

**CURRICULUM MAP  
FOUNDATIONS FOR COLLEGE MATH**

Week 1-3	Week 4-5	Week 6-7	Week 8-10	Week 11-12	Week 13-15	Weeks 16-18
<p><b>Patterns, Functions and Algebra</b> 11-9. Solve 3 by 3 systems of linear equations by elimination and using technology, and interpret graphically what the solution means (a point, line, plane, or no solution). 11-4. Identify the maximum and minimum points of polynomial, rational and trigonometric functions graphically and with technology.</p> <p><b>Credit – 1.0</b> <b>Prerequisites – Algebra II</b> <b>Double - Blocked</b> <b>One Semester</b></p>	<p><b>Patterns, Functions and Algebra</b> 11-8. Solve equations involving radical expressions and complex roots. <b>Measurement</b> 12-3. Apply informal concepts of successive approximation, upper and lower bounds, and limits in measurement situations; e.g., measurement of some quantities, such as volume of a cone, can be determined by sequences of increasingly accurate approximations.</p>	<p><b>Number, Number Sense and Operations</b> 11-8. Use fractional and negative exponents as optional ways of representing and finding solutions for problem situations; e.g., <math>27^{2/3} = (27^{1/3})^2 = 9</math>. <b>Data Analysis and Probability</b> 11-9. Evaluate validity of results of a study based on characteristics of the study design, including sampling method, summary statistics and data analysis techniques.</p>	<p><b>Patterns, Functions and Algebra</b> 11-3. Describe and compare the characteristics of the following families of functions: quadratics with complex roots, polynomials of any degree, logarithms, and rational functions; e.g., general shape, number of roots, domain and range, asymptotic behavior.</p>	<p><b>Data Analysis and Probability</b> 11-11. Examine statements and decisions involving risk; e.g., insurance rates and medical decisions.</p>	<p><b>Measurement</b> 11-5. Solve real world problems involving area, surface area, volume and density to a specified degree of precision. <b>Patterns, Functions and Algebra</b> 11-1. Identify and describe problem situations involving an iterative process that can be represented as a recursive function; e.g., compound interest. <b>Data Analysis and Probability</b> 12-1. Identify and use various sampling methods (voluntary response, convenience sample, random sample, stratified random sample, census) in a study. 12-6. Use theoretical or experimental probability, including simulations, to determine probabilities in real-world problem situations involving uncertainty, such as mutually exclusive events, complementary events, and conditional probability.</p>	<p><b>Geometry and Spatial Sense</b> 11-4. Use Trigonometric relationships to determine lengths and angle measures; i.e., Law of Sines and Law of Cosines. 12-3. Relate graphical and algebraic representations of lines, simple curves and conic sections.</p> <p style="text-align: right;">11/8/2005</p>

# Benchmarks

## **Mathematical Processes Standard**

**Students use mathematical processes and knowledge to solve problems. Students apply problem-solving and decision-making techniques, and communicate mathematical ideas. The benchmarks for mathematical processes articulate what students should demonstrate in problem solving, representation, communication, reasoning and connections at key points in their mathematics program. Specific grade-level indicators have not been included for the mathematical processes standard because content and processes should be interconnected at the indicator level. Therefore, mathematical processes have been embedded within the grade-level indicators for the five content standards.**

By the end of the 11-12 program:

- A. Construct algorithms for multi-step and non-routine problems.
- B. Construct logical verifications or counter-examples to test conjectures and to justify or refute algorithms and solutions to problems.
- C. Assess the adequacy and reliability of information available to solve a problem.
- D. Select and use various types of reasoning and methods of proof.
- E. Evaluate a mathematical argument and use reasoning and logic to judge its validity.
- F. Present complete and convincing arguments and justifications, using inductive and deductive reasoning, adapted to be effective for various audiences.
- G. Understand the difference between a statement that is verified by mathematical proof, such as a theorem, and one that is verified empirically using examples or data.
- H. Use formal mathematical language and notation to represent ideas, to demonstrate relationships within and among representation systems, and to formulate generalizations.
- I. Communicate mathematical ideas orally and in writing with a clear purpose and appropriate for a specific audience.
- J. Apply mathematical modeling to workplace and consumer situations, including problem formulation, identification of a mathematical model, interpretation of solution within the model, and validation to original problem situation.