MATH 094
Naugatuck Valley Community College
Waterbury, Connecticut
STEM Division: Science, Technology, Engineering and Mathematics
Fall 2014

COURSE: Math 094 Introductory Algebra   **CRN:**
Instructor: **Time:**
Office: **Phone:**
Email: **Room:**
Office Hours:

Course Description:
The course begins with a brief review of basic computational skills and operations with signed numbers. Algebraic order of operations and evaluation and simplification of algebraic expressions is followed by techniques for solving first degree equations and inequalities in one unknown. Also included in this course are algebraic methods for solving applications involving one and two unknowns. Basic rules of exponents are presented and scientific notation is discussed. This is followed by the basic polynomial operations and graphing linear equations in two unknowns, finding slopes of lines, x- and y-intercepts, and writing equations of lines.

Number of Credits: 4 credit hours. This course will not fulfill a mathematics requirement in any degree program.

Prerequisites: None

Required Textbook: Beginning Algebra NVCC Custom 4rd Edition **ISBN:** 9781269871327 created from Elayn Martin-Gay 6th Edition

Calculator: Calculator Allowed. A TI-83/84 is required.

Course Objectives:
1. Develop a good understanding of the language and symbolism of basic algebra.
2. Acquire an understanding of the properties underlying the structure of algebra.
3. Develop the ability to extend basic algebra concepts to more sophisticated courses.
4. Use algebra to model real world situations.

Learning Outcomes:
At the end of this course the student will be able to do the following:

Foundation concepts
a) Recognize and perform operations of addition, subtraction, multiplication, and division using fractions, integers and decimals.
b) Apply rules for order of operations.
c) Simplify algebraic expressions involving grouping symbols.
d) Apply the rules for combining like terms.

Rational Numbers:
a) Identify and distinguish between rational and irrational numbers
b) Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions (e.g., π^2)

Expressions and Equations with Polynomials, Rational and Radical Expressions, and Integer Exponents:
   a) Interpret parts of an expression, such as terms, factors, and coefficients and evaluate expressions for given replacement values(s).
   b) Add, subtract, and multiply polynomials. Divide polynomials by a monomial
   c) Construct and interpret equations as two expressions set equal to each other.
   d) Manipulate formulas to highlight a quantity of interest, using the same reasoning as in solving equations. For example, rearrange Ohm's Law V=IR to highlight resistance R
   e) Know and apply the properties of integer exponents to generate equivalent numerical expressions. For example, $3^2 \times 3^{-5} = 3^{-3} = 1/3^3 = 1/27$
   f) Use square root symbols to represent solutions to equations of the form $x^2 = p$, where p is a positive rational number
   g) Evaluate square roots of perfect squares
   h) Demonstrate understanding that numbers such as $\sqrt{2}$ are irrational
   i) Express very large or very small quantities in scientific notation
   j) Perform operations with numbers expressed in scientific notation

Linear Equations in One Variable:
   a) Solve linear equations and inequalities in one variable
   b) Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms
   c) Create linear equations and inequalities in one variable and use them to solve real world applications
   d) Recognize examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions

Linear Equations in Two Variables:
   a) Interpret the rate and unit rate as the slope of the graph
   b) Derive the equation $y = mx + b$ for a line intercepting the vertical axis at *b and having* a slope of *m.*
   c) Identify parallel and perpendicular lines based on their slopes
   d) Graph a linear equation in two variables
   e) Construct a linear equation to model a linear relationship between two quantities. Determine and interpret the rate of change and initial value from a description of a relationship or from two (*x, y*) values, including reading these from a table or graph
   f) Construct linear equations given a graph, a description of a relationship, or two input-output pairs (include reading these from a table) using point-slope form and slope-intercept form

Systems of Linear Equations:
   a) Understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs
   b) Solve systems of two linear equations in two variables algebraically (using both substitution and addition methods), graphically (by hand and/or technology), Solve simple cases by inspection. *For example, 3x + 2y = 5 and 3x + 2y = 6 have no solution because 3x + 2y cannot simultaneously be 5 and 6*
   c) Recognize systems of linear equations with one solution, infinitely many solutions, or no solutions
   d) Solve real-world problems leading to two linear equations in two variables

