Number of Course: Math 111

Catalog Description: Topics examined in this course include equations and inequalities in one variable, a careful treatment of the function concept, and an examination of the properties and applications of several important families of functions: polynomial, rational, exponential and logarithmic.

Credit Hours: Four

Instructor: John Thurber
e-mail: jthurber@eou.edu

Text: Precalculus, Mathematics for Calculus, 6e, by Stewart, Redlin, and Watson

Expanded Outline

This course will be an introduction to several of the families of functions generally studied in calculus and mathematical applications. Throughout, the emphasis will be on the concept of function, the notion of variables, and the language of algebra which allows for routine manipulation of complex expressions. We will also emphasize the interpretation of algebraic expressions in natural language (English) terms.

Learning Outcomes: By the end of the term, the successful student will be able to:

1. identify important and useful properties of several classes of functions — including polynomial, rational, piecewise, power (including radicals), exponential, and logarithmic functions
2. solve inequalities involving absolute value, rational, and radical expressions, representing solutions via both inequality and interval notations
3. demonstrate facility in moving back and forth between symbolic (algebraic) and graphical representations of functions
4. identify and discuss elementary graphical features of functions and equations such as intercepts, vertices, domains, vertical and/or horizontal asymptotes, one-to-one, end behavior
5. identify roots of polynomial functions via different techniques: completing the square (quadatics), factoring, polynomial long division, application of rational zeros theorem, analysis of graphs
6. demonstrate facility with graphical transformations including shifts, reflections, and dilations, and their relation to corresponding equations
7. determine whether a given function has an inverse, find and graph the inverse function when it exists
8. solve application problems by choosing an appropriate function or equation to model a given situation, and solving for appropriate values of the function.

Course Requirements: In order to receive a grade, the student must complete all exams. In addition the student is expected to attend class regularly, participate in discussion, and complete all quizzes and assignments. A portion of the work in this course may consist of small group projects and activities.

Calculator Policy: As this course has an emphasis on reading, understanding, and translating the symbolic language of algebra, graphing calculators are not permitted on exams. Scientific calculators such as the TI-30 series, or the Casio FX-300, etc, are permitted.
Grading
Course grades will be determined by your total number of points based on the following distribution:

<table>
<thead>
<tr>
<th>Component</th>
<th>Points</th>
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</thead>
<tbody>
<tr>
<td>3 one-hour exams</td>
<td>300</td>
</tr>
<tr>
<td>quizzes/assignments</td>
<td>100</td>
</tr>
<tr>
<td>comprehensive final exam</td>
<td>100</td>
</tr>
<tr>
<td>total</td>
<td>500</td>
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</tbody>
</table>

**Academic Integrity:** Eastern Oregon University places a high value upon the integrity of its student scholars. Any student found guilty of an act of academic misconduct (including, but not limited to, cheating, plagiarism, or theft of an examination or supplies) may be subject to having his or her grade reduced in the course in question, being placed on probation or suspended from the university, or being expelled from the university—or a combination of these. (Please see the Academic Honesty Code and the Student Conduct Policy in the online Student Handbook, chapter on Campus Citizenship, http://www.eou.edu/saffairs/handbook/honest.html http://www.eou.edu/saffairs/handbook/condct.htm)

**Disability Services:** If you have a documented disability or suspect that you have a learning problem and need accommodations, please contact the Disability Services Office in Loso 234. Phone: 962-3081.

Syllabus prepared by John Thurber

August 25, 2014