

**Clackamas Community College**  
Online Course/Outline Submission System

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**Section #1 General Course Information****Department:** Mathematics**Submitter**

First Name: Bruce

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Email: bruces

**Course Prefix and Number:** MTH - 098**# Credits:** 5**Contact hours**

Lecture (# of hours): 55

Lec/lab (# of hours): 0

Lab (# of hours): 0

Total course hours: 55

For each credit, the student will be expected to spend, on average, 3 hours per week in combination of in-class and out-of-class activity.

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**Course Title:** College Math Foundations**Course Description:**

Students in this course will solve realistic problems in order to improve their critical-thinking abilities, number sense, and estimation skills. The course covers such topics as proportional reasoning, creating and analyzing visual representations in mathematics and statistics, problem-solving strategies, properties of numerical operations, linear functions, and calculator computations. Emphasis will be placed on relevance, context, and technical communication, including written descriptions of concepts and procedures.

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**Type of Course:** Developmental Education**Reason for the new course:**

An alternate pathway to Math 105

**Can this course be repeated for credit in a degree?****No**

Are there prerequisites to this course?

**Yes**

**Pre-reqs:** Pass MTH-020 with a C or better or placement in MTH-050, MTH-060, or MTH-098 or instructor consent

**Have you consulted with the appropriate chair if the pre-req is in another program?**

**No**

Are there corequisites to this course?

**No**

Are there any requirements or recommendations for students taken this course?

**No**

Will this class use library resources?

**Yes**

**Have you talked with a librarian regarding that impact?**

**No**

Is there any other potential impact on another department?

**No**

Does this course belong on the Related Instruction list?

**Yes**

**Area:** Computation

**GRADING METHOD:**

A-F or Pass/No Pass

**Audit: Yes**

When do you plan to offer this course?

- Summer**
- Fall**
- Winter**
- Spring**

Will this course appear in the college catalog?

**Yes**

Will this course appear in the schedule?

**Yes**

**Student Learning Outcomes:**

Upon successful completion of this course, students should be able to:

1. utilize problem-solving techniques to engage problems without being provided with a template,
2. collaborate effectively within a group to communicate mathematics,
3. read and interpret mathematical information,
4. communicate mathematical information in lay-language,
5. determine solutions to realistic problems using ratios and scaling, basic algebra, dimensional analysis, and a variety of different graphic displays.

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***This course does not include assessable General Education outcomes.***

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**Major Topic Outline:**

1. Focus Problem: A medical error in calculating liquid medicine dosage  
Problem-solving strategies and techniques. Effective group dynamics. Venn diagrams, the Cartesian plane, and other visual displays of information. Fraction review. Rounding versus truncating. Ratios, rates, scaling, and equivalent units. Unit conversions. Number sets. Concept of a function. Percents and percent change. Equations, expressions, and variables. Inequality notation. Independent and dependent variables. Linear versus exponential growth. Concept of slope. Assessing the medical error in the focus problem.
2. Focus Problem: Baseball Standings and “Magic Numbers”  
Atoms, ions, and other models for signed integers. Geometric formulas with units as applications of exponent rules. Like terms. Order of operations. Commutative, associative, and distributive properties. Sigma notation and sums. Pythagorean formula. Slope and scaling revisited. Pendulums and the pendulum formula. Calculator evaluation of other formulas from science and statistics. Calculating and interpreting “magic numbers” in baseball standings.
3. Focus Problem: Comparing pricing plans for e-readers  
Means, weighted means, and measures of center. Geometric interpretations of measures of center. Solving multi-step equations with pictures and algebra. Comparing gasoline pricing plans algebraically and graphically. Dimensional analysis and unit conversions. Determining the amount of time worked to pay for a tank of gas. Deciding when algebra is useful and when it is not needed. Resolve the focus problem about e-reader pricing plans.
4. Focus Problem: How can the national debt be visualized and understood?  
Dimensional analysis and unit conversions. Scientific notation. Pareto charts. Solving scaling and proportion problems algebraically. Apportionment. Linear models in chemistry. Developing temperature formulas. Size and scale. Finding ways to visualize the national debt.

**Does the content of this class relate to job skills in any of the following areas:**

- |                                      |           |
|--------------------------------------|-----------|
| 1. Increased energy efficiency       | <b>No</b> |
| 2. Produce renewable energy          | <b>No</b> |
| 3. Prevent environmental degradation | <b>No</b> |
| 4. Clean up natural environment      | <b>No</b> |
| 5. Supports green services           | <b>No</b> |

Percent of course: 0%

**First term to be offered:**

**Specify term:** Spring 2015

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