Course: MLCS 0099 – Mathematics Literacy for College Students
Semester: Fall 2013
Instructor: Thomas Hartfield
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Office Hours: Monday & Wednesday 10:00 – 11:00 am, 2:30 – 3:15 pm
Tuesday & Thursday 9:00 – 10:00 am, 1:15 – 2:00 pm
Friday 10:00 – 11:00 am
Withdrawal Deadline: Monday, October 14, 2013
Final Exam: Tuesday, December 10, 2013 at 10:20am
Course Description:
• This course integrates numeracy, proportional reasoning, algebraic reasoning and understanding of functions. Students will develop conceptual and procedural tools that support the use the key mathematical concepts in a variety of contexts.
• This course prepares students requiring Learning Support Math for MATH 1001 (Quantitative Skills and Reasoning.) or MATH 1101 (Mathematical Modeling.)
• MLCS 0099 is not intended to prepare students for MATH 1111. Students needing MATH 1111 should enroll in MATH 0097 or MATH 0099 as placement tests indicate.
• MLCS 0099 is a four hour course with no pre-requisites. READ 0099 is co-requisite if required by placement.
• MLCS 0099 provides institutional credit only. A grade of C or higher is required in MLCS 0099 in order for the student to proceed to MATH 1001 or MATH 1101.
• Students are advised to enroll in MATH 1001 or Math 1101 in the next semester after passing MLCS 0099.
• Should the student change to a major requiring MATH 1111, the student must satisfy the requirements to enter that course (Compass Test) and enter the regular College Algebra sequence at the appropriate place.
• Students failing to complete their Learning Support (LS) Math courses in three semesters face suspension from University System Schools. Semesters in MLCS 0099 count as attempts in LS math just as do semesters in MATH 0097 or MATH 0099.
Course Objectives: After completion of the course the student will:

- **NUMERACY GOAL:** Develop and apply the concepts of numeracy to investigate and describe quantitative relationships and solve problems in a variety of contexts. Students will:
  - Demonstrate operation sense and communicate verbally and symbolically the effects of common operations on numbers.
  - Demonstrate competency in using and an understanding of magnitude in the context of place values, fractions, and numbers written in scientific notation.
  - Use estimation skills, knowing how and when to estimate results, solve problems, detect errors, and check accuracy.
  - Apply quantitative reasoning to solve problems involving quantities or rates
  - Demonstrate measurement sense.
  - Demonstrate an understanding of the mathematical properties and uses of different types of mathematical summaries of data, such as, measures of central tendency, and mathematical models.
  - Read, interpret, and make decisions based upon data from graphical displays, such as line graphs, bar graphs, scatterplots, and histograms.

- **PROPORTIONAL REASONING GOAL:** Represent proportional relationships and solve problems that require an understanding of ratios, rates, proportions, and scaling. Students will:
  - Recognize proportional relationships from verbal and numeric representations.
  - Compare proportional relationships represented in different ways.
  - Apply quantitative reasoning strategies to solve real-world problems with proportional relationships based on an understanding that derived quantities may be described with whole numbers, fractions, or decimals, or a combinations of these, and that to fully explain these relationships, units must be used.

- **ALGEBRAIC REASONING GOAL:** Reason using the language and structure of algebra to investigate, represent, and solve problems. Students will:
  - Understand various uses of variables to represent quantities or attributes.
  - Describe the effect that a change in the value of one variable has on the value(s) of other variables in the algebraic relationship.
  - Construct and use equations or inequalities to represent relationships involving one or more unknown or variable quantities to solve problems.

- **FUNCTIONS GOAL:** Represent relationships between quantities in multiple ways and solve problems that require an understanding of functions. Students will:
  - Translate problems from a variety of contexts into a mathematical representation and vice versa. *Representations will include linear, exponential, and an introduction to squaring functions.*
  - Describe the behavior of common types of functions using words, algebraic symbols, graphs, and tables.
  - Identify when a linear model or trend is reasonable for given data; when a linear model does not appear to be reasonable, know how to explore the applicability of other models.
  - Identify important characteristics of functions in various representations.
  - Use appropriate terms and units to describe rate of change.
  - Understand that abstract mathematical models used to characterize real-world scenarios or physical relationships are not always exact and may be subject to error from many sources, including variability.
Texts & Materials:

1. Texts:
   - Quantway™ I Materials (from Carnegie Foundation)
     (These course materials were originally created by The Charles A. Dana Center at The University of Texas at Austin under sponsorship of the Carnegie Foundation for the Advancement of Teaching. The current version and any subsequent versions, result from the continuous improvement efforts of the Carnegie Networked Improvement Community, of which UNG (formerly GSC) is a legacy member.)
   - Course Lessons from Quantway™ will be provided by the instructor via shared class files or eLearning. Each student is responsible for printing the lessons and having them in class on the day the lesson are covered.
   - A 3 ring binder with dividers is needed to collect the lessons.
   - A scientific calculator
   - Online homework tool MyQuantway: www.myquantway.org

2. Supplementary/optional Texts:
   - *Math Lit: A Path to College Readiness*; Kathleen Almy, Heather Foes (Pearson 2013)

3. Library Resources:

4. Web-based Resources:
   - MyQuantway: www.myquantway.org
   - Texas Instruments - http://www.education.ti.com
   - SOS Mathematics - http://www.sosmath.com/

5. Technology Resources:
   - Scientific Calculator
   - Excel Spreadsheet Program
   - Geogebra.org

Methods of Instruction: Will include, but are not limited to: lecture, discovery learning, group assignments, and computer based explorations. Approaches will be based on the topic and skills involved. Scaffolding and lecture are used in the MLCS 0099 setting only to the point necessary for the students to engage the problems on their own. Students will be encouraged to assess and monitor their own problem-solving process to determine when an error has been made or a new strategy should be used.
Evaluation Methods: Formative assessment will be in the form of four written tests supplemented by online homework and daily activities and summative assessment will be in the form of a final examination.

Final Grades: The semester average will be determined by the average of eight scores comprised as follows: the four test grades, the MyQuantway homework average, the notebook and participation average, and the final exam counting twice.

Makeup Policy: No makeups will be permitted. Students will replace a missed test grade using those questions on the final exam pertaining to an individual module.

Supplemental Syllabus: Additional information is provided at http://ung.edu/academic-affairs/policies-and-guidelines/supplemental-syllabus.php covering the following topics: Academic Success Plan Program, Students with Disabilities, Academic Integrity Policy, Disruptive Behavior Policy, Class Evaluations, Academic Exchange, Inclement Weather, & Course Grades and Withdrawal Process