CT State Community College Course Outline Template: Fall 2025

This template should be used by faculty to create an official record of a course for inclusion in the CT State Community College catalog. A completed template must be submitted for every course to be moved to the single college catalog.

COURSE TITLE: Title to appear in the catalog (note: Banner has a 30-character limit)	**Elementary Algebra**
COURSE CODE: 3-letter subject code and number (include cross-listed code & number if applicable)	MATH 0900
CREDIT HOURS: Number of credits awarded for successful completion of course	3
CONTACT HOURS: Number of hours of instruction time (i.e., hours of contact between students and instructor)	Lecture: 3 Lab: Clinical: Other (e.g., studio):
BILLING HOURS: Number of credits for which students are charged	3
ADDITIONAL FEES Check all that apply	
WORKLOAD HOURS: Number of hours used to determine faculty workload	3
PREREQUISITES: Courses for which students must be eligible and/or courses that must be completed (with minimum grade specified) to enroll	Placement by multiple measures. Students who do not have college-level placement are encouraged to participate in a pre-term transitional strategy.

COREQUISITES: Courses in which students must be concurrently enrolled	
COURSE DESCRIPTORS: For example: General Education course (include category), Clinical, Lab, Studio, Distance Learning, Seminar, Practicum. Use designated codes: (once developed)	Developmental
CATALOG COURSE DESCRIPTION: The description to appear in the catalog	This course is intended for students who would like to improve their understanding of fundamental algebraic concepts before beginning college-credit-level mathematics. In this course, students will review arithmetic with real numbers, use algebraic expressions and equations to model real-world phenomena, solve linear equations of one variable, graph linear equations of two variables, and solve systems of linear equations involving two variables. Students will also develop their technical reading and note-taking skills. Credit does not fulfill degree requirements and is not transferable outside the Connecticut Community College system.
STUDENT LEARNING OUTCOMES: The student learning outcomes for the course should be assessable (e.g., consistent with Bloom's taxonomy) and aligned with program outcomes (where applicable).	Upon success completion of this course the student will: 1. Identify results as reasonable or unreasonable using mental arithmetic and appropriate mathematical reasoning 2. Analyze situations using numerical, graphical, and symbolic approaches to modeling 3. Use appropriate tools strategically for solving problems 4. Communicate results obtained from mathematical models

TOPICS OUTLINE: The instructional units in which the above outcomes will be taught and assessed.	List Instructional Units: 1) Fundamentals of Arithmetic (~15% of class time) a) Define properties of sets of numbers i) Integers ii) Rational numbers iii) Real numbers iv) Representing sets of numbers on the real number line b) Apply order of operations to compute the value of arithmetic expressions involving real numbers c) Calculate proportions and percentages d) Execute strategies for rounding 2) Algebraic Expressions (~15% of class time) a) Identify the parts of an algebraic expression i) Terms ii) Coefficients iii) Variables iv) Exponents v) Factors b) Evaluate algebraic expressions given specific values of variables c) Apply algebraic expressions to model real-world phenomena d) Apply rules of exponents to rewrite expressions involving exponents e) Execute polynomial operations i) Adding and subtracting polynomials ii) Multiplying polynomials (1) Distribution of a monomial (2) Multiplication of two binomial iii) Dividing polynomials by monomials
	f) Express extremely small and extremely large quantities using scientific notation g) Define the square root of a real number h) Evaluate square roots of perfect squares i) Identify irrational numbers involving square roots (e.g. √2) 3) Solving Linear Equations in One Variable (~25% of class time) a) Solve linear equations of a single variable with rational coefficients (including equations whose solutions require expanding algebraic expressions using the distributive property and collecting like terms) b) Interpret solutions to linear equations i) One solution ii) No solutions iii) Infinitely many solutions c) Apply single-variable linear equations to model real-world phenomena, including those involving rates, percentages, and proportions d) Solve applied problems involving perimeters, areas, and volumes e) Solve linear inequalities of a single variable with rational coefficients (including equations whose solutions require expanding algebraic expressions using the distributive property and collecting like terms) i) Graphing solutions to inequalities on the real number line ii) Expressing solutions to inequalities using interval notation 4) Linear Equations in Two Variables (~25% of class time) a) Identify linear equations of two variables i) Slope-intercept form ii) Point-slope form iii) Standard form b) Identify the slope of a linear equation of two variables (for all forms mentioned in 3(a)) c) Identify the y-intercept of a linear equation of two variables (for all forms mentioned in 3(a)) d) Plot ordered pairs in the Cartesian plane e) Describe points in the Cartesian plane using ordered pairs

	f) Sketch graphs of linear equations in two variables (for all forms mentioned in 3(a) g) Compute the slope of a linear equation of two variables i) Given a graph ii) Given two unique points iii) Given one point and a relationship to another line (e.g. parallel, perpendicular) h) Write linear equations in slope-intercept and point-slope form i) Given a graph ii) Given two unique points iii) Given one point and a relationship to another line (e.g. parallel, perpendicular) i) Apply two-variable linear equations to model real-world phenomena j) Interpret the meaning of the slope and y-intercept of a linear equation in terms of the specific variables it relates k) Solve for a given variable in a formula (e.g. solve for resistance R in Ohm's Law V=IR) 5) Solving Systems of Linear Equations in Two Variables (~20% of class time) a) Solve systems of linear equations in two variables i) By graphing ii) By substitution iii) By elimination/addition b) Interpret solutions to systems of linear equations in two variables i) One solution ii) No solution iii) Infinitely many solutions c) Apply two-variable systems of linear equations to model real-world phenomena d) Interpret the meaning of solutions to two-variable systems of linear equations in terms of the specific variables described 6) [Optional] Measurement and Dimensional Analysis a) Identify units for measuring length, mass, and volume in the metric and imperial systems b) Convert between metric and imperial units for length, mass, and volume c) Solve problems involving unit conversions 7) [Optional] Functions a) Define the concept of a function (a rule that assigns one input to precisely one output) b) Define the domain of a function c) Define the range of a function d) Identify multiple representations of functions (symbolic, graphical, numerical) e) Apply function notation to find an output from a particular input

TERMS OFFERED Please check all that apply	☒ Fall ☐ Winter ☒ Spring ☒ Summer
COURSE MODALITY Please check all that apply	☒ On-ground ☐ Online ☒ Hybrid ☒ Other (specify): OLCR, LRCR
ADDITIONAL INFORMATION: If applicable, include any special instructions or requirements (e.g., field work or background check required) as well as any recommended texts or materials (e.g., open-source materials)	This course should be coded in Banner as equivalent to MATH 0900I.
CLASSROOM REQUIREMENTS (e.g., Computer lab, Kitchen, Science lab, Studio, Lecture)	Lecture

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COURSE TITLE: Title to appear in the catalog (note: Banner has a 30-character limit)	**Elementary Algebra Intensive**
COURSE CODE: 3-letter subject code and number (include cross-listed code & number if applicable)	MATH 0900I
CREDIT HOURS: Number of credits awarded for successful completion of course	6
CONTACT HOURS: Number of hours of instruction time (i.e., hours of contact between students and instructor)	Lecture: 6 Lab: Clinical: Other (e.g., studio):
BILLING HOURS: Number of credits for which students are charged	6
ADDITIONAL FEES Check all that apply	
WORKLOAD HOURS: Number of hours used to determine faculty workload	6
PREREQUISITES: Courses for which students must be eligible and/or courses that must be completed (with minimum grade specified) to enroll	Placement by multiple measures. Students who do not have college-level placement are encouraged to participate in a pre-term transitional strategy.

