Mathematics Department

Scope and Sequence

Honors Adv. Algebra 2 / Trigonometry



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| **Description:** | Students review and extend algebraic skills in handling such things as real numbers, first and higher degree polynomial equations, factoring, rational functions, functional relationships, variations, exponents, systems of equations for linear and quadratic equations, matrices, conic sections, sequences and series, binomial theorem, probability, statistics, and trigonometry. This class extends the Algebra II curriculum to include the study of right triangles, oblique triangles, trigonometric functions, and trigonometric inverse functions. This class will help students gain a deeper understanding of fundamental trig concepts, develop multiple strategies for analyzing complex situations, and acquire appropriate technological skills in order to make meaningful connections from trigonometry to life’s experiences. |
| **Book:** | Carter, John; Cuevas, Gilbert; Day, Roger; and Malloy, Carol. *Algebra 2*, Glencoe, McGraw-Hill Education, (ISBN: 9780076639908), 2014, print |
| **Prerequisites:** | * Completion of Algebra I and Geometry with excellent grades * Teacher recommendation |
| **Course Objectives:** | Upon successful completion of this course students should exhibit mastery of certain knowledge and basic skills. These skills include, but are not limited to:   * Utilize essential algebraic concepts to perform calculations on polynomial expressions. * Solve and graph linear equations/inequalities and systems of linear equations/inequalities. * Solve, graph, and interpret the solutions of quadric functions. * Manipulate rational expressions, solve rational equations, and graph rational functions. * Solve logarithmic and exponential equations. * Perform operations and matrices. Defining and finding the exact values of the six trigonometric functions. * Applying the six trigonometric functions. * Graphing the six trigonometric functions by hand. * Verifying and applying trigonometric identities. * Solving trigonometric equations. * Defining, using, and applying inverse trigonometric functions. * Defining, using, and applying the Law of Sines and Law of Cosines. |
| **Course Length:** | This is a three trimester class. |

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Honors Advanced Algebra 2 / Trigonometry



**Course Outline:**

* **Trimester 1**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Unit 1** | **Unit 2** | | **Unit 3** | **Unit 4** | | **Unit 5** | |
| **Equations and Inequalities** | **Linear Relations and Functions** | | **Systems of Equations and Inequalities** | **Quadratic Functions and Relations** | | **Polynomials and Polynomial Functions** | |
| 8 Days | 12 Days | | 13 Days | 11 Days | | 11 Days | |
|  |  | |  |  | |  | |
| HS.A-SSE  HS.A-CED | HS.F-IF  HS.F-BF | HS.A-CED  HS.A-SSE | HS.A-CED  HS.A-REI | HS.A-SSE  HS.A-CED  HS.A-REI | HS.N-CN  HS.F-IF  HS.F-BF | HS.A-APR HS.A-CED  HS.A-REI | HS.N-CN  HS.F-IF |

* **Trimester 2**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Unit 6** | | **Unit 7** | | **Unit 8** | | **Unit 9** | **Unit 12** |
| **Inverses and Radical Functions and Relations** | | **Exponential and Logarithmic Functions and Relations** | | **Rational Functions and Relations** | | **Conic Sections** | **Intro to Unit Circle** |
| 12 Days | | 16 Days | | 10 Days | | 12 Days | 4 Days |
|  | |  | |  | |  |  |
| HS.A-SSE HS.A-REI | HS.F-IF  HS.F.BF | HS.F-IF  HS.F-LE  HS.F-BF | HS.A.CED  HS.A.REI  HS.A.SSE | HS.A.APR  HS.A.CED  HS.A.REI | HS.F.BF  HS.F.IF | HS.F.IF  HS.A-CED  HS.A-REI  HS.A.SSE |  |

* **Trimester 3**

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| --- | --- | --- | --- | --- | --- | --- |
| **Unit 12** | | **Unit 13** | **Unit 10** | | **Unit 11** | |
| **Trigonometric Functions** | | **Trigonometric Identities and Equations** | **Sequences and Series** | | **Statistics and Probability** | |
| 12 (+4) Days | | 7 Days | 13 Days | | 16 Days | |
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| HS.F.IF HS.F-TF | HS.F.BF  HS.A.CED | HS.F-TF | HS.F.IF  HS.A.CED | HS.A.SSE  HS.A.APR | HS.S-ID HS.S-IC | HS.S.MD |

**Grades:**

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| Grades are calculated based on the following weighting:  Tests and Quizzes: 80%  Assignments: 20% | Trimester Grades are based on the Madison High School grade scale shown below:  A 94-100% C 73-76%  A- 90-93% C- 70-72%  B+ 87-89% D+ 67-69%  B 83-86% D 63-66%  B- 80-82% D- 60-62%  C+ 77-79% F Below 60% |