Highlights (topics, themes, areas of study)</p>	<p><u>Unit 1: Equations and Inequalities</u> <u>Unit 2: Parent Graphs</u> <u>Unit 3: Inverses</u> <u>Unit 4: Logarithms and Exponentials</u> <u>Unit 5: Complex Numbers and Roots</u> <u>Unit 6: Polynomials</u> <u>Unit 7: Rational Expressions</u> <u>Unit 8: Trigonometric Functions</u> <u>Unit 9: Statistics</u></p>
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<p>Course Connections to PPS ReImagined Vision</p>	<p>Relationships Partnerships and Collaboration</p> <p>I will get to know my students by interacting with them every day multiple times, and I will facilitate conversations between students so they can build relationships with each other. Students will be given assignments they can work on in their groups, and they will participate in group games.</p>
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Section 3: Student Learning

<p>Prioritized Standards</p>	<p>The following standards will be explored in the course:</p> <p>MP.The Standards for Mathematical Practice describe varieties of expertise that mathematics educators at all levels should seek to develop in their students.</p> <p>MP.1. Make sense of problems and persevere in solving them. MP.2. Reason abstractly and quantitatively. MP.3. Construct viable arguments and critique the reasoning of others. MP.4. Model with mathematics. MP.5. Use appropriate tools strategically. MP.6. Attend to precision. MP.7. Look for and make use of structure. MP.8. Look for and express regularity in repeated reasoning.</p> <p><u>Unit 1: Equations and Inequalities</u></p> <p>Priority Standards: HSA.CED.A.1 Create equations and inequalities in one variable and use them to solve problems. <i>Include equations arising from linear and quadratic functions, and simple rational and exponential functions.</i> HSA.CED.A.2 Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.</p>
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Supporting Standards:

[HSA.REI.A.2](#) Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise.

[HSA.CED.A.3](#) Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or nonviable options in a modeling context. *For example, represent inequalities describing nutritional and cost constraints on combinations of different foods.*

[HSA.CED.A.4](#) Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations. *For example, rearrange Ohm's law $V = IR$ to highlight resistance R .*

Unit 2: Parent Graphs**Priority Standards:**

[HSF.IF.B.4](#) For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. *Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.**

[HSF.IF.C.7](#) Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.*

[HSF.IF.C.7.B](#) Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions.

[HSF.BF.B.3](#) Identify the effect on the graph of replacing $f(x)$ by $f(x) + k$, $k f(x)$, $f(kx)$, and $f(x + k)$ for specific values of k (both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. Include recognizing even and odd functions from their graphs and algebraic expressions for them.

[HSF.IF.B.5](#) Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes. *For example, if the function $h(n)$ gives the number of person-hours it takes to assemble n engines in a factory, then the positive integers would be an appropriate domain for the function.**

Supporting Standards:

[HSF.IF.C.8](#) Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function.

[HSA.SSE.B.3.A](#) Factor a quadratic expression to reveal the zeros of the function it defines.

[HSA.SSE.B.3.B](#) Complete the square in a quadratic expression to reveal the maximum or minimum value of the function it defines.

[HSG.GPE.A.2](#) Derive the equation of a parabola given a focus and directrix.

[HSF.BF.A.1](#) Write a function that describes a relationship between two quantities.*

Unit 3: Inverses**Priority Standards:**

[HSF.BF.B.4](#) Find inverse functions.



HSF.BF.B.4.A Solve an equation of the form $f(x) = c$ for a simple function f that has an inverse and write an expression for the inverse. *For example, $f(x) = 2x^3$ or $f(x) = (x+1)/(x-1)$ for $x \neq 1$.*

Unit 4: Logarithms and Exponentials

Priority Standards:

HSF.LE.A.4 For exponential models, express as a logarithm the solution to $ab^{ct} = d$ where a , c , and d are numbers and the base b is 2, 10, or e ; evaluate the logarithm using technology.

HSF.IF.C.7.E Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude.

Supporting Standards:

HSF.IF.B.4 For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. *Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.**

HSF.IF.C.8.B Use the properties of exponents to interpret expressions for exponential functions. For example, identify percent rate of change in functions such as $y = (1.02)^t$, $y = (0.97)^t$, $y = (1.01)12^t$, $y = (1.2)^t/10$, and classify them as representing exponential growth or decay.

HSF.BF.A.1.A Determine an explicit expression, a recursive process, or steps for calculation from a context.

HSF.BF.A.1.B Combine standard function types using arithmetic operations. *For example, build a function that models the temperature of a cooling body by adding a constant function to a decaying exponential, and relate these functions to the model.*

HSA.SSE.A.1.B Interpret complicated expressions by viewing one or more of their parts as a single entity. *For example, interpret $P(1+r)^n$ as the product of P and a factor not depending on P .*

Unit 5: Complex Numbers and Roots

Priority Standards:

HSN.CN.A.1 Know there is a complex number i such that $i^2 = -1$, and every complex number has the form $a + bi$ with a and b real.