COREQUISITES: Courses in which students must be concurrently enrolled	
COURSE DESCRIPTORS: For example: General Education course (include category), Clinical, Lab, Studio, Distance Learning, Seminar, Practicum. Use designated codes: (once developed)	Developmental
CATALOG COURSE DESCRIPTION: The description to appear in the catalog	This course is intended for students who would like to improve their understanding of fundamental algebraic concepts before beginning college-credit-level mathematics. In this course, students will review arithmetic with real numbers, use algebraic expressions and equations to model real-world phenomena, solve linear equations of one variable, graph linear equations of two variables, and solve systems of linear equations involving two variables. Students will also develop their technical reading and note-taking skills. In this Intensive form, this course embeds additional support into MATH 0900 including a concentrated review of arithmetic. *Credit does not fulfill degree requirements and is not transferable outside the Connecticut Community College system.*
STUDENT LEARNING OUTCOMES: The student learning outcomes for the course should be assessable (e.g., consistent with Bloom's taxonomy) and aligned with program outcomes (where applicable).	Upon success completion of this course the student will: 1. Identify results as reasonable or unreasonable using mental arithmetic and appropriate mathematical reasoning 2. Analyze situations using numerical, graphical, and symbolic approaches to modeling 3. Use appropriate tools strategically for solving problems 4. Communicate results obtained from mathematical models

TOPICS OUTLINE: The instructional units in which the above outcomes will be taught and assessed.	List Instructional Units: 1) Fundamentals of Arithmetic (~15% of class time) a) Define properties of sets of numbers i) Integers ii) Rational numbers iii) Real numbers iv) Representing sets of numbers on the real number line b) Apply order of operations to compute the value of arithmetic expressions involving real numbers c) Calculate proportions and percentages d) Execute strategies for rounding 2) Algebraic Expressions (~15% of class time) a) Identify the parts of an algebraic expression i) Terms ii) Coefficients iii) Variables iv) Exponents v) Factors b) Evaluate algebraic expressions given specific values of variables c) Apply algebraic expressions to model real-world phenomena d) Apply rules of exponents to rewrite expressions involving exponents e) Execute polynomial operations i) Adding and subtracting polynomials ii) Multiplying polynomials (1) Distribution of a monomial (2) Multiplication of two binomial iii) Dividing polynomials by monomials
	f) Express extremely small and extremely large quantities using scientific notation g) Define the square root of a real number h) Evaluate square roots of perfect squares i) Identify irrational numbers involving square roots (e.g. √2) 3) Solving Linear Equations in One Variable (~25% of class time) a) Solve linear equations of a single variable with rational coefficients (including equations whose solutions require expanding algebraic expressions using the distributive property and collecting like terms) b) Interpret solutions to linear equations i) One solution ii) No solutions iii) Infinitely many solutions c) Apply single-variable linear equations to model real-world phenomena, including those involving rates, percentages, and proportions d) Solve applied problems involving perimeters, areas, and volumes e) Solve linear inequalities of a single variable with rational coefficients (including equations whose solutions require expanding algebraic expressions using the distributive property and collecting like terms) i) Graphing solutions to inequalities on the real number line ii) Expressing solutions to inequalities using interval notation 4) Linear Equations in Two Variables (~25% of class time) a) Identify linear equations of two variables i) Slope-intercept form ii) Point-slope form iii) Standard form b) Identify the slope of a linear equation of two variables (for all forms mentioned in 3(a)) c) Identify the y-intercept of a linear equation of two variables (for all forms mentioned in 3(a)) d) Plot ordered pairs in the Cartesian plane e) Describe points in the Cartesian plane using ordered pairs

	f) Sketch graphs of linear equations in two variables (for all forms mentioned in 3(a) g) Compute the slope of a linear equation of two variables i) Given a graph ii) Given two unique points iii) Given one point and a relationship to another line (e.g. parallel, perpendicular) h) Write linear equations in slope-intercept and point-slope form i) Given a graph ii) Given two unique points iii) Given one point and a relationship to another line (e.g. parallel, perpendicular) i) Apply two-variable linear equations to model real-world phenomena j) Interpret the meaning of the slope and y-intercept of a linear equation in terms of the specific variables it relates k) Solve for a given variable in a formula (e.g. solve for resistance R in Ohm's Law V=IR) 5) Solving Systems of Linear Equations in Two Variables (~20% of class time) a) Solve systems of linear equations in two variables i) By graphing ii) By substitution iii) By elimination/addition b) Interpret solutions to systems of linear equations in two variables i) One solution ii) No solution iii) Infinitely many solutions c) Apply two-variable systems of linear equations to model real-world phenomena d) Interpret the meaning of solutions to two-variable systems of linear equations in terms of the specific variables described 6) [Optional] Measurement and Dimensional Analysis a) Identify units for measuring length, mass, and volume in the metric and imperial systems b) Convert between metric and imperial units for length, mass, and volume c) Solve problems involving unit conversions 7) [Optional] Functions a) Define the concept of a function (a rule that assigns one input to precisely one output) b) Define the domain of a function c) Define the range of a function d) Identify multiple representations of functions (symbolic, graphical, numerical) e) Apply function notation to find an output from a particular input

TERMS OFFERED Please check all that apply	☒ Fall ☐ Winter ☒ Spring Summer
COURSE MODALITY Please check all that apply	☒ On-ground ☐ Online ☒ Hybrid ☒ Other (specify): OLCR, LRCR
ADDITIONAL INFORMATION: If applicable, include any special instructions or requirements (e.g., field work or background check required) as well as any recommended texts or materials (e.g., open-source materials)	This course should be coded in Banner as equivalent to MATH 0900.
CLASSROOM REQUIREMENTS (e.g., Computer lab, Kitchen, Science lab, Studio, Lecture)	Lecture

CT State Community College Course Outline Template: Fall 2025

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COURSE TITLE: Title to appear in the catalog (note: Banner has a 30-character limit)	**Quantitative Reasoning Support**
COURSE CODE: 3-letter subject code and number (include cross-listed code & number if applicable)	MATH 0901
CREDIT HOURS: Number of credits awarded for successful completion of course	3
CONTACT HOURS: Number of hours of instruction time (i.e., hours of contact between students and instructor)	Lecture: 3 Lab: Clinical: Other (e.g., studio):
BILLING HOURS: Number of credits for which students are charged	3
ADDITIONAL FEES Check all that apply	
WORKLOAD HOURS: Number of hours used to determine faculty workload	3
PREREQUISITES: Courses for which students must be eligible and/or courses that must be completed (with minimum grade specified) to enroll	Placement using multiple measures OR a grade of D-, D, or D+ in MATH 0988/0989.

