<table>
<thead>
<tr>
<th>Course Prefix &amp; No.:</th>
<th>MATH &amp;142</th>
<th>Title:</th>
<th>Precalculus II</th>
<th>Credits:</th>
<th>5</th>
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</thead>
<tbody>
<tr>
<td>Division:</td>
<td>Science &amp; Math</td>
<td>Program/Department:</td>
<td>Mathematics</td>
<td></td>
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<td>Maximum Class Size:</td>
<td>32</td>
<td>Course length:</td>
<td>11 weeks</td>
<td>Prerequisite(s):</td>
<td>MATH&amp;141 with 2.2 or better in the last three years, or two years of high school algebra and placement exam (in the last three years).</td>
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<td>Total Contact Hours:</td>
<td>55</td>
<td>Lecture:</td>
<td>55 (11 h. = 1 cr.)</td>
<td>Lab: (supervised; 22 hrs.=1 cr.)</td>
<td>Clinical:</td>
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<td>Course Description</td>
<td>A study of trigonometry, analytic geometry in two dimensions, and related algebra topics necessary for the calculus. Topics to include right triangle trigonometry, circular functions, vectors, parametric equations and conics in rectangular coordinates. Other topics to be included by instructor.</td>
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<td>Learning Outcomes</td>
<td>As a result of taking this course, students will be able to:</td>
<td>• Analyze and classify angles, convert between degree and radian measures</td>
<td>• Define, apply, and find the exact values (for common angles) of the six trigonometric functions.</td>
<td>• Graph the six trigonometric functions by hand, analyze and write equations of simple harmonic motion.</td>
<td>• Verify and apply trigonometric identities and solve trigonometric equations.</td>
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<td>Program/Degree Outcomes</td>
<td>This course addresses the following program or degree outcomes:</td>
<td>• Develop and use skills in critical thinking, quantitative analysis</td>
<td>• Develop and use skills for in-person interactions with individuals and within groups.</td>
<td>• Use methods and modes of inquiry specific to mathematics</td>
<td>• Demonstrate effective oral and written communication, teamwork and collaboration in mathematical settings</td>
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This course covers the following topics:

- **Trigonometric Functions of Angles and Real Numbers**
- **Graphs of the Six Trigonometric Functions**
- **Trigonometric Identities and Equations**
- **Verification of Fundamental Trigonometric Identities**
- **Inverse Trigonometric Functions**
- **Trigonometric Equations**
- **Applications of Trigonometry, the Law of Sines and Cosines**
- **Vectors**
- **Conic Sections: Parabolas, Ellipses, and Hyperbolas**
- **Introduction to Polar Coordinates, Polar Graphs, Conics**
- **Parametric Equations**
- **Optional: Trigonometric Form of Complex Numbers**
- **Optional: De Moivre’s Theorem**

**Distribution Area**: None of the above/Elective

**Additional Information**

Use graphing calculator and/or computer to visualize trigonometric curves, explore mathematical concepts, and verify their work as well as use numerical, graphical, symbolic, and verbal representations of function to solve problems and communicate with others.

**CAC Use Only Special Designation(s)**

- QSR
- IS
- C
- GS
- US
- None

**Outline Prepared by**: Tesfaye Terefe, Mimi Aregaye, and John Knudson

**Date**: April 25, 2011