Three Rivers
COMMUNITY COLLEGE

Syllabus (Fall 2019)
30317　　Elem.Math Foundations
MW　11-12:15　Rm. E221

Course Information

- **Instructor Information**

  DANIEL PATRICK COLBURN　　　　. BEFORE/AFTER CLASS BY
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- **Course Description**

  Prerequisite: ENG* K096 placement
  This course develops understanding of number systems, different representations of numbers, and operations on numbers, including numbers expressed in scientific notation. The course introduces functions, their graphs, and modeling relationships between quantities using functions. Topics also include solving equations; simplifying expressions with integer exponents; using square roots; solving, analyzing, and modeling linear equations; and using systems of linear equations, Pythagorean Theorem, and geometric formulas to solve real world problems. This course does not satisfy a math requirement or an elective in any degree program, nor do its credits count toward graduation. Please refer to online schedule and click on the CRN hyperlink and/or review the printed schedule to determine which faculty require math software in their section.

- **Required Materials**

  Text: *Elementary and Intermediate Algebra, 5th ed.* by Baratto & Bergman.

  Calculator: Scientific calculator (basic arithmetic buttons and square root button)

  .ALEX NOT REQUIRED   TEXT ELECRONIC VERSION NOT RECOMMENDED

- **Learning Outcomes**
  Upon successful completion of this class a student should be able to:

1. **Rational Numbers – At the end of this course, a student should be able to**
   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, $\sqrt{8}$)

2. **Expressions and Equations with Polynomials, Rational and Radical Expressions, and Integer Exponents** – At the end of this course, a student should be able to

   a) Interpret parts of an expression, such as terms, factors, and coefficients and evaluate expressions for a given replacement value(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, $3^2 \times 3^{-5} = 3^{-3} = \dfrac{1}{3^3} = \dfrac{1}{27}$)
   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) Know 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

3. **Linear Equations in One Variable** – At the end of this course, a student should be able to

   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

4. **Linear Equations in Two Variables** – At the end of this course, a student should be able to
   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

5. **Systems of Linear Equations – At the end of this course, a student should be able to**

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

6. **Functions – At the end of this course, a student should be able to**

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 linear 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

7. **Applications – At the end of this course, a student should be able to**

a) Apply geometric 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

Grading
• **Methods of Evaluation**

ARITHMETRIC MEAN OF ALL ASSESSMENTS

- Grading Policies
  - Late Work: DUE BEFORE GERMAINE ASSSESSMENT(D

  - Missed Work Make-Up Policy: SAME AS ABOVE (

  - Extra Credit: N/A(

- **Letter Grade Equivalents**

Grade equivalents: A 93 – 100, A- 90 – 93, B+ 87 -89, B 83 – 86, B- 80 – 82, C+ 77 – 79, C 73 – 76, C- 70 – 72, D+ 67 – 69. D 63 – 66. D- 60 – 62. F below 60

Classroom Policies
- **Attendance:** (Attendance at all times is expected --absenteeism/tardiness hinder mastery

- **Communication:** All communication will occur by email. Please make sure that you check your TRCC email or set it up to forward to another account. Check your email regularly to be informed of any changes in schedule.

- **Class Cancellation:**
  If school is cancelled, notification of cancellation due to inclement weather will be available by telephone by 6:00 am for daytime classes and by 2:30 pm for evening classes by calling the College's main telephone at (860) 215-9000, pressing 1, and listening to the taped announcement. The College's website will also have announcements available by accessing the www.threerivers.edu home page. The myCommnet Alert Notification System will also be used to deliver important information regarding weather-related class cancellations, via both email messages and text messages, to registered individuals. To register, log on to your myCommnet account at http://my.commnet.edu/ and follow the link to myCommnet Alert.

  If class is cancelled by the instructor, a notice will be placed on the classroom door. If time permits, students may be notified by a message via email.

- **Withdrawal Policy:** You may withdraw from this class any time up to and including November 5 and you will receive a W grade on your transcript. However, you must complete a withdrawal form in the Registrar's Office at the time of withdrawal; *if you merely stop attending classes you will be assigned a grade of F.* Any eligibility for refund of tuition is based on the date that the registrar receives the withdrawal.

- **Academic Integrity:** The effective operation of any organization is dependent on the honesty and goodwill of its members. In an organization devoted to the pursuit of knowledge, acting with integrity is essential to effective teaching and learning. Furthermore, academic dishonesty erodes the legitimacy of every degree awarded by the College. To emphasize the importance of academic integrity, Three Rivers Community College adheres to the Student Code of Conduct and Discipline Policy, as provided by the Connecticut State Colleges and Universities (CSCU) - Board of Regents for Higher Education. (Please refer to BlackBoard for the complete statement.)

