

Columbus State Community College
Division: Arts and Sciences
Department: Mathematics



COURSE NUMBER: MATH 1109

COURSE TITLE: Math for Emergency Services

INSTRUCTOR:

CONTACT:

CREDITS: 3

CLASS/CONTACT HOURS PER WEEK: 4 (2 Lecture, 2 Lab)

PREREQUISITES: DEV0145 (Reading) with a C or better, and MATH 1025 with a C or better.

DESCRIPTION OF COURSE This college level mathematics course is designed for students seeking degrees in Fire Science or Emergency Medical Services. Topics include: development, interpretation, and use of graphical, tabular, and formulaic relations; rates; geometry of shapes; statistics; and mathematical modeling. All topics are delivered in the context of Fire Science (FS) and Emergency Medical Services (EMS). This course focuses on building problem solving and critical thinking skills. Excel labs are included to support and extend the course topics. Just-in-time mathematics remediation is provided to support student success. This course fulfills the mathematics requirement for designated AAS degree programs at CSCC. Transfer credit is not guaranteed.

COURSE STUDENT LEARNING OUTCOMES

Unit 1: Rates Just-in-time: Customary and Metric Units of Measure, Measuring tools, Calculator basics Lesson A: Understanding Rates Lesson B: Untidy Rates Lesson C: Equality and Rates

Unit 2: Geometry Just-in-time: Investigating pi Lesson D: 2D Measurements Lesson E: 3D Measurements Lesson F: Dimensions

Unit 3: Triangles Just-in-time: Protractor Lesson G: Angles Lesson H: Triangles Lesson I: More Rates

Unit 4: Functions Just-in-time: Arithmetic skills, order of operations Lesson J: Function notation Lesson K: Graphs Lesson L: Formulas Lesson M: Multivariable functions Lesson N: Multivariable tables Lesson O: Multivariable graphs Lesson P: Arithmetic and composition Lesson Q: Piecewise defined functions Lesson R: Analysis

Unit 5: Statistics Lesson S: Statistics Terminology Lesson T: Graphs Lesson U: Descriptive Statistics Lesson V: Regression Analysis

OUTCOMES BASED ASSESSMENT OF STUDENT LEARNING

This course addresses the following Columbus State general education goals:

- ILG #1 Critical Thinking
- ILG #3 Quantitative Skills

In class students are assessed on their achievement of these outcomes. Names will not be used when reporting results. Outcomes-based assessment is used to improve instructional planning and design and the quality of student learning throughout the college.

COURSE MATERIALS REQUIRED

- Computer and Internet Access
- At minimum a four-function calculator. Calculators with a computer algebra system (CAS) are not permitted on assessments.
- A protractor

TEXTBOOK(S), MANUALS, REFERENCES, AND OTHER READINGS

- All materials provided in the Blackboard course

GENERAL INSTRUCTIONAL METHODS

Online lessons, videos, notes, quizzes, reviews, exercises, tests, and Excel labs

STANDARDS AND METHODS FOR EVALUATION

The grades will be determined by the total number of points accumulated at the end of the semester. There will be a total of 1000 possible points given as follows:

Tests.....	540 points (3 tests x 180 points each)
Excel Labs.....	100 points (10 labs x 10 points each)
Paper Homework Assignments.....	168 points (21 assignments x 8 points each)
Quizzes.....	190 points (19 of the top 21 quiz scores x 10 points each)
Intro to Scanning Activity.....	2 points
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Total.....	1000 points

GRADING SCALE

A standard 90%-80%-70%-60% scale is used.

SPECIAL COURSE REQUIREMENTS

Other than the materials listed above, there are no special course requirements.

ATTENDANCE POLICY

Regular attendance to the course is required. Each lesson is based on previous work, so missing material can make later material very challenging.

COLLEGE SYLLABUS STATEMENTS

Columbus State Community College required College Syllabus Statements on College Policies and Student Support Services can be found at www.csc.edu/syllabus or on the College website Quick Links "Syllabus Statements".

WEATHER RELATED DEPARTMENT SPECIFIC POLICY

If not covered by College Policy, relative to clinical, practicum, of other missed time due to weather related college closings.