COREQUISITES: Courses in which students must be concurrently enrolled	MATH 1100 Quantitative Reasoning
COURSE DESCRIPTORS: For example: General Education course (include category), Clinical, Lab, Studio, Distance Learning, Seminar, Practicum. Use designated codes: (once developed)	
CATALOG COURSE DESCRIPTION: The description to appear in the catalog	**This customized support course is intended to maximize the student's potential for success in MATH 1100 Quantitative Reasoning.** In this course, students will engage in active and collaborative learning which will promote critical thinking and a deeper understanding of mathematical concepts. Students will be given support to develop effective strategies for success and confidence in learning mathematics. Taken with MATH 1100, this course emphasizes quantitative skills needed to be an engaged citizen. Critical thinking and problem solving are emphasized along with the application of mathematics to real-world scenarios requiring reasoning from evidence. Students will learn to communicate effectively with numbers and use technology to enhance their quantitative reasoning ability. *Credit does not fulfill degree requirements and is not transferable outside the Connecticut Community College system.*
STUDENT LEARNING OUTCOMES: The student learning outcomes for the course should be assessable (e.g., consistent with Bloom's taxonomy) and aligned with program outcomes (where applicable).	This course supports the successful completion of the student learning outcomes in MAT 1100, which are: 1. Interpret and communicate quantitative information and mathematical concepts using language appropriate to the context 2. Understand problems, develop strategies to find solutions, and persevere in solving them 3. Reason, model, and draw conclusions or make decisions with quantitative information 4. Critique and evaluate quantitative arguments 5. Use appropriate technology to solve quantitative problems

	Upon successful completion of this support course, the student will: 1. Demonstrate mastery of essential learning strategies

TOPICS OUTLINE:
The instructional units in which the above outcomes will be taught and assessed.
	MATH 0901 is a corequisite course that **must** run concurrently with MATH 1100. **The topics below are not in chronological order.** The instructor **must** implement just-in-time teaching of supporting topics that is fully aligned and carefully coordinated with the delivery of the college-level topics in MATH 1100. The supporting topics include learning strategies, prerequisite topics that directly support the college-level topics currently being taught, and extra support for the college-level topics currently being taught. **The alignment and coordination of topics between MATH 0901 and MAT 1100 is fully detailed in the master syllabus for this course.**
	
	• Numeracy
	  ○ Perform arithmetic on integers
	  ○ Apply the order of operations
	  ○ Simplify fractions
	  ○ Understand and create equivalent fractions
	  ○ Convert numbers among fractions, decimals, and percents
	  ○ Calculate and simplify square roots
	  ○ Apply the rules of exponents
	  ○ Evaluate exponential expressions
	  ○ Use calculators appropriately
	
	• Problem Solving Skills
	  ○ Translate quantities in a contextual problem into a mathematical equation
	  ○ Perform calculations with fractions, decimals, and percents in contextual problems and interpret results
	  ○ Solve proportional reasoning problems in context and interpret results
	  ○ Recognize unit equivalencies

	○ Round quantities to a specified place value according to a contextual problem and interpret the results ○ Adhere to the precision required in contextual problems ○ Estimate the reasonableness of answers to contextual problems ○ Express mathematical ideas both orally and in writing • Tables, Graphs, and Visual Representations ○ Use a rectangular coordinate system ○ Read and create tables with appropriate scale ○ Create and interpret pie graphs, bar graphs, histograms, scatterplots, dotplots, and circle graphs • Algebraic Skills ○ Evaluate linear, quadratic, and exponential expressions ○ Solve algebraic equations ○ Identify and interpret the slope and y-intercept in the context of the variables within a problem ○ Identify linear patterns between two variables and make inferences based on the identified pattern ○ Graph linear equations in the Cartesian coordinate system using the slope-intercept form of the line ○ Construct linear equations from a graph, describe the relationship between two variables or two input-output pairs ○ Construct a linear equation from a scatter plot and describe the relationship between the variables ○ Distinguish between linear, quadratic, and exponential patterns in data sets • Learning Strategies ○ Study habits (including technical reading, note-taking, exam prep, etc.)

	○ Metacognition and learning theory (including growth mindset, math anxiety, etc.) ○ Task management & effective planning (including goal setting, scheduling, proactive planning, etc.)
	☒ Fall ☐ Winter ☒ Spring ☒ Summer
COURSE MODALITY Please check all that apply	☒ On-ground ☐ Online ☒ Hybrid ☒ Other (specify): LRON (Live Remote Online)
ADDITIONAL INFORMATION: If applicable, include any special instructions or requirements (e.g., field work or background check required) as well as any recommended texts or materials (e.g., open-source materials)	The use of mathematics specific technology to support understanding of the concepts is required.
CLASSROOM REQUIREMENTS (e.g., Computer lab, Kitchen, Science lab, Studio, Lecture)	Movable desks or tables so that students may work in groups. Plenty of board space. Appropriate technology.

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COURSE TITLE: Title to appear in the catalog (note: Banner has a 30-character limit)	**Statistics I Support**
COURSE CODE: 3-letter subject code and number (include cross-listed code & number if applicable)	MATH 0902
CREDIT HOURS: Number of credits awarded for successful completion of course	3
CONTACT HOURS: Number of hours of instruction time (i.e., hours of contact between students and instructor)	Lecture: 3 Lab: Clinical: Other (e.g., studio):
BILLING HOURS: Number of credits for which students are charged	3
ADDITIONAL FEES Check all that apply	
WORKLOAD HOURS: Number of hours used to determine faculty workload	3
PREREQUISITES: Courses for which students must be eligible and/or courses that must be completed (with minimum grade specified) to enroll	Placement using multiple measures OR a grade of D-, D, or D+ in MATH 0988/0989.

