



**Course Outline**  
**MAC 1140**  
**Precalculus Algebra 2010 Revision**

**General Course Information**

**Common Course Number:** MAC1140

**Course Title:** Precalculus Algebra 2010 Revision

**Prerequisite(s):** Minimum grade of C in MAC 1105 or appropriate score on an approved assessment

**Contact Hour Breakdown:** CR 3 CLASS 3 LAB 0

**Discipline:** Mathematics

**Catalog Description:** Prerequisite: Algebra preparation for the calculus sequence. Topics include a symbolical, graphical, and numerical analysis of polynomials, exponential, logarithmic, power, and rational functions; matrices, sequences, induction, binomial theorem and conic sections. Applications emphasizing connections with other disciplines and with the real world will be included. Technology tools will be utilized in addition to analytical methods. Gordon Rule course. Minimum grade of C required if MAC 1140 is used to satisfy Gordon Rule and general education requirements. Credit not given for both MAC 1140 and MAC 1132 nor for MAC 1140 and MAC 1142 nor for MAC 1140 and MAC 1147.

**Major Topics/ Concepts/ Skills/ Issues**

- Polynomial functions, equations, inequalities, and graphs
- Rational functions, equations, inequalities, and graphs
- Logarithmic and Exponential functions, equations, and graphs
- Radical functions, equations, and graphs
- Conic Sections Equations and Graphs
- Matrices and Determinants
- Sequences and Series
- Mathematical Induction
- Binomial Theorem
- Applications

**Major Learning Outcomes with Evidence, Core Competencies and Indicators**

<b>Solve equations or inequalities involving linear and nonlinear systems, polynomial, rational, exponential, logarithmic, and other algebraic functions.</b>	
<b>Corresponding Evidence of Learning</b>	
<ul style="list-style-type: none"> <li>● Student will be able to Solve systems of equations and inequalities using various methods.</li> <li>● Student will be able to Perform matrix operations.</li> <li>● Student will be able to Solve polynomial and rational inequalities graphically and algebraically.</li> <li>● Student will be able to Given an applied problem make an algebraic or graphical representation that describes the situation and solve the problem.</li> </ul>	
<b>Core Competency: Think</b>	
<b>Indicators</b>	<b>Assessments</b>
<ul style="list-style-type: none"> <li>● analyze data, ideas, patterns, principles, perspectives</li> <li>● employ the facts, formulas, procedures of the discipline</li> <li>● draw well-supported conclusions</li> </ul>	<ul style="list-style-type: none"> <li>● Classroom assessment technique</li> <li>● Group presentation</li> <li>● Knowledge recall quiz</li> <li>● Locally developed exam/objective</li> <li>● Locally developed multiple choice exam</li> <li>● Problem-solving quiz</li> </ul>

	<ul style="list-style-type: none"> <li>● Problem-solving quiz</li> <li>● Project</li> </ul>
<b>Core Competency: Communicate</b>	
<b>Indicators</b>	<b>Assessments</b>
<ul style="list-style-type: none"> <li>● employ methods of communication appropriate to your audience and purpose</li> </ul>	<ul style="list-style-type: none"> <li>● Classroom assessment technique</li> <li>● Group presentation</li> <li>● Knowledge recall quiz</li> <li>● Locally developed exam/objective</li> <li>● Locally developed multiple choice exam</li> <li>● Problem-solving quiz</li> <li>● Project</li> </ul>
<b>Core Competency: Act</b>	
<b>Indicators</b>	<b>Assessments</b>
<ul style="list-style-type: none"> <li>● apply disciplinary knowledge, skills, and values to educational and career goals</li> <li>● implement effective problem-solving, decision-making, and goal-setting strategies</li> </ul>	<ul style="list-style-type: none"> <li>● Classroom assessment technique</li> <li>● Group presentation</li> <li>● Knowledge recall quiz</li> <li>● Locally developed exam/objective</li> <li>● Locally developed multiple choice exam</li> <li>● Problem-solving quiz</li> <li>● Project</li> </ul>
<b>Demonstrate an understanding of conic sections, families of functions (polynomial, rational, radical, exponential, and logarithmic), and piecewise defined functions both algebraically and graphically.</b>	
<b>Corresponding Evidence of Learning</b>	
<ul style="list-style-type: none"> <li>● Student will be able to Given the equation of a conic be able to graph it.</li> <li>● Student will be able to Convert general form of a conic section to standard form.</li> <li>● Student will be able to Graph polynomials using rational zeros, end behavior, turning points, etc.</li> <li>● Student will be able to Graph rational functions using asymptotes, intercepts, etc.</li> <li>● Student will be able to Graph any function using transformations.</li> <li>● Student will be able to Given the equation of a piecewise function be able to graph it.</li> <li>● Student will be able to Given a graph find an appropriate equation to represent it.</li> </ul>	
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<b>Demonstrate an understanding of sequences and series.</b>	

**Corresponding Evidence of Learning**

- Student will be able to Use the definition of sequence/series to generate terms or given terms find the formula for the nth general term
- Student will be able to Find the sum of a series.

**Core Competency: Think**

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[College Curriculum Committee Website](#)

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 Orlando, Florida  
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