DEPT. MATH       COURSE NUMBER: 1107

NUMBER OF CREDITS: 3       Lecture: 3       Lab:______

Course Title:
Concepts in Math

Catalog Description:
Covers topics from various areas of mathematics showing the scope and power of mathematics and emphasizing the mathematical method. This course is for students who are not mathematics majors and who wish to acquire a basic understanding of mathematics and apply it to a specific area of study.

FULFILLS MN TRANSFER CURRICULUM AREA(S)

Goal 4: Mathematics/Logical Reasoning: __4__ by meeting the following competencies:

Students will be able to:

1. illustrate historical and contemporary applications of mathematical/logical systems.
2. clearly express mathematical/logical ideas in writing.
3. explain what constitutes a valid mathematical/logical argument (proof).
4. apply higher-order problem-solving and/or modeling strategies.

Prerequisites or Necessary Entry Skills/Knowledge:
Placement by Multiple Measures Grid or Co-Req Math 0117

Topics to be Covered (General)

Basic Number Theory and the Real Number System
Algebraic Models: Linear, Quadratic, Exponential and Proportions
Systems of Linear Equations and Inequalities
Geometry: Lines, Angles, Circles, Polygons, Perimeter, Area, Volume, Surface Area, Dimensional Analysis, Symmetry and Tessellations
Right Triangle Trigonometry, Laws of Sines and Cosines
### Student Learning Outcomes

1. Represent mathematical patterns by applying mathematical models  
   A. Distinguish correct solutions through substitution  
   B. Solve for unknown quantities by applying algebraic rules  
   C. Interpret and explain results  

2. Interpret data through organization and analysis of practical mathematical problems  
   A. Organize data using graphs and tables  
   B. Summarize data by calculating measures of center, variation and relative standing  
   C. Relate data to a normal or probability distribution  

3. Select the correct mathematical methods to solve problems  
   A. Represent problems using analytic, graphical, verbal and numeric techniques  
   B. Select the correct technique from algebraic and geometric methods to analyze a problem  
   C. Defend their choice of mathematical models  

4. Apply inductive and deductive reasoning to solve mathematical problems  
   A. Construct a logical approach to problem solving  
   B. Expand specific mathematical techniques to generalized problems  
   C. Justify the approach used for problem solving  

5. Solve program-specific application problems using a variety of mathematical techniques  
   A. Identify the correct methods to use for program-specific application problems  
   B. Formulate the correct steps for solving the problems  
   C. Summarize the process and solution to the problems  

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**Is this course part of a transfer pathway:** Yes ☐ No ☒  
*If yes, please list the competencies below*

Revised 1/20