COREQUISITES: Courses in which students must be concurrently enrolled	MATH 1200 Statistics I or MATH 1201 Statistics I with Computer Applications
COURSE DESCRIPTORS: For example: General Education course (include category), Clinical, Lab, Studio, Distance Learning, Seminar, Practicum. Use designated codes: (once developed)	
CATALOG COURSE DESCRIPTION: The description to appear in the catalog	**This customized support course is intended to maximize the student's potential for success in MATH 1200 Statistics I or MATH 1201 Statistics I with Computer Applications.** In this course, students will engage in active and collaborative learning which will promote critical thinking and a deeper understanding of statistical concepts. Students will be given support to develop effective strategies for success and confidence in learning mathematics. Taken with MATH 1200 or MATH 1201, this course develops students' numeracy, proportional reasoning, algebra, critical reading, statistical reasoning, and problem-solving skills. Activities will center on data analysis and enhance students' ability to use mathematics to solve problems and provide students just-in-time support for statistics concepts. This course requires the use of computer-based statistical software. *Credit does not fulfill degree requirements and is not transferable outside the Connecticut Community College system.*
STUDENT LEARNING OUTCOMES: The student learning outcomes for the course should be assessable (e.g., consistent with Bloom's taxonomy) and aligned with program outcomes (where applicable).	This course supports the successful completion of the student learning outcomes in MATH 1200 and MATH 1201 which are: 1) Apply the statistical problem-solving process (formulate a problem that involves the collection of data, collect data, perform statistical analysis, and interpret the results) 2) Describe data types, methods of data collection, and how the analysis and interpretation of data depends on the type of data and how data are collected

	3) Apply descriptive statistics techniques to describe characteristics of data (e.g., measures of center, measures of variability, and measures of position, outliers) and create and interpret graphical displays of data 4) Apply probability concepts and probability distributions to model real-world situations and solve problems 5) Perform statistical inference via confidence intervals and hypothesis tests and explain the role of randomness in the inference process 6) Use technology to investigate and analyze data and solve statistical problems; and interpret and draw conclusions from the output of statistical software Upon successful completion of this support course, the student will: 1. Demonstrate mastery of essential learning strategies
TOPICS OUTLINE: The instructional units in which the above outcomes will be taught and assessed.	MATH 0902 is a corequisite course that **must** run concurrently with MATH 1200 or MATH 1201. **The topics below are not in chronological order.** The instructor **must** implement just-in-time teaching of supporting topics that is fully aligned and carefully coordinated with the delivery of the college-level topics in MATH 1200 and MATH 1201. The supporting topics include learning strategies, prerequisite topics that directly support the college-level topics currently being taught, and extra support for the college-level topics currently being taught. **The alignment and coordination of topics between MATH 0902 and MATH 1200/MATH 1201 is fully detailed in the master syllabus for this course.** Required Topics: • Numeracy Skills ○ Order of operations ○ Evaluating expressions ○ Number conversions (fractions, decimals, percentages) ○ Scientific notation

	• Proportional Reasoning Skills
	  ○ Simplifying rates, fractions, and ratios
	  ○ Problem solving with rates, fractions, and ratios
	  ○ Problem solving with two-way tables
	
	• Linear Expressions and Linear Models
	  ○ Solving linear equations
	  ○ Graphing lines
	  ○ Evaluating expressions
	  ○ Computing and interpreting slopes
	  ○ Finding equations of lines
	  ○ Using lines to make predictions
	
	• Functions and Mathematical Models
	  ○ Using mathematical models to solve problems
	  ○ Translating mathematics to statements in English
	  ○ Translating statements in English to mathematics
	  ○ Constructing expressions and equations from real-world situations
	  ○ Multiple representations of functions (verbal, graphical, tabular, symbolic)
	
	• Just-in-time Statistics Topics
	  ○ Interpreting graphs
	  ○ Computing and interpreting measures of center, variability, and position
	  ○ Comparing distributions based on center, shape, and spread
	  ○ Discrete probability distributions
	  ○ Continuous probability distributions
	  ○ Sampling distributions
	  ○ Critical values
	  ○ Computing and interpreting margins of error
	  ○ Problem solving with confidence intervals
	  ○ Determining hypotheses
	  ○ Interpreting *P*-values
	  ○ Problem solving with hypothesis tests

	• Learning Strategies (embedded throughout)
	  ○ Study habits (including technical reading, note-taking, exam prep, etc.)
	  ○ Metacognition and learning theory (including growth mindset, math anxiety, etc.)
	  ○ Task management & effective planning (including goal setting, scheduling, proactive planning, etc.)

TERMS OFFERED Please check all that apply	☒ Fall ☐ Winter ☒ Spring ☒ Summer
COURSE MODALITY Please check all that apply	☒ On-ground ☐ Online ☒ Hybrid ☒ Other (specify): LRON (Live Remote Online)
ADDITIONAL INFORMATION: If applicable, include any special instructions or requirements (e.g., field work or background check required) as well as any recommended texts or materials (e.g., open-source materials)	The use of mathematics specific technology to support understanding of this course and MATH 1200/MATH 1201 is required.
CLASSROOM REQUIREMENTS (e.g., Computer lab, Kitchen, Science lab, Studio, Lecture)	Movable desks or tables so that students may work in groups. Plenty of board space. Computer Access (via a personal computer, computer lab, or laptop cart) Students must have access to a computer during class to complete computer-based activities.

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COURSE TITLE: Title to appear in the catalog (note: Banner has a 30-character limit)	**College Algebra Support**
COURSE CODE: 3-letter subject code and number (include cross-listed code & number if applicable)	MATH 0906
CREDIT HOURS: Number of credits awarded for successful completion of course	3
CONTACT HOURS: Number of hours of instruction time (i.e., hours of contact between students and instructor)	Lecture: 3 Lab: Clinical: Other (e.g., studio):
BILLING HOURS: Number of credits for which students are charged	3
ADDITIONAL FEES Check all that apply	
WORKLOAD HOURS: Number of hours used to determine faculty workload	3
PREREQUISITES: Courses for which students must be eligible and/or courses that must be completed (with minimum grade specified) to enroll	Placement using multiple measures OR a grade of C- or higher in MATH 0988/0989 OR a grade of D-, D, or D+ in MATH 1010.