Functions:
   a) Understand that a function is a rule that assigns to each input exactly one output and that the graph of a function is the set of ordered pairs consisting of an input and the corresponding output
   b) Interpret the equation $y = mx + b$ as defining a linear function, whose graph is a straight line
   c) Use functions to model relationships between quantities
   d) Use function notation. Evaluate functions for inputs in their domains
   e) Graph linear functions and show intercepts
   f) Recognize that linear functions have a constant rate of change and interpret the rate of change in the context of the problem

Applications:
   a) Apply geometrical formulas for two and three-dimensional figures such as rectangles, circles, rectangular solids, cylinders, spheres, etc.
   b) Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two dimensions

. Ratios, Proportions and Percent
   a) Identify ratios and rates.
   b) Solve proportions.
   c) Work on applications including converting units of measurement.
   d) Demonstrate understanding of basic concept of percent.
   e) Solve percent equations and apply skills to applications.

Instructional Methodology

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

Evaluative Criteria:

NVCC Absences and Attendance Guidelines
   • The Faculty expects that each student will exercise personal responsibility regarding class attendance.
   • All students are expected to attend every class session of each course for which they are registered.

   • Students are responsible for all that transpires in class whether or not they are in attendance, even if absences are the result of late registration or add/drop activity at the beginning of a term as permitted by college policy.

- The Faculty defines excessive absence or lateness as more than the equivalent of one week of class meetings during the semester. Distance Learning courses will use criteria established by the Instructor.
- When presence counts towards a class participation grade, excessive absence or lateness may, at the discretion of the instructor, lower a student's course grade.
- Instructors will maintain attendance records.

At the beginning of each semester, instructors will submit, to the Academic Dean's office, the names of students who have not attended any classes during the first two weeks of classes.

Class Cancellations: With the potential for faculty emergencies or inclement weather, class cancellations or delays are a possibility. If a class is cancelled or delayed, instructors will work with students to plan for make-up assignments for any class time missed. Faculty can plan for this through a variety of ways including, but not limited to, the use of reading days, or extended class time, or online/additional class assignments.
[Cancellation or delay of classes due to inclement weather is made only by the President of the College. To promptly learn of these cancellations or delays, please sign-up for MyCommNetAlert for immediate notifications.]

Academic Honesty Statement: At NVCC we expect the highest standards of academic honesty. Academic dishonesty is prohibited in accordance with the Board of Trustees' student discipline policy 5.2.1 Policy on Student Conduct, Section 3, Paragraph 2. 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 violates the Board policy may fail the course at the discretion of the instructor. (Please see the Student Handbook on the College website for more information
http://www.nv.edu/Portals/0/Documents/StudentServices/NVCCStudentHandbook.pdf).

A student may not obtain a transcript notation of "W" in a course if there exists substantial reason to believe the student has engaged in academic misconduct in the course. A transcript notation of "W" will only be permitted for such students when the final resolution results in finding the student did not commit academic misconduct in the course.

Children on Campus: For the purpose of this policy, children are defined as minors under the age of 18 who are not enrolled in a Naugatuck Valley Community College course or program. Children must be attended at all times by a responsible adult. Children may accompany an adult to class on an occasional basis and only with the prior permission of the class instructor. In an emergency situation that is not repetitive, a request may be made to the instructor of the course or supervisor of the activity for permission to bring a child to class or on campus. The student must notify the instructor or supervisor prior to the beginning of the class or activity that a child is present. Pre-k, elementary and high schools that are not in session are not emergency situations. Arrangements must be made for child care outside of NVCC.

It is expected that this accommodation will be made only when there is no disruption to the teaching and learning process. Instructors and/or supervisors are authorized to ask the student or program participant to leave should the presence of the child be disruptive.

Children are never permitted in any test, exam or final exam session.

(Full policy can be found in the NVCC Student Handbook)

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."