  Some of the behaviors that will be considered cheating are:
  - Communicating with another student during a quiz or exam
  - Copying material from another student during a quiz or exam or from any assignment being graded
  - Allowing another student to copy from your quiz, exam, or any assignment being graded
  - Use of unauthorized assistance on any assignment being graded
  - Use of unauthorized notes or books during a quiz or exam
  - Providing or receiving a copy of a quiz or exam used in the course
  - Use of a cell phone or pager to transmit information during a quiz or exam

Tentative Schedule
This is the tentative schedule – instructor reserves the right to change dates throughout the semester. It is your responsibility to attend class to learn of any changes in schedule.

ATTACHED ---1 section per class

School Policies
Please refer to BlackBoard for a link to the entire policy.
- **Digication:** All students are required to maintain an electronic portfolio using the College template within Digication. Digication can be accessed at https://threerivers.digication.com.

- **Disability:** Three Rivers Community College (TRCC) is committed to the goal of achieving equal educational opportunity and full participation for individuals with disabilities. To this end, TRCC seeks to ensure that no qualified person is excluded from participation in, is denied the benefit of, or otherwise is subjected to discrimination in any of its programs, services, or activities.

- **Non-discrimination:** Three Rivers 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.

- **Sexual Misconduct:** The Board of Regents for Higher Education (BOR) in conjunction with the Connecticut State Colleges and Universities (CSCU) is committed to insuring that each member of every BOR governed college and university community has the opportunity to participate fully in the process of education free from acts of sexual misconduct, intimate partner violence and stalking.

SUGGESTED PROBLEMS

Section 0.5	#1-7 odd, 9-25 odd, 27-75 odd, 81-84 all, 85, 87, 91
Section 1.1	#1-27 odd, 41-53 odd, 65-71 odd, 73, 77
Section 1.2	#1-41 odd, 43-47 odd, 51, 55, 57, 67-73 odd, 75-77 odd, 79-83 odd
Section 1.3	#1-5 odd, 7, 9, 11-31 odd, 33-39 odd, 41-55 odd, 57-69 odd, 79, 81, 85, 87, 89, 95
Section 1.4	#1-15 odd, 23-27 odd, 29-63 odd, 65-69 odd, 75, 77
Section 1.5	#1-39 odd, 41-47 odd, 59
Section 1.6	#1-39 odd, 41-51 odd, 53-61 odd, 85, 87, 91, 95, 101-107 odd
Section 1.7	#1-7 odd, 9-13 odd, 15-27 odd, 29-75 odd, 85, 89, 91, 93, 95-100 all
Section 2.1	#1-23 odd, 31, 33, 43, 45, 47
Section 2.3	#1-13 odd, 15-25 odd, 27-33 odd, 48-50 all, 53, 55-60 all, 65, 67
Section 2.4	#1-10 all, 11-21 odd, 23-33 odd, 35, 37, 39, 41, 43-46 all, 53
Section 2.5	#69, 70, 72, 73, 74-76 all

Section 3.1	#1-29 odd, 31-35 odd, 45, 47, 49, 71, 73
Section 3.2	#1-17 odd, 19-25 odd, 27-31 odd, 33-45 odd, 47-51 odd, 55-57 all, 61, 71-78 all
Section 3.3	#1-10 all, 11-21 odd, 23-31 odd, 33-53 odd, 59-65 odd
Section 3.4	#1-7 odd, 9-11 all, 13-15 all, 17-19 all, 35
Section 4.1	#1-13 odd, 54, 57
Section 4.3	#1-13 odd, 15-25 odd, 27-35 odd, 39-43 odd, 45-49 odd, 51, 53, 61, 65
Section 5.1	#1-63 odd, 69-79 odd,
Section 5.2	#1-81 odd, 83-89 odd, 91-97 odd, 99-103 odd, 105-113 odd, 121
Section 5.3	#1-7 odd, 13-21 odd, 23-29 odd, 31-37 odd, 39, 41, 51, 53
Section 5.4	#1-15 odd, 17-23 odd, 25-39 odd, 61, 63
Section 5.5	#1-41 odd, 43-57 odd, 61-75 odd, 91, 103, 105
Section 5.6	#1-19 odd
Section 7.1	#1-8, 25, 26, 29-32, 37-43 odd, 59-63 odd, 95-98