COREQUISITES: Courses in which students must be concurrently enrolled	MATH 1600
COURSE DESCRIPTORS: For example: General Education course (include category), Clinical, Lab, Studio, Distance Learning, Seminar, Practicum. Use designated codes: (once developed)	Corequisite Developmental
CATALOG COURSE DESCRIPTION: The description to appear in the catalog	**This customized support course is intended to maximize the student's potential for success in MATH 1600 College Algebra.** In this course, students will engage in active and collaborative learning which will promote critical thinking and a deeper understanding of algebraic concepts. Students will be given support to develop effective strategies for success and confidence in learning mathematics. Taken with MATH 1600, this course provides an in-depth study of the properties of algebraic, exponential, and logarithmic functions as needed for calculus. Emphasis is on using algebraic and graphical techniques for solving problems involving linear, quadratic, piece-wise defined, rational, polynomial, exponential and logarithmic functions. The use of mathematics specific technology to support understanding of the College Algebra course is required. *Credit does not fulfill degree requirements and is not transferable outside the Connecticut Community College system.*
STUDENT LEARNING OUTCOMES: The student learning outcomes for the course should be assessable (e.g., consistent with Bloom's taxonomy) and aligned with program outcomes (where applicable).	This course supports the successful completion of the student learning outcomes in MATH 1600 which are: For function types including linear, quadratic, piece-wise defined, rational, polynomial, exponential, and logarithmic: 1. Use multiple representations of these function types to investigate quantities, describe relationships between quantities, and attend to how two quantities change together

	2. Describe characteristics of these function types and convert between different representations and algebraic forms to analyze, model, and solve meaningful problems 3. Develop procedural fluency to support the understanding, analysis, and modeling of these function types and calculation with related expressions Upon successful completion of this support course, the student will: 1. Demonstrate mastery of essential learning strategies
TOPICS OUTLINE: The instructional units in which the above outcomes will be taught and assessed.	MATH 0906 is a corequisite course that **must** run concurrently with MATH 1600. **The topics below are not in chronological order.** The instructor **must** implement just-in-time teaching of supporting topics that is fully aligned and carefully coordinated with the delivery of the college-level topics in MATH 1600. The supporting topics include learning strategies, prerequisite topics that directly support the college-level topics currently being taught, and extra support for the college-level topics currently being taught. **The alignment and coordination of topics between MATH 0906 and MATH 1600 is fully detailed in the master syllabus for this course.** List of instructional topics: • Relations and Functions ○ Find the values of functions ○ Interval notation (union and intersection of two or more sets) ○ Graphs of functions ○ Graph quadratic functions using transformations ○ Domain and range of functions ○ Find values of functions ○ Simplify fractional expressions

	○ Find and evaluate composite functions and one-to-one functions • Quadratic Functions ○ Graph quadratic functions using properties ○ Recognize and use the appropriate method to factor a polynomial completely ○ Solve a quadratic equation by factoring ○ General strategy for factoring quadratic functions ○ Use the complex number system ○ Recognize and use the appropriate method to factor a polynomial completely (degree<=2) ○ Solve a quadratic equation by using technology • Higher Order Polynomial Functions ○ Determine the degree of polynomials ○ Simplify expressions using properties of exponents ○ Recognize and use the appropriate method to factor a polynomial completely ○ Solve a quadratic equation by factoring • Rational Functions ○ Multiply and divide rational expressions • Radical Functions ○ Simplify radical expressions • Exponential and Logarithmic Functions ○ Find the value of a function (exponential) ○ Graph exponential functions and function transformations

	○ Convert between exponential and logarithmic form ○ Evaluate logarithmic functions ○ Solve exponential and logarithmic equations • Learning Strategies (embedded throughout) ○ Study habits (including technical reading, note-taking, exam prep, etc.) ○ Metacognition and learning theory (including growth mindset, math anxiety, etc.) ○ Task management & effective planning (including goal setting, scheduling, proactive planning, etc.)
TERMS OFFERED Please check all that apply	☒ Fall ☐ Winter ☒ Spring ☒ Summer
COURSE MODALITY Please check all that apply	☒ On-ground ☐ Online ☒ Hybrid ☒ Other (specify): LRON (Live Remote Online)
ADDITIONAL INFORMATION: If applicable, include any special instructions or requirements (e.g., field work or background check required) as well as any recommended texts or materials (e.g., open-source materials)	The use of mathematics specific technology to support understanding of this course and MATH 1600 is required.
CLASSROOM REQUIREMENTS (e.g., Computer lab, Kitchen, Science lab, Studio, Lecture)	Movable desks or tables so that students may work in groups. Plenty of board space. Appropriate technology.

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COURSE TITLE: Title to appear in the catalog (note: Banner has a 30-character limit)	**Quantitative Reasoning**
COURSE CODE: 3-letter subject code and number (include cross-listed code & number if applicable)	MATH 1100
CREDIT HOURS: Number of credits awarded for successful completion of course	3
CONTACT HOURS: Number of hours of instruction time (i.e., hours of contact between students and instructor)	Lecture: 3 Lab: Clinical: Other (e.g., studio):
BILLING HOURS: Number of credits for which students are charged	3
ADDITIONAL FEES Check all that apply	
WORKLOAD HOURS: Number of hours used to determine faculty workload	3
PREREQUISITES: Courses for which students must be eligible and/or courses that must be completed (with minimum grade specified) to enroll	Placement using multiple measures OR a grade of D- or higher in MATH 1010/1011 OR a grade of C- or higher in MATH 0988/0989. A grade of D-, D, or D+ in MATH 0988/0989 requires corequisite registration in MATH 0901.

COREQUISITES: Courses in which students must be concurrently enrolled	MATH 0901 Quantitative Reasoning Support (Unless student places out)
COURSE DESCRIPTORS: For example: General Education course (include category), Clinical, Lab, Studio, Distance Learning, Seminar, Practicum. Use designated codes: (once developed)	General Education - Math/Quantitative Reasoning
CATALOG COURSE DESCRIPTION: The description to appear in the catalog	This course provides a comprehensive overview of the quantitative skills needed to be an engaged citizen. Critical thinking and problem solving are emphasized along with the application of mathematics to real-world scenarios requiring reasoning from evidence. Students will learn to communicate effectively with numbers and use appropriate technology to enhance their quantitative reasoning ability.
STUDENT LEARNING OUTCOMES: The student learning outcomes for the course should be assessable (e.g., consistent with Bloom's taxonomy) and aligned with program outcomes (where applicable).	Upon successful completion of this course, the student will: 1. Interpret and communicate quantitative information and mathematical concepts using language appropriate to the context 2. Understand problems, develop strategies to find solutions, and persevere in solving them 3. Reason, model, and draw conclusions or make decisions with quantitative information 4. Critique and evaluate quantitative arguments 5. Use appropriate technology to solve quantitative problems
TOPICS OUTLINE: The instructional units in which the above outcomes will be taught and assessed.	There are three broad categories of instructional units: Logical and Proportional Reasoning, Modeling, and Probability and Statistics. The topics under each category will allow students to demonstrate the learning outcomes above. Students will make use of appropriate technology and will be asked to explain their thinking both orally and in writing. 1) Logical and Proportional Reasoning (30%) a) Analyze and solve problems involving absolute and relative change

