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Course Outcomes Guide (COG)

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Directions: Please complete this form to document your progress toward improving student learning. For each item, indicate your progress and your anticipated next steps. Thank you!

Course Title: MAT 107 Fundamentals of Mathematics I   **Date:** 8/24/12

Course Team: Joseph Mason

Expected Learning Outcomes

The student will:
- ✓ have the mathematical skills necessary to pass the mathematics portion of the Praxis examination.
- ✓ have a conceptual understanding of various topics taught in mathematics.
- ✓ have a repertoire of mathematical teaching techniques and ideas to introduce to future students.
- ✓ have an understanding of how to use manipulatives and technology in the classroom.
- ✓ know how manipulatives and technology can enhance and facilitate mathematical understanding.
- ✓ know when it is appropriate to use manipulatives and technology.
- ✓ have an understanding of how to incorporate and use group work in a problem-solving environment.

The student will be able to:
- ✓ represent numbers, relationships among numbers, and number systems in a variety of ways using physical materials, drawings, and symbols.
- ✓ identify multiple interpretations of operations and describe the relationships between operations.
- ✓ develop and use a variety of strategies to determine the results of computations and estimations, using whole numbers, fractions, and decimals.
- ✓ represent, analyze, and generalize a variety of patterns with physical materials, tables, graphs, words, and symbolic rules.
- ✓ use and compare different forms of representation for relationships and functions.
- ✓ model and solve problem situations using various representations such as graphs, tables, and equations.
- ✓ identify multiple problem solving strategies and select and use the most appropriate strategy for a given problem.
- ✓ demonstrate persistence when solving challenging problems.
- ✓ note patterns, structure, or regularities in both real-world situations and symbolic objects.
- ✓ demonstrate a repertoire of reasoning types such as algebraic, proportional, and deductive.
- ✓ draw, diagram, manipulate objects, verbally explain, write and use mathematical symbols to present methods for solving problems.
- ✓ justify mathematical reasoning and procedures in a variety of ways.
- ✓ recognize and use connections among different mathematical ideas.
- ✓ select, apply, and translate among mathematical representations to solve problems.

Assessment

Student achievement of outcomes will be assessed through classroom discussions, activities involving manipulatives, common exams, a common final, Praxis Exam scores, and feedback from students.

Validation

Results of the Praxis Exam and feedback from students on their experience with the Praxis Exam will be used to validate assessment.

Results

Praxis scores indicate that our students are getting a higher percent of questions correct in all four math categories on the math portion then other state institutions and on the national level. The percent correct in each of the four math categories has been increasing over the past several years while state and national percentages have remained nearly the same.

Follow-up

Information from the Yearly Institutional Summary Report is used to study the strengths and weakness of our students and thus modify course content. Student exam results have been used to evaluate understanding of material by students. Student feedback has been used by the instructor to self-evaluate his teaching and improve the quality of the course. Textbook has been changed and course content has been modified.

Budget Justification

Materials and manipulatives needed to keep current with the present education trends.