



# Course-at-a-Glance (CAG) --- Mathematics --- Advanced Algebra

First Semester	Second Semester
<p><b>Unit 1: Sequences and Series</b> (4 weeks)  <b>Approximate dates: August 29 – September 26, 2016</b></p> <p><b>1.1</b> I can move fluently among multiple representations of recursive sequences and series. (9.2.2.4)</p> <p><b>1.2</b> I can model a given situation using the recursive formula and the explicit formula. (9.2.2.4, 9.2.2.5)</p> <p><b>1.3</b> I can solve relevant real world problems using recursive sequences and series. (9.2.2.5)</p> <p><b>Unit 2: Families of Functions</b> (5 weeks)  <b>Approximate dates: September 27 – November 8, 2016</b></p> <p><b>2.1</b> I can identify and describe the important features of functions. (9.2.1.1, 9.2.1.3, 9.2.1.4, 9.2.1.6, 9.2.1.8)</p> <p><b>2.2</b> I can move fluently among the multiple representations within each function family. (9.2.1.7, 9.2.1.8, 9.2.1.9, 9.2.2.3, 9.2.2.6)</p> <p><b>2.3</b> I can model a mathematical function using the appropriate parent function. (9.2.2.1, 9.2.2.6, 9.2.4.1, 9.2.4.7, 9.2.4.8)</p> <p><b>Unit 3: Exponential, Power and Logarithm Functions</b> (4 weeks)  <b>Approximate dates: November 9 – December 9, 2016</b></p> <p><b>3.1</b> I can model an exponential, power, or logarithmic function, using multiple representations. (9.2.1.7, 9.2.2.2, 9.2.2.3, 9.2.2.6, 9.2.4.2)</p> <p><b>3.2</b> I can simplify exponential, power, and logarithmic expressions. (9.2.3.1, 9.2.3.6)</p> <p><b>3.3</b> I can solve exponential, power, and logarithmic equations. (9.2.2.2, 9.2.4.7, 9.2.4.8)</p> <p><b>Unit 4: Quadratics</b> (3 weeks)  <b>Approximate dates: December 12 – January 17, 2017</b></p> <p><b>4.1</b> I can model relevant real-world problems using quadratic equations. (9.2.4.1)</p> <p><b>4.2</b> I can move fluently among multiple representations to solve quadratic equations. (9.2.1.5, 9.2.1.6, 9.2.3.5, 9.2.4.1, 9.2.4.3)</p>	<p><b>Unit 5: Polynomials</b> (3 weeks)  <b>Approximate dates: January 18 – February 9, 2017</b></p> <p><b>5.1</b> I can move fluently among multiple representations of polynomials. (9.2.1.6, 9.2.3.1, 9.2.3.2)</p> <p><b>5.2</b> I can solve rational equations. (9.2.3.4)</p> <p><b>Unit 6: Advanced Systems of Inequalities</b> (4 weeks)  <b>Approximate dates: February 10 – March 13, 2017</b></p> <p><b>6.1</b> I can move fluently among multiple representations of inequalities involving linear, quadratic, and absolute value relationships. (9.2.4.1, 9.2.4.4)</p> <p><b>6.2</b> I can model and provide solutions for a given situation using systems of inequalities. (9.2.4.1, 9.2.4.4, 9.2.4.5, 9.2.4.6)</p> <p><b>6.3</b> I can solve and determine the optimal solution for relevant real-world linear programming problems using a system of inequalities. (9.2.4.5)</p> <p><b>OPTIONAL:</b> I can model and solve a system of equations using matrices. (not in MN standards)</p> <p><b>Unit 7: Probability</b> (3 weeks)  <b>Approximate dates: March 14 – April 14, 2017</b></p> <p><b>7.1</b> I can design and perform simulations. (9.4.3.2, 9.4.3.3, 9.4.3.4)</p> <p><b>7.2</b> I can move fluently among multiple representations of probability models. (9.4.3.1, 9.4.3.5, 9.4.3.6)</p> <p><b>7.3</b> I can solve relevant real-world problems using probability. (9.4.3.5, 9.4.3.7, 9.4.3.8, 9.4.3.9)</p> <p><b>OPTIONAL:</b> I can model and solve situations using permutations and combinations. (not in MN Standards – add 1 week to probability; subtract 1 week from MCA Review)</p> <p><b>Unit 8: MCA Review</b> This unit reviews benchmarks from previous courses.</p> <p><b>8.1</b> I can solve problems using appropriate statistical measures. (9.4.1.1, 9.4.1.2, 9.4.1.3, 9.4.1.4)</p> <p><b>8.2</b> I can use right triangle trigonometry to find a missing side or angle. (9.3.4.1, 9.3.4.2, 9.3.4.3)</p> <p><b>8.3</b> I can solve problems using geometric principles. (9.3.1.1, 9.3.1.2, 9.3.1.3, 9.3.1.4, 9.3.3.4, 9.3.4.4, 9.3.4.7)</p> <p><b>8.4</b> I can use linear algebra effectively to solve problems. (9.2.2.1)</p> <p><b>The following post-MCA units cover material that is beyond the MN State Standards. Teachers may choose the unit or units they wish to use.</b></p> <p><b>Unit A: Conic Sections</b> (good prep for Pre-Calculus)</p> <p><b>Unit B: Circle Trigonometry</b> (good for all students continuing in math)</p> <p><b>Unit C: Vectors</b> (needed in IB testing courses)</p> <p><b>Unit D: Further Statistics</b> (can be used to begin IB Studies project)</p> <p><b>Unit E: Connecting It All</b> (review of high school algebra topics stressing connections)</p>