	b) Interpret and compare ratios in authentic contexts (e.g., news articles or advertisements) c) Use laws of logic to evaluate the validity of arguments **Sample Topics:** Sets and Logic, Geometry (Symmetry, Fractals, Tessellations), Number Theory 2) Modeling (35%) a) Create, use, and interpret graphs and equations that model real-world situations b) Identify assumptions, parameters, and limitations in creating and assessing real-world models c) Choose, create, and interpret linear, exponential, logarithmic and logistic models of real-world problems **Sample Topics:** Financial and Business Applications (credit cards, mortgage, retirement savings), Graph Theory, Data Modeling, Mathematics of Voting 3) Probability and Statistics (35%) a) Evaluate claims based on empirical, theoretical, and subjective probabilities b) Use data displays and models to determine probabilities, including conditional probabilities, and use them to draw conclusions c) Use statistical information from studies, surveys, and polls to make informed decisions d) Summarize and interpret datasets with regard to shape, center and spread. Be able to compare data sets e) Use technology to summarize and interpret univariate, bivariate, and multivariable data using appropriate graphical displays and numerical summary statistics. Be able to describe strengths, limitations, and bias in graphical displays **Sample Topics:** U.S. Census Data, Risk and Expected Value, Equity and Social Justice

	☒ Fall ☒ Winter ☒ Spring ☒ Summer
COURSE MODALITY Please check all that apply	☒ On-ground ☒ Online ☒ Hybrid ☒ Other (specify): LRON (Live Remote Online)
ADDITIONAL INFORMATION: If applicable, include any special instructions or requirements (e.g., field work or background check required) as well as any recommended texts or materials (e.g., open-source materials)	Use of group work and projects is encouraged. The use of mathematics specific technology to support understanding of the concepts is required.
CLASSROOM REQUIREMENTS (e.g., Computer lab, Kitchen, Science lab, Studio, Lecture)	Movable desks or tables so that students may work in groups. Plenty of board space. Appropriate technology.

CT State Community College Course Outline Template: Fall 2025

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COURSE TITLE: Title to appear in the catalog (note: Banner has a 30-character limit)	**Statistics I**
COURSE CODE: 3-letter subject code and number (include cross-listed code & number if applicable)	MATH 1200
CREDIT HOURS: Number of credits awarded for successful completion of course	3
CONTACT HOURS: Number of hours of instruction time (i.e., hours of contact between students and instructor)	Lecture: 3 Lab: Clinical: Other (e.g., studio):
BILLING HOURS: Number of credits for which students are charged	3
ADDITIONAL FEES Check all that apply	
WORKLOAD HOURS: Number of hours used to determine faculty workload	3
PREREQUISITES: Courses for which students must be eligible and/or courses that must be completed (with minimum grade specified) to enroll	Placement using multiple measures OR a grade of D- or higher in MATH 1010/1011 OR a grade of C- or higher in MATH 0988/0989. A grade of D-, D, or D+ in MATH 0988/0989 requires corequisite registration in MATH 0902.

COREQUISITES: Courses in which students must be concurrently enrolled	MATH 0902 Statistics I Support (Unless student places out)
COURSE DESCRIPTORS: For example: General Education course (include category), Clinical, Lab, Studio, Distance Learning, Seminar, Practicum. Use designated codes: (once developed)	General Education - Math/Quantitative Reasoning
CATALOG COURSE DESCRIPTION: The description to appear in the catalog	This course covers fundamental concepts in descriptive and inferential statistics, probability, and probability distributions. Descriptive statistics topics include: the concept of population versus sample, frequency distributions, measures of central tendency, measures of variation, measures of position, and correlation and linear regression. Inferential statistics topics include confidence intervals and hypothesis testing. This course requires the use of computer-based statistical software. Students may not receive credit for both MATH 1200 and MATH 1201.
STUDENT LEARNING OUTCOMES: The student learning outcomes for the course should be assessable (e.g., consistent with Bloom's taxonomy) and aligned with program outcomes (where applicable).	Upon successful completion of this course the student will: 1) Apply the statistical problem-solving process (formulate a problem that involves the collection of data, collect data, perform statistical analysis, and interpret the results) 2) Describe data types, methods of data collection, and how the analysis and interpretation of data depends on the type of data and how data are collected 3) Apply descriptive statistics techniques to describe characteristics of data (e.g., measures of center, measures of variability, and measures of position, outliers) and create and interpret graphical displays of data 4) Apply probability concepts and probability distributions to model real-world situations and solve problems 5) Perform statistical inference via confidence intervals and hypothesis tests and explain the role of randomness in the inference process

	6) Use technology to investigate and analyze data and solve statistical problems; and interpret and draw conclusions from the output of statistical software
TOPICS OUTLINE: The instructional units in which the above outcomes will be taught and assessed.	REQUIRED TOPICS: 1) Introduction to Data & Statistics a) Types of data b) Levels of measurement c) Population vs. sample d) Parameter vs. statistic e) Experiments vs. observational studies f) Sampling techniques g) Types of conclusions based on type of statistical study h) Ethical issues in surveys and experiments i) Critical examination of newspaper, magazine, journal, and internet research reports 2) Describing Quantitative and Categorical Data a) Frequency distributions, relative frequencies, cumulative frequencies b) Graphs of single variable and multi-variable data – line plots, stem plots, histograms, box plots, bar charts, pie charts, multi-variable graphs c) Measures of center (mean, median, mode) d) Measures of spread (range, variance, standard deviation, IQR) e) Measures of relative position (z-scores, quartiles, percentiles) f) Empirical Rule 3) Correlation & Linear Regression a) Scatterplots b) Correlation coefficient c) Least squares regression line d) Prediction, extrapolation 4) Probability & Probability Rules a) Classical probability b) Empirical probability c) Addition and multiplication rules

	d) Two-way tables e) Conditional probability f) Counting problems 5) Discrete Random Variables a) Discrete probability distribution b) Mean, expected value, variance, standard deviation c) Binomial random variables 6) Continuous Random Variables a) Standard normal distribution b) Any normal distribution, cutoff values c) Central Limit Theorem d) Normal approximation of binomial distribution 7) Confidence Intervals a) Point estimate vs. interval estimate b) Critical values & margin of error c) Estimating a population mean (sigma known, sigma unknown) d) *T*-distributions e) Estimating a population proportion 8) Hypothesis Testing a) Hypothesis tests for a population mean (sigma known, sigma unknown) b) Hypothesis tests for a population proportion c) Determining hypotheses from claims or research questions d) Calculating and interpreting test statistics e) Calculating and interpreting *P*-values and/or critical values f) Making decisions g) Type 1 & Type II errors h) Statistical significance 9) Optional Topics a) Hypothesis tests for differences in population means (independent and dependent samples) b) Confidence intervals for the difference in population means (independent and dependent samples) c) Hypothesis tests for differences in population proportions