HSN.CN.A.2 Use the relation $i^2 = -1$ and the commutative, associative, and distributive properties to add, subtract, and multiply complex numbers.

HSN.CN.C.7 Solve quadratic equations with real coefficients that have complex solutions.

Unit 6: Polynomials

Priority Standards:

HSA.APR.A.1 Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials.

HSA.APR.B.3 Identify zeros of polynomials when suitable factorizations are available, and use the zeros to construct a rough graph of the function defined by the polynomial.



HSF.IF.C.7.C Graph polynomial functions, identifying zeros when suitable factorizations are available, and showing end behavior.

Supporting Standards:

HSA.APR.B.2 Know and apply the Remainder Theorem: For a polynomial $p(x)$ and a number a , the remainder on division by $x - a$ is $p(a)$, so $p(a) = 0$ if and only if $(x - a)$ is a factor of $p(x)$.

HSA.APR.C.4 Prove polynomial identities and use them to describe numerical relationships. *For example, the polynomial identity $(x^2 + y^2)^2 = (x^2 - y^2)^2 + (2xy)^2$ can be used to generate Pythagorean triples.*

HSA.SSE.A.1 Interpret expressions that represent a quantity in terms of its context.*

HSA.SSE.A.1.A Interpret parts of an expression, such as terms, factors, and coefficients.

HSA.SSE.A.1.B Interpret complicated expressions by viewing one or more of their parts as a single entity. *For example, interpret $P(1+r)^n$ as the product of P and a factor not depending on P .*

HSF.IF.B.4 For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. *Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.**

HSF.BF.B.3 Identify the effect on the graph of replacing $f(x)$ by $f(x) + k$, $k f(x)$, $f(kx)$, and $f(x + k)$ for specific values of k (both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. Include recognizing even and odd functions from their graphs and algebraic expressions for them

Unit 7: Rational Expressions

Priority Standards:

HSA.APR.D.6 Rewrite simple rational expressions in different forms; write $\frac{a(x)}{b(x)}$ in the form $q(x) + \frac{r(x)}{b(x)}$, where $a(x)$, $b(x)$, $q(x)$, and $r(x)$ are polynomials with the degree of $r(x)$ less than the degree of $b(x)$, using inspection, long division, or, for the more complicated examples, a computer algebra system.

Supporting Standards:

HSA.SSE.A.2 Use the structure of an expression to identify ways to rewrite it. *For example, see $x^4 - y^4$ as $(x^2)^2 - (y^2)^2$, thus recognizing it as a difference of squares that can be factored as $(x^2 - y^2)(x^2 + y^2)$.*

HSA.SSE.B.3.A Factor a quadratic expression to reveal the zeros of the function it defines.

HSN.RN.B.3 Explain why the sum or product of two rational numbers is rational; that the sum of a rational number and an irrational number is irrational; and that the product of a nonzero rational number and an irrational number is irrational

Unit 8: Trigonometric Functions

Priority Standards:

HSF.TF.A.2 Explain how the unit circle in the coordinate plane enables the extension of trigonometric functions to all real numbers, interpreted as radian measures of angles traversed counterclockwise around the unit circle.



HSF.TF.B.5 Choose trigonometric functions to model periodic phenomena with specified amplitude, frequency, and midline.*

HSF.IF.C.7.E Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude.

Supporting Standards:

HSF.TF.A.1 Understand radian measure of an angle as the length of the arc on the unit circle subtended by the angle.

HSF.TF.C.8 Prove the Pythagorean identity $\sin^2(\theta) + \cos^2(\theta) = 1$ and use it to find $\sin(\theta)$, $\cos(\theta)$, or $\tan(\theta)$ given $\sin(\theta)$, $\cos(\theta)$, or $\tan(\theta)$ and the quadrant of the angle.

HSF.IF.B.4 For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. *Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.**

Unit 9: Statistics

Priority Standards:

HSS.ID.A.4 Use the mean and standard deviation of a data set to fit it to a normal distribution and to estimate population percentages. Recognize that there are data sets for which such a procedure is not appropriate. Use calculators, spreadsheets, and tables to estimate areas under the normal curve

Supporting Standards:

HSS.IC.A.1 Understand statistics as a process for making inferences about population parameters based on a random sample from that population.

HSS.IC.A.2 Decide if a specified model is consistent with results from a given data-generating process, e.g., using simulation. *For example, a model says a spinning coin falls heads up with probability 0.5. Would a result of 5 tails in a row cause you to question the model?*




HSS.IC.B.3 Recognize the purposes of and differences among sample surveys, experiments, and observational studies; explain how randomization relates to each.