Blackboard Learn Mobile
This course makes extensive use of Blackboard Learn, the digital teaching and learning platform for the Connecticut Community Colleges, and all students will need access to the Internet (there are plenty of computing resources on campus) in order to take quizzes and access course resources. Some course content as presented in Blackboard Learn is not fully supported on mobile devices at this time. While mobile devices provide convenient access to check in and read information about your courses, they should not be used to perform work such as taking tests, quizzes, completing assignments or submitting substantive discussion posts. If you have any problem using Blackboard Learn Mobile, you should contact Distance Learning at **203-575-8182** dl@nv.edu. During off-hours please visit our *ConnSCU Student Support Help Desk* https://websupport.ct.edu and search *"Blackboard Mobile Learn"* or call **860-723-0221** (Mon-Thr 8a.m. - 8p.m., Fri 8a.m. - 5p.m., Sun 1p.m. - 9p.m.). If these resources are not available, please resort to using your desktop/laptop computer for all course viewing and activity.

Students with Special Needs-ADA: Students who may require academic adjustments on the basis of a learning disability are encouraged to contact the Counselor for Students with Learning Disabilities (Terry Latella K519C). Students who may require adjustments on the basis of all other disabilities should contact the Coordinator of Disability Services (Laurie Novi K519D). After providing documentation and completing the disability disclosure process, students are then encouraged to meet with their instructor(s) to discuss the adjustments approved by the appropriate disabilities contact and to complete the Adjustments Agreement form. Adjustments 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 adjustments only to those students who have completed the disability disclosure and academic adjustments process.

Continuing Notice of Nondiscrimination
Naugatuck Valley Community College does not discriminate on the basis of race, color, religious creed, age, sex, national origin, marital status, ancestry, present or past history of mental disorder, learning disability or physical disability, sexual orientation, gender identity and expression or genetic information in its programs and activities. In addition, the College does not discriminate in employment on the additional basis of veteran status or criminal record.

The following individual has been designated to handle nondiscrimination policies regarding disability policies: **Robert Divjak, Director of Facilities/Section 504/ADA Coordinator, Room C216, Naugatuck Valley Community College, 750 Chase Parkway, Waterbury, CT 06708; 203-575-8235.**   The following individual has been designated to handle nondiscrimination policies regarding sex discrimination as well as other forms of prohibited discrimination: **Jacquie Swanson, Associate Director of Human Resources/Title IX Coordinator, Room K704, Naugatuck Valley Community College, 750 Chase Parkway, Waterbury, CT 06708; 203-575-8043.**

Official Student Email:
As of January 1, 2013, new and current Naugatuck Valley Community College students were given an official student email address through Microsoft Office 365. This email address is the primary mode of communication with the college. Emails will no longer be sent to personal email

accounts. In the near future, the Office 365 account will also give free access to web applications of Microsoft Word, Excel, PowerPoint and OneNote. Visit nv.edu/email for details on setting up your account or for help, call or visit IT: 203-575-8092 or nv.edu/IT.

Course Outline/Readings

Bibliography

Internet Related Sites

Tutoring Resources:
The Academic Center for Excellence (ACE), provides tutoring in math, sciences, English and writing, and numerous other subjects. Students can learn about the full range of tutoring and other student success services by going by the ACE in E500 Ekstrom Hall, visiting its webpage at http://www.nv.edu/Student-Life/ACE-Tutoring, or by calling (203) 596-8717.

Hours:		
Monday & Tuesday	8 am – 8 pm
Wednesday & Thursday	8 am – 7 pm
Friday	8 am – 4 pm
Saturday	10 am – 3 pm
Sunday	12 pm – 4pm

Library Resources:
The Max R. Traurig Library is located on the 4th and 5th floors of the L building. The library has books, journals, databases, research guides, DVDs and CDs to support the college curriculum, as well as copies of all the textbooks used at NVCC. The online journal databases, ebooks, and streaming videos can be accessed via the library website at www.nv.edu/library or through the Library tab in MyCommNet.

Hours:	Monday and Tuesday	8 am – 8 pm
	Wednesday and Thursday	8 am – 6 pm
	Friday	8 am - 4:30 pm
	Saturday and Sunday	10 am – 2 pm

Phone: (203) 575-8024
Email: library@nv.edu