	d) Confidence intervals for the difference in population proportions e) Hypothesis test for the population correlation coefficient or slope of the regression line f) Confidence intervals using bootstrap samples g) Hypothesis tests using randomizations
TERMS OFFERED Please check all that apply	☒ Fall ☒ Winter ☒ Spring ☒ Summer
COURSE MODALITY Please check all that apply	☒ On-ground ☒ Online ☒ Hybrid ☒ Other (specify): LRON (Live Remote Online)
ADDITIONAL INFORMATION: If applicable, include any special instructions or requirements (e.g., field work or background check required) as well as any recommended texts or materials (e.g., open-source materials)	
CLASSROOM REQUIREMENTS (e.g., Computer lab, Kitchen, Science lab, Studio, Lecture)	Computer Access (via a personal computer, computer lab, or laptop cart) Students must have access to a computer during class to complete computer-based activities.

CT State Community College Course Outline Template: Fall 2025

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COURSE TITLE: Title to appear in the catalog (note: Banner has a 30-character limit)	**Statistics I with Computer Applications**
COURSE CODE: 3-letter subject code and number (include cross-listed code & number if applicable)	MATH 1201
CREDIT HOURS: Number of credits awarded for successful completion of course	4
CONTACT HOURS: Number of hours of instruction time (i.e., hours of contact between students and instructor)	Lecture: 4 Lab: Clinical: Other (e.g., studio):
BILLING HOURS: Number of credits for which students are charged	
ADDITIONAL FEES Check all that apply	
WORKLOAD HOURS: Number of hours used to determine faculty workload	
PREREQUISITES: Courses for which students must be eligible and/or courses that must be completed (with minimum grade specified) to enroll	Placement using multiple measures OR a grade of D- or higher in MATH 1010/1011 OR a grade of C- or higher in MATH 0988/0989. A grade of D-, D, or D+ in MATH 0988/0989 requires corequisite registration in MATH 0902.

COREQUISITES: Courses in which students must be concurrently enrolled	MAT 0902 Statistics I Support (Unless student places out)
COURSE DESCRIPTORS: For example: General Education course (include category), Clinical, Lab, Studio, Distance Learning, Seminar, Practicum. Use designated codes: (once developed)	General Education - Math/Quantitative Reasoning
CATALOG COURSE DESCRIPTION: The description to appear in the catalog	This course covers fundamental concepts in descriptive and inferential statistics, probability, and probability distributions. Descriptive statistics topics include: the concept of population versus sample, frequency distributions, measures of central tendency, measures of variation, measures of position, and correlation and linear regression. Inferential statistics topics include confidence intervals and hypothesis testing. Use of software for data analysis and data exploration is an integral part of the course. This course requires the use of computer-based statistical software. Students may not receive credit for both MATH 1200 and MATH 1201.
STUDENT LEARNING OUTCOMES: The student learning outcomes for the course should be assessable (e.g., consistent with Bloom's taxonomy) and aligned with program outcomes (where applicable).	Upon successful completion of this course the student will: 1) Apply the statistical problem-solving process (formulate a problem that involves the collection of data, collect data, perform statistical analysis, and interpret the results) 2) Describe data types, methods of data collection, and how the analysis and interpretation of data depends on the type of data and how data are collected 3) Apply descriptive statistics techniques to describe characteristics of data (e.g., measures of center, measures of variability, and measures of position, outliers) and create and interpret graphical displays of data 4) Apply probability concepts and probability distributions to model real-world situations and solve problems 5) Perform statistical inference via confidence intervals and hypothesis tests and explain the role of randomness in the inference process

	6) Use technology to investigate and analyze data and solve statistical problems; and interpret and draw conclusions from the output of statistical software
TOPICS OUTLINE: The instructional units in which the above outcomes will be taught and assessed.	REQUIRED TOPICS: 1) Introduction to Data & Statistics a) Types of data b) Levels of measurement c) Population vs. sample d) Parameter vs. statistic e) Experiments vs. observational studies f) Sampling techniques g) Types of conclusions based on type of statistical study h) Ethical issues in surveys and experiments i) Critical examination of newspaper, magazine, journal and internet research reports 2) Describing Quantitative and Categorical Data a) Frequency distributions, relative frequencies, cumulative frequencies b) Graphs of single variable and multi-variable data – line plots, stem plots, histograms, box plots, bar charts, pie charts, multi-variable graphs c) Measures of center (mean, median, mode) d) Measures of spread (range, variance, standard deviation, IQR) e) Measures of relative position (z-scores, quartiles, percentiles) f) Empirical Rule 3) Correlation & Linear Regression a) Scatterplots b) Correlation coefficient c) Least squares regression line d) Prediction, extrapolation 4) Probability & Probability Rules a) Classical probability b) Empirical probability c) Addition and multiplication rules

	d) Two-way tables e) Conditional probability f) Counting problems 5) Discrete Random Variables a) Discrete probability distribution b) Mean, expected value, variance, standard deviation c) Binomial random variables 6) Continuous Random Variables a) Standard normal distribution b) Any normal distribution, cutoff values c) Central Limit Theorem d) Normal approximation of binomial distribution 7) Confidence Intervals a) Point estimate vs. Interval estimate b) Critical values & margin of error c) Estimating a population mean (sigma known, sigma unknown) d) *T*-distributions e) Estimating a population proportion 8) Hypothesis Testing a) Hypothesis tests for a population mean (sigma known, sigma unknown) b) Hypothesis tests for a population proportion c) Determining hypotheses from claims or research questions d) Calculating and interpreting test statistics e) Calculating and interpreting *P*-values and/or critical values f) Making decisions g) Type 1 & Type II errors h) Statistical significance 9) Optional Topics a) Hypothesis tests for differences in population means (independent and dependent samples) b) Confidence intervals for the difference in population means (independent and dependent samples) c) Hypothesis tests for differences in population proportions