UNITS OF INSTRUCTION

Week 1

- Unit of Instruction: Lesson A and Lesson B
- Learning Objectives/Goals: Critical Thinking, Quantitative Skills & Communication Competence

- Assignment: Scanning Practice, Paper Homework A, Paper Homework B
- Assessment Methods: Group Activities/Labs, Homework Completion

Week 2

- Unit of Instruction: Lesson C and Lesson D
- Learning Objectives/Goals: Critical Thinking, Quantitative Skills & Communication Competence
- Assignment: Lab 1, Paper Homework C, Paper Homework D, Quiz A, Quiz B
- Assessment Methods: Group Activities/Labs, Homework Completion, Quiz Completion

Week 3

- Unit of Instruction: Lesson E and Lesson F
- Learning Objectives/Goals: Critical Thinking, Quantitative Skills & Communication Competence
- Assignment: Lab 2, Paper Homework E, Paper Homework F, Quiz C, Quiz D
- Assessment Methods: Group Activities/Labs, Homework Completion, Quiz Completion

Week 4

- Unit of Instruction: Lesson G and Lesson H
- Learning Objectives/Goals: Critical Thinking, Quantitative Skills & Communication Competence
- Assignment: Paper Homework G, Paper Homework H, Quiz E, Quiz F
- Assessment Methods: Group Activities/Labs, Homework Completion, Quiz Completion

Week 5

- Unit of Instruction: None
- Learning Objectives/Goals: Critical Thinking, Quantitative Skills & Communication Competence
- Assignment: Lab 3, Quiz G, Quiz H
- Assessment Methods: Group Activities/Labs, Quiz Completion

Week 6

- Unit of Instruction: Lesson G and Lesson H
- Learning Objectives/Goals: Critical Thinking, Quantitative Skills & Communication Competence
- Assignment: Test 1 (Lessons A – H)
- Assessment Methods: Test 1

Week 7

- Unit of Instruction: Lesson J and Lesson K
- Learning Objectives/Goals: Critical Thinking, Quantitative Skills & Communication Competence
- Assignment: Lab 4, Paper Homework J, Paper Homework K, Quiz G, Quiz H
- Assessment Methods: Group Activities/Labs, Homework Completion, Quiz Completion

Week 8

- Unit of Instruction: Lesson L and Lesson M
- Learning Objectives/Goals: Critical Thinking, Quantitative Skills & Communication Competence
- Assignment: Lab 5, Paper Homework L, Paper Homework M, Quiz J, Quiz K
- Assessment Methods: Group Activities/Labs, Homework Completion, Quiz Completion

Week 9

- Unit of Instruction: Lesson N, Lesson O
- Learning Objectives/Goals: Critical Thinking, Quantitative Skills & Communication Competence
- Assignment: Lab 6, Paper Homework N, Paper Homework O, Quiz L, Quiz M
- Assessment Methods: Group Activities/Labs, Homework Completion, Quiz Completion

Week 10

- Unit of Instruction: Lesson P and Lesson Q
- Learning Objectives/Goals: Critical Thinking, Quantitative Skills & Communication Competence
- Assignment: Paper Homework P, Paper Homework Q, Quiz N, Quiz O
- Assessment Methods: Group Activities/Labs, Homework Completion, Quiz Completion

Week 11

- Unit of Instruction: Lesson R
- Learning Objectives/Goals: Critical Thinking, Quantitative Skills & Communication Competence
- Assignment: Lab 7, Paper Homework R, Quiz P, Quiz Q
- Assessment Methods: Group Activities/Labs, Homework Completion, Quiz Completion

Week 12

- Unit of Instruction: None
- Learning Objectives/Goals: Critical Thinking, Quantitative Skills & Communication Competence
- Assignment: Test 2 (Lessons G – R), Quiz R
- Assessment Methods: Quiz Completion, Test 2

Week 13

- Unit of Instruction: Lesson S and Lesson T
- Learning Objectives/Goals: Critical Thinking, Quantitative Skills & Communication Competence
- Assignment: Lab 8, Paper Homework S, Paper Homework T
- Assessment Methods: Group Activities/Labs, Homework Completion

Week 14

- Unit of Instruction: Lesson U and Lesson V
- Learning Objectives/Goals: Critical Thinking, Quantitative Skills & Communication Competence
- Assignment: Lab 9, Paper Homework U, Paper Homework V, Quiz S, Quiz T
- Assessment Methods: Group Activities/Labs, Homework Completion, Quiz Completion

Week 15

- Unit of Instruction: None
- Learning Objectives/Goals: Critical Thinking, Quantitative Skills & Communication Competence
- Assignment: Lab 10, Quiz U, Quiz V
- Assessment Methods: Group Activities/Labs, Quiz Completion, Final Exam