HSS.IC.B.4 Use data from a sample survey to estimate a population mean or proportion; develop a margin of error through the use of simulation models for random sampling.



HSS.IC.B.5 Use data from a randomized experiment to compare two treatments; use simulations to decide if differences between parameters are significant.

HSS.IC.B.6 Evaluate reports based on data.




<p>PPS Graduate Portrait Connections</p>  <p>8/27 Work</p>	<p>I will help students grow their knowledge and skills in the following aspects of PPS's Graduate Portrait:</p> <p>Students will explore and discover for themselves math content through guided investigations. They will have opportunities to practice perseverance and resilience by working through higher level math questions. Working collaboratively, they will develop leadership skills, problem solving skills and will have the opportunity to learn from multiple perspectives.</p>
<p><i>Differentiation/ accessibility strategies and supports:</i></p>	<p>I will provide the following supports specifically for students in the following programs:</p> <p><i>Special Education: as stated on IEP</i></p> <p><i>504 Plans: as stated in 504 plan</i></p> <p><i>English Language Learners: notes, graphic organizers, vocabulary with visual representations</i></p> <p><i>Talented & Gifted: Enrichment activities and opportunities to develop leadership skills. B and A level questions on every assignment.</i></p> <p>Assessments will have clearly marked leveled questions for C-level, B-level and A-level. Students are able use their notebooks on the test. Students will have time to revise tests. Students may retake a unit test after completing a unit review.</p>
<p><i>Personalized Learning Graduation Requirements (as applicable in this course):</i></p>	<ul style="list-style-type: none"> <input type="checkbox"/> Career Related Learning Experience (CRLE) #1 <input type="checkbox"/> Career Related Learning Experience (CRLE) #2 <li style="padding-left: 40px;"><i>-The experience(s) will be:</i> <input type="checkbox"/> Complete a resume <input type="checkbox"/> Complete the My Plan Essay
 <p>8/27 Work Section 4: Cultivating Culturally Sustaining Communities</p>	
<p>Tier 1 SEL Strategies</p> <p><i>Shared Agreements</i></p> 	<p>I will facilitate the creation of our Shared Agreements that respects and celebrates each student's race, ability, language, and gender in the following way(s):</p> <p>At the beginning of the year, every student will have input on what they need from themselves, from their peers and from their teachers in order to be successful in various class activities such as work time, testing times, guided learning times, and groupwork times.</p>



	<p>I will display our Agreements in the following locations:</p> <p>On our daily Google Slides presentation. On the Canvas class page.</p> <p>My plan for ongoing feedback through year on their effectiveness is:</p> <p>Ask students at the beginning of every quarter for their feedback on the effectiveness of our shared agreements and ask them for input on changes that may need to be made.</p>
<p><i>Student's Perspective & Needs</i></p> 	<p>I will cultivate culturally sustaining relationships with students by:</p> <p>Welcoming students to class by name. Checking in with students as I stamp off their daily work. Ask students if they have any questions, comments or concerns on their daily exit ticket. Allow students a conversation time with their table group and join them every once in a while.</p> <p>Families can communicate what they know of their student's needs with me in the following ways:</p> <p>Email Remind Parent Teacher Conferences</p>
<p><i>Empowering Students</i></p> 	<p>I will celebrate student successes in the following ways:</p> <p>verbal feedback stamp system for work completion</p> <p>I will solicit student feedback on my pedagogy, policies and practices by:</p> <p>Questions, Comments or Concerns? will be included on daily exit tickets. A Google form at the end of the first semester</p>



	<p>When class agreements aren't maintained (i.e. behavior) by a student I will approach it in the following ways:</p> <p>Tell student what I need at that moment, and then ask for compliance.</p> <p>Remind student of the class agreements and use them to redirect student behavior.</p> <p>One-on-one conference.</p>
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<p><i>Showcasing Student Assets</i></p> 	<p>I will provide opportunities for students to choose to share and showcase their work by:</p> <p>Presenting warm-ups on the board.</p> <p>Ask students to show examples of their work on the board.</p> <p>Working in groups.</p> <p>Play math games that incorporate other skills as well.</p>
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Section 5: Classroom Specific Procedures

<p><i>Safety issues and requirements (if applicable):</i></p>	<p>Masks need to be worn over the nose and mouth the entire period.</p> <p>Hand sanitizer is available in the classroom.</p> <p>Disinfecting wipes are available in the classroom.</p> <p>No eating or sharing food in the classroom.</p>
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<p><i>Coming & Going from class</i></p>	<p>I understand the importance of students taking care of their needs. Please use the following guidelines when coming and going from class:</p> <p>Ask Ms. Ordaz for a hall pass.</p> <p>Sign out on the sign-out sheet.</p> <p>Sign back in once back in the classroom.</p>
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<p><i>Submitting Work</i></p>	<p>I will collect work from students in the following way:</p> <p>I will collect exit tickets as students leave the classroom.</p> <p>Tests will be collected before students leave on test days.</p> <p>Students keep their assignments and get them stamped off at the beginning of class.</p>
	<p>If a student misses a deadline, I will partner with the student in the following ways so they have the ability to</p>