	d) Confidence intervals for the difference in population proportions e) Hypothesis test for the population correlation coefficient, or slope of the regression line f) Confidence intervals using bootstrap samples g) Hypothesis tests using randomizations
TERMS OFFERED Please check all that apply	☒ Fall ☒ Winter ☒ Spring ☒ Summer
COURSE MODALITY Please check all that apply	☒ On-ground ☒ Online ☒ Hybrid ☒ Other (specify): LRON (Live Remote Online)
ADDITIONAL INFORMATION: If applicable, include any special instructions or requirements (e.g., field work or background check required) as well as any recommended texts or materials (e.g., open-source materials)	Requirement for student use of computer-based statistical software: • Students are required to spend one contact hour per week completing computer-based activities. Activities can be completed individually or in groups and must count towards students' overall course grade. Required learning objectives for computer-based activities: • Import data from different file types (e.g., csv, excel files) into statistical software for analysis • Compute summary statistics and construct graphs of distributions of quantitative data and use the statistics and graphs to describe the distributions' characteristics • Compare multiple distributions of quantitative data using summary statistics and graphs • Construct and interpret multi-variable graphs that display relationships between qualitative and quantitative variables (e.g., stacked dotplots, stacked boxplots, overlapped histograms, scatterplots with grouping by color, etc.) • Examine how outliers affect statistics (e.g., how outliers in a univariate distribution impact measures of center, variation and position; how outliers in a

	bivariate distribution impact the correlation coefficient and least-squares regression line) • Use statistical software to plot discrete and continuous probability distributions, compare binomial distributions to normal distributions, and use probability distributions to solve problems • Create simulations of distributions of sample statistics (e.g., distributions of sample means and distributions of sample proportions) to explore the Central Limit Theorem • Use statistical software to assess normality, construct confidence intervals, and perform hypothesis tests • Filter observations in a dataset according to specific criteria to obtain subgroups of data; and compute statistics and construct visualizations on the subgroups of data • Given a real-world dataset with multiple quantitative and qualitative variables, generate a set of research questions that can be posed and answered involving the data and perform the appropriate statistical analysis on the data to answer the research questions • (Optional) Use statistical software to recreate data visualizations
CLASSROOM REQUIREMENTS (e.g., Computer lab, Kitchen, Science lab, Studio, Lecture)	Computer Access (via a personal computer, computer lab, or laptop cart) Students must have access to a computer during class to complete computer-based activities. Students must spend a minimum of 1-hour per week completing computer-based activities.

CT State Community College Course Outline Template: Fall 2025

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COURSE TITLE: Title to appear in the catalog (note: Banner has a 30-character limit)	**Pathway to Calculus: College Algebra**
COURSE CODE: 3-letter subject code and number (include cross-listed code & number if applicable)	MATH 1600
CREDIT HOURS: Number of credits awarded for successful completion of course	3
CONTACT HOURS: Number of hours of instruction time (i.e., hours of contact between students and instructor)	Lecture: 3 Lab: Clinical: Other (e.g., studio):
BILLING HOURS: Number of credits for which students are charged	3
ADDITIONAL FEES Check all that apply	
WORKLOAD HOURS: Number of hours used to determine faculty workload	3
PREREQUISITES: Courses for which students must be eligible and/or courses that must be completed (with minimum grade specified) to enroll	Placement using multiple measures OR a grade of C- or higher in MATH 1010. A grade of D-, D, or D+ in MATH 1010 requires corequisite registration in MATH 0906.

COREQUISITES: Courses in which students must be concurrently enrolled	MATH 0906 College Algebra Support (unless student places out)
COURSE DESCRIPTORS: For example: General Education course (include category), Clinical, Lab, Studio, Distance Learning, Seminar, Practicum. Use designated codes: (once developed)	General Education – Math/Quantitative Reasoning
CATALOG COURSE DESCRIPTION: The description to appear in the catalog	This course offers the development of numerical, algebraic, and graphical problem-solving techniques to be used in calculus. Techniques are developed to solve equations involving polynomial, radical and rational functions. Polynomial, inverse, rational, exponential, and logarithmic functions are studied, and their applications are explored both algebraically and graphically. Whenever possible, learning of mathematical concepts is embedded in contextualized situations relevant to STEM majors. The use of mathematics specific technology to support understanding of the College Algebra course is required. This course is designed for STEM majors and fulfills the prerequisite requirement for MATH 1610 (formerly MAT* 186) Precalculus.
STUDENT LEARNING OUTCOMES: The student learning outcomes for the course should be assessable (e.g., consistent with Bloom's taxonomy) and aligned with program outcomes (where applicable).	Upon successful completion of this course the student will: For function types including linear, quadratic, piece-wise defined, rational, radical, polynomial, exponential, and logarithmic: 1) Use multiple representations of these function types to investigate quantities, describe relationships between quantities, and attend to how two quantities change together

	2) Describe characteristics of these function types and convert between different representations and algebraic forms to analyze, model, and solve meaningful problems 3) Develop procedural fluency to support the understanding, analysis, and modeling of these function types and calculation with related expressions
TOPICS OUTLINE: The instructional units in which the above outcomes will be taught and assessed.	List Instructional units: 1) Relations and Functions (15% of time) a) Graphs of functions, domain, and range of functions b) Transformations of functions: translations, stretches, compressions, and reflections c) Piecewise functions (e.g., absolute value function) d) Compositions of functions e) Difference quotients f) Inverse functions 2) Quadratic Functions (25% of time) a) Provide multiple representations of quadratic functions or expressions by hand and/or using technology b) Determine identifying characteristics of quadratic functions or expressions (e.g., factors) c) Evaluate, simplify, and perform operations on quadratic functions or expressions d) Complex numbers, perform arithmetic operations, compute powers of i e) Solve quadratic equations algebraically (e.g., factoring, completing the square, and quadratic formula with rational, irrational, complex solutions, and use of the discriminant) and/or graphically f) Solve real world applications involving quadratic equations and functions 3) Higher Order Polynomial Functions (15% of time)

	a) Analyze power functions and higher degree polynomials b) End behavior c) Graphs of polynomial functions 4) Rational Functions (20% of time) a) Graphs of rational functions b) Find domain, removable discontinuities, vertical, horizonal and slant asymptotes c) Solve rational equations 5) Radical Functions (10% of time) a) Find domain, x and y intercepts b) Graph radical functions c) Solve radical equations 6) Exponential and Logarithmic Functions (15% of time) a) Graph exponential and logarithmic functions b) Domain, range, vertical and horizontal intercepts c) Properties of logarithms d) Solve exponential and log equations
TERMS OFFERED Please check all that apply	☒ Fall ☒ Winter ☒ Spring ☒ Summer
COURSE MODALITY Please check all that apply	☒ On-ground ☒ Online ☒ Hybrid ☒ Other (specify): LRON (Live Remote Online)
ADDITIONAL INFORMATION: If applicable, include any special instructions or requirements (e.g., field work or background check required) as well as any recommended texts or materials (e.g., open-source materials)	The use of mathematics specific technology to support understanding of the College Algebra course is required.

CLASSROOM REQUIREMENTS (e.g., Computer lab, Kitchen, Science lab, Studio, Lecture)	Movable desks or tables so that students may work in groups. Plenty of board space. Appropriate technology.