Math 105 - Instructional Objectives and Student Learning Outcomes

The goals of this course are to introduce students to the very broad nature of mathematics, examine its role in society, and emphasize critical thinking through problem solving.

<table>
<thead>
<tr>
<th>Instructional Objective</th>
<th>Corresponding Learning Outcomes</th>
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<tbody>
<tr>
<td>Students enrolled in this class will:</td>
<td>Students who successfully complete this course will be able to:</td>
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| 1. Learn critical thinking skills | a. Distinguish between inductive and deductive reasoning  
   b. Use estimation to simplify calculations  
   c. Solve applications using algebra |
| 2. Learn set theory | a. Read and write sets using different notations  
   b. Identify subsets, universal and empty sets  
   c. Illustrate sets, subsets, unions, and intersections using Venn diagrams  
   d. Perform set operations  
   e. Identify infinite sets  
   f. Solve applications using sets and Venn diagrams |
| 3. Learn sequences and series | a. Find a specified term in arithmetic, geometric, and Fibonacci sequences  
   b. Calculate the sum of arithmetic and geometric sequences |
| 4. Learn probability theory | a. Distinguish between empirical and theoretical probability  
   b. Calculate the probability of a specified event  
   c. Find compound, conditional and binomial probability  
   d. Identify and find probability of mutually exclusive and independent events  
   e. Apply counting techniques  
   f. Determine odds and expected value  
   g. Solve applications involving probability |
| 5. Learn basic statistics | a. Apply sampling techniques  
   b. Identify misuses of statistics  
   c. Find the measures of central tendency  
   d. Find the measures of dispersion  
   e. Use the normal distribution to calculate probabilities |
| 6. Learn consumer mathematics | a. Calculate simple and compound interest  
   b. Calculate payments for installment buying  
   c. Find monthly payments when obtaining loans  
   d. Solve applications |

Adopted 11/9/11