	<p>demonstrate their abilities:</p> <p>Invite student to tutorial</p> <p>If tutorial doesn't work, try to set up another time they can come in to complete the work</p>
<i>Returning Your Work</i>	<p>My plan to return student work is the following:</p> <p><i>Timeline:</i> Exit tickets are returned the following class period and students are given the opportunity to ask questions on it. Tests will be returned the following class period for 10 minute test corrections.</p> <p><i>What to look for on your returned work:</i></p> <p>On exit tickets: A plus sign means the question is correct. Otherwise the first mistake made is corrected for you.</p> <p>On tests: A correct question will have a plus and then the points for that question. An incorrect question will be circled.</p> <p><i>Revision Opportunities:</i> Revisions are not offered on exit tickets because they are for feedback. A test will have a 10-minute test correction time in the following class. Beyond that, students will need stamps to continue revising (unless the student has an IEP allowing them more time to work on it - but they will need to let me know they need more time by writing it on their test).</p>
<i>Formatting Work (if applicable)</i>	<p>Directions on how to format submitted work (ex. formal papers, lab reports, etc) can be found here:</p> <p>Please use an erasable writing utensil so it is easier to make corrections.</p>
<i>Attendance</i>	<p>If a student is absent, I can help them get caught up by:</p> <p>Adding the daily Google Slides presentation on Canvas.</p> <p>Giving them copies of the assignments they missed, as well as any notes they missed when they return.</p> <p>Come to a B-day tutorial or try to set up another time before or after school to get help.</p>
<h2>Section 6: Course Resources & Materials</h2>	
<i>Materials Provided</i>	<p>I will provide the following materials to students:</p> <p>Calculators that are shared.</p> <p>Rulers, compasses, protractors as needed.</p>
<i>Materials Needed</i>	<p>Please have the following materials for this course:</p> <p>Notebook specifically for math.</p>



	<p>Pencil or erasable writing utensil. Your own calculator if you do NOT want to have to share a calculator with others.</p> <p><i>Franklin can help with any materials you may need as well. Please reach out to me privately and I will help you get what you need.</i></p>
<i>Course Resources</i>	<p>Here is a link to resources that are helpful to students during this course: Canvas link: https://lms.pps.net/courses/65650</p>
<i>Empowering Families</i>	<p>The following are resources available for families to assist and support students through the course: Khan Academy can be helpful in learning various topics: https://www.khanacademy.org/</p>
Section 7: Assessment of Progress and Achievement	
<i>Formative Assessments</i>	<p>As students move through the learning journey during specific units/topics, I will assess & communicate their <u>progress</u> in the following ways:</p> <p>Exit Tickets Stamp sheet</p>
<i>Summative Assessments</i>	<p>As we complete specific units/topics I will provide the following types of opportunities for students to provide evidence of their <u>learned</u> abilities:</p> <p>Unit Test Mid-term Test Semester Final</p>
<i>Student Role in Assessment</i>	<p>Students and I will partner to determine how they can demonstrate their abilities in the following ways:</p> <p>Group work, group games, individual exit tickets and unit tests.</p>
Section 8: Grades	



Progress Report Cards & Final Report Cards

<i>Accessing Grades</i>	<p>Students & Families can go to the following location for <u>up-to-date</u> information about their grades throughout the semester:</p> <p>Synergy ParentVue/StudentVue</p>
	<p>I will update student grades at the following frequency:</p> <p>After each unit test and then as students complete make-up tests of revisions.</p>
<i>Progress Reports</i>	<p>I will communicate the following marks on a progress report:</p> <p><i>Mark:</i> Grade of A, B C, D or F if students have taken a test already <i>Meaning of the mark:</i> A, B, C or D means passing. F means not passing.</p> <p><i>Mark:</i> Pass or No Pass if students have not taken a test already <i>Meaning of the mark:</i> Pass - student has demonstrated sufficient evidence to be passing. No Pass - student has NOT demonstrated sufficient evidence to be considered passing.</p>
<i>Final Report Card Grades</i>	<p>The following system is used to determine a student's grade at the end of the semester: 100% of the grade will be from the test scores for each learning target. The final grade is an average of the test scores.</p>
	<p>I use this system for the following reasons/each of these grade marks mean the following:</p> <p>Mark of C: Basic Understanding of the learning target Mark of B/A: Enhanced understanding of the learning target Mark of D/F: Minimal understanding of the learning target</p>
Other Needed info (if applicable)	

