

SUNY SCHENECTADY Course Outline

ACADEMIC DIVISION/SCHOOL: Math, Science, Technology, and Health

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COURSE CODE: MAT 123 **COURSE TITLE:** Quantitative Reasoning

LECTURE HOURS/WEEK: 3 **LAB HOURS/WEEK:** 0 **CREDIT HOURS:** 3

PREREQUISITE(S):

PREREQUISITE or CONCURRENT COURSE:

COREQUISITE:

COURSE DESCRIPTION:

This course integrates numeracy, algebraic reasoning, and understanding of functions. It includes numerical concepts, probability, descriptive statistics, and linear, quadratic, and exponential modeling. This course also emphasizes the connection between graphical, analytical, and numerical representations of functions and explores these topics using real-world contexts and applications.

SUNY GENERAL EDUCATION:	
Courses with this distinction must align with the SUNY-defined SLOs found at https://system.suny.edu/academic-affairs/acaproplan/general-education/suny-ge/ .	
KNOWLEDGE AND SKILLS AREA	
CATEGORY 1	Mathematics & Quantitative Reasoning
CATEGORY 2	
CATEGORY 3	
CATEGORY 4	
CATEGORY 1	
CATEGORY 2	

STUDENT LEARNING OUTCOMES:

Students who have successfully completed this course will have:

- graphed linear and quadratic models;
- interpreted linear, quadratic, and exponential models graphically, analytically, and/or numerically;
- demonstrated numeracy by computing and interpreting probabilities; and
- calculated and interpreted Measures of Central Tendency, Measures of Dispersion, correlation coefficients, and/or the equation of a regression line.

REPRESENTATIVE TEXT(S):

TITLE	AUTHOR(S)	PUBLISHER
College Mathematics – Abridged Edition	Scottsdale Community College	OER – Libre Texts
SPECIAL NOTES:	Lumen OHM or a similar online homework program is recommended	

COURSE MATERIALS:

TI-83 or TI-84 Graphing Calculator (may be available to borrow from the college or may be downloadable for low/no cost)

NOTE: Grading and assessment criteria may appropriately differ. Grades focus on what individual students have learned while assessments focus on entire cohorts of students. Each instructor will determine his/her grading criteria for the course and state on the course syllabus.

EVALUATION METHODS:

Required are assignments and/or examinations. Other methods may include, but are not limited to, quizzes, activities, and projects.

REQUIRED ASSESSMENT METHODS:

Assessment results from these methods will be used for course-level assessment and, where applicable, for SUNY General Education Knowledge and Skills Areas and Core Competencies. This information will be incorporated into program reviews.

STUDENT LEARNING OUTCOME	METHOD(S)
Graphed linear and quadratic models	Assignments or Examinations
Interpreted linear, quadratic, and exponential models graphically, analytically, and/or numerically	Assignments or Examinations
Demonstrated numeracy by computing and interpreting probabilities	Assignments or Examinations
Calculated and interpreted Measures of Central Tendency, Measures of Dispersion, correlation coefficients, and/or the equation of a regression line	Assignments or Examinations

COURSE CONTENT OUTLINE:

NOTE: College policy requires a final exam or final week activity.

WEEK(S)/HOUR(S)	TOPIC
1-2	Foundational Topics: Place Value, Rounding, Fractions, Rates, Conversions, Dimensional Analysis
3-5	Basic Probability: Theoretical Probability, Sample Space, Complementary Events, Independent vs Dependent Events, Conditional Probability
6-8	Functions and Linear Relationships: Function Definition and Notation, Linear Functions, Slope, Linear Regression, Correlation
9-11	Exponential Relationships: Percent, Interest, Exponential Functions
12-13	Quadratic Relationships: Characteristics of Parabolas, Quadratic Regression
14-15	Descriptive Statistics: Data Displays, Measures of Central Tendency, Measures of Dispersion, Data Analysis
16	Final Examination