Math Competency Requirement

It is the goal that all graduates of NMU will possess a basic level of quantitative literacy. Quantitative literacy is a “habit of mind” competency and a comfort working with numerical data. Individuals with strong quantitative literacy skills possess the ability to reason and solve quantitative problems from a wide array of authentic contexts and everyday life situation. They understand and can create sophisticated arguments supported by quantitative evidence and they can clearly communicate those arguments in a variety of formats (using words, tables, graphs, mathematical equations, etc., as appropriate (Association of American Colleges and Universities).

Criteria for Quantitative-Oriented Courses to Meet Math Competency Requirement

Courses should spend majority (>80%) of the content/time on concepts and ideas that qualify as building quantitative literacy. Courses should have well-articulated student learning outcomes that demonstrate a diversity and depth of concepts and topics that build quantitative literacy.

Math competency courses must develop the following quantitative literacy components in students:
1. **Interpretation**: Ability to explain information presented in mathematical forms (e.g., equations, graphs, diagrams, tables, words).
2. **Representation**: Ability to convert relevant information into various mathematical forms (e.g., equations, graphs, diagrams, tables, words).
3. **Calculation**: Ability to accurately perform arithmetic, algebraic, geometric, etc. calculations.
4. **Application/Analysis**: Ability to make judgments and draw appropriate conclusions based on the quantitative analysis of data, while recognizing the limits of this analysis.
5. **Assumptions**: Ability to make and evaluate important assumptions in estimation, modeling, and data analysis.
6. **Communication**: Expressing quantitative evidence in support of the argument or purpose of the work (in terms of what evidence is used and how it is formatted, presented, and contextualized.)

Mathematics Competency Course Rubric

Departments will complete the Mathematics Competency Student Learning Outcomes Analysis (sheet 1 on Math Competency Rubric), then submit the syllabus and analysis for approval to the Department of Mathematics and Computer Science. Courses submitted for approval must meet the minimum requirements given below. The Mathematics and Computer Science Department will use the syllabus and completed SLO Analysis to determine qualification as a Mathematics Competency Course. Notice at the bottom of the spreadsheet there are three sheets: 1. Student learning outcomes analysis, 2. Rubric, 3. Definitions. Departments submitting courses for approval must complete the first sheet, including comments for each row. See the sample MA101 Math Competency SLO Analysis and Quantitative Literacy Value Rubric.

Minimum requirements:
1. The syllabus must include at 15 to 30 clearly written student learning outcomes.
2. At least 80% of the student learning outcomes must be devoted to developing quantitative literacy.
3. At least 80% of the course time must be developing quantitative literacy.