Naugatuck Valley Community College
STEM Division
Science, Technology, Engineering and Mathematics

Common Course Syllabus
College Algebra MAT*H172

COURSE TITLE: College Algebra, MAT*H172

COURSE DESCRIPTION: This course offers the student the development of numeric, algebraic, and graphic problem solving techniques beyond the intermediate level. Techniques are developed to solve equations and inequalities involving polynomials, radicals and rational expressions. Polynomial, inverse, rational, exponential, and logarithmic functions are studied and their applications are explored both algebraically and graphically.

NUMBER OF CREDITS: 3 credit hours

PREREQUISITE: Grade of "C" or better in MAT*H137 (Intermediate Algebra) or an appropriate score on a college placement exam.

TECHNOLOGY: Computer component required; TI-83 (Plus) or TI-84 (Plus) or online graphing utility required.

COURSE OBJECTIVES:
1. Analyze functions and their graphs using the language and symbolism of algebra.
2. Utilize various problem-solving strategies/techniques to set up and solve real world problems.
3. Communicate effectively through use of accurate mathematical terminology and notation.
4. Use technology as a tool to explore, enhance understanding, and solve applications.
5. Master concepts and skills necessary to be successful in subsequent mathematics courses.

LEARNING OUTCOMES: At the end of this course the student will be able to do the following:

A. Analysis of Functions —
   - Algebraically and graphically analyze various functions (polynomial, radical, rational, piecewise, logarithmic, exponential and power); analysis of functions includes determining asymptotes, symmetry, increasing and decreasing intervals, maxima, minima.
   - Perform arithmetic operations on functions. -
   - Analyze operations of composite functions.
   - Given a function, develop its inverse.
   - Determine domain and range of a function.

B. Techniques of Graphing —
- Apply transformations (translation, stretch, compression, reflection).
- Combine these graphing procedures.

C. Systems of Equations —
- Use algebraic and graphic methods to create mathematical models to solve multivariate problems.

D. Solving Equations and Inequalities—
- Find roots of polynomials algebraically and graphically.
- Solve radical equations
- Solve rational and quadratic inequalities
- Solve quadratic equations with complex roots.

E. Polynomial, Rational and Radical Functions —
- Analyze power functions and higher degree polynomials.
- Solve applications involving polynomial, rational and radical functions.

F. Complex Numbers —
- Perform arithmetic operations.
- Compute powers of i.

G. Exponential and Logarithmic Functions —
- Graph exponential and logarithmic functions.
- Study base e and its applications.
- Apply properties of logs.
- Convert logs with bases other than 10 or e.
- Solve applications containing exponential and logarithmic equations.

(As time permits)
H. Mathematical Modeling and Curve Fitting —
- Draw scatter diagrams.
- Curve fit bivariate data.
- Solve problems involving quadratics, power functions and higher degree polynomials by curve fitting.
- Determine a function of best fit and use its equation to make predictions.

GRADING SYSTEM:
For the purpose of computing numerical credit point averages, grades are evaluated as follows for each semester hour of credit. Grades on exams, papers, and quizzes, will be based on this grading system.

Numeric Grade	Acceptable Letter Grade Range to be used by the instructor	Description
90 –100	A– to A	Excellent
80 – 89	B–, B, B+	Above Average
70 – 79	C–, C, C+	Average
60 – 69	D–, D, D+	Below Average
Below 60	F	Failing

CLASS CANCELLATION PROCEDURE: *If the instructor is late, the class is expected to wait 15 minutes before leaving or until informed of a cancellation by a college official. Information on weather related closings/late openings concerning Naugatuck Valley Community College can be obtained through local radio and television stations, or via the college website (http://www.nvcc.commnet.edu).* **NOTE:** *An alternative assignment may be given if classes are canceled due to weather.*

ACADEMIC HONESTY STATEMENT: *At NVCC we expect the highest standards of academic honesty. Academic dishonesty is prohibited in accordance with the Board of Trustee's Proscribed Conduct Policy in Section 5.2.1 of the BOT Policy Manual. This policy prohibits cheating on examinations, unauthorized collaboration on assignments, unauthorized access to examinations or course materials, plagiarism, and other proscribed activities. Plagiarism is defined as the use of another's idea(s) or phrase(s) and representing that/those idea(s) as your own, either intentionally or unintentionally. Anyone who is caught cheating on exams, plagiarizing another's work or published material will fail the course regardless of progress made in the course.*

CHILDREN ON CAMPUS: *With permission of the instructor only – Children must be attended at all times by a responsible adult. The student must notify the instructor or supervisor prior to the beginning of the class or activity that a child is present. Instructors and/or supervisors are authorized to ask the student or program participants to leave should the presence of a child be disruptive.*

CELL PHONE/PAGER USE POLICY: *Students are hereby notified that cellular phones and beepers are allowed in class only if they are turned off or turned to a silent mode. Under no circumstances are telephones to be answered in class. Students who ignore this policy may be asked to leave class. When there are extenuating circumstances that require that a student be available by phone or beeper, the student should speak to the instructor prior to class, so that together they can arrive at an agreement concerning the device.*

STUDENTS WITH SPECIAL NEEDS: *Students who may require accommodations on the basis of a learning disability are encouraged to contact the Coordinator of Learning Disabilities. Students who may require accommodations on the basis of all other disabilities should contact the Coordinator of Disability Services. After providing documentation and completing the disability disclosure process, students are then encouraged to meet with their instructor(s) to discuss the accommodations approved by the appropriate Coordinator and to complete the Accommodations Agreement form. Accommodations are not retroactive, students are therefore encouraged to meet with their instructor(s) at the beginning of each semester. Instructors, in conjunction with appropriate college personnel, will provide assistance and/or accommodations only to those students who have completed the disability disclosure and accommodations process.*