

Naugatuck Valley Community College
Waterbury, Connecticut
STEM Division: Science, Technology, Engineering and Mathematics
Fall 2014 **CBI (To be completed by instructor)**

Course: MAT*H144, *Math for Elementary*
Education: Geometry/Data

Instructor: CBI

Office: CBI

Email: CBI

Mailbox: CBI

CRN: CBI

Room: CBI

Meeting Times: CBI

Phone: CBI

Office Hours: CBI

CBI

Course Description: This course is designed for students planning to become certified in early childhood, elementary or middle school level education. Problem solving strategies will be developed and integrated throughout, in accordance with the NCTM *Principles and Standards for School Mathematics*. Topics include probability, statistics, measurement and geometry concepts presented through a problem-solving approach, and incorporating an extensive use of manipulatives and geometric software. Mathematical discourse is encouraged through cooperative learning and written communication.

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.

Required Textbook: *Mathematical Reasoning for Elementary Teachers Plus NEW MyMathLab with Pearson eText – Access Card Package, 7/E*, Calvin Long, Duane DeTemple, Richard Millman, © 2015, Pearson, ISBN 9780321923240. We will cover the material in Chapters 9-14. **(Or CBI)**

Required Technology:

Access to PC Lab (Room CBI) for use of *Geometer's Sketchpad*; USB drive

Calculator: TI-84 (Plus) or TI-83 (Plus)

Internet Access and an **E-Mail Account**

Other Resources: Access to NCTM *Principles and Standards for School Mathematics*, NCTM *Focal Points*, Common Core State Standards for Mathematics (CCSSM)

Course Objectives:

1. Extend/enhance core mathematical knowledge of measurement, geometry, and probability and statistics.
2. Use technology and manipulatives to explore concepts and make connections.
3. Use problem solving as an integral part of mathematics.
4. Develop oral and written skills necessary to communicate mathematically with your future students.
5. Develop a positive attitude towards mathematics.

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

1. Interpret data represented by statistical graphs and tables, and create representations of statistical data.
2. Define and demonstrate understanding of statistical terms
 - Measures of central tendency (mean, median, mode)
 - Measures of spread (range, standard deviation)
 - Population, sample, random sample
 - Normal distribution
3. Define empirical probability and theoretical probability; calculate theoretical probabilities (using ideas of counting, permutations, combinations, dependent/independent events, mutually exclusive/non-mutually exclusive events, complementary events).
4. Describe/define, demonstrate understanding of geometric terms
 - Undefined terms point, line, plane
 - Parallel and perpendicular lines
 - Line segment, endpoint, midpoint
 - Distance, length

- Congruence
 - Angle, vertex, sides, measure, acute, right, obtuse, straight, supplementary, complementary
 - Polygon, including special polygons
 - Circle, interior and exterior of circle, chord, radius, diameter, tangent, secant
5. Accurately measure objects
 - Use protractors to measure angles
 - Use standard and nonstandard units of measure to measure lengths of objects
 - Perform unit conversions
 6. Explain the differences and similarities among parallelograms, trapezoids, rectangles, rhombuses and squares.
 7. Define and demonstrate understanding of inductive and deductive reasoning, hypothesis and conclusion.
 8. Prove theorems
 - Involving vertical angles and angle measures of polygons
 - Establishing congruence of triangles
 - Establishing similarity of triangles
 9. State and apply the Pythagorean Theorem and its converse.
 10. Perform the basic constructions
 - Bisection of a line segment
 - Bisection of an angle
 - Construction of an angle congruent to a given angle
 - Perpendicular to a line from a point on the line and from a point off the line
 - Construction of a line parallel to a given line through a point off the line
 11. Identify regular polyhedra, cones, and cylinders and their properties.
 12. Compute areas, perimeters, surface areas and volumes.
 13. Use tessellations to tile the plane.
 14. Use similarity transformations
 - Transform geometric figures (using translation, reflection, rotation)
 - Create fractals using ideas and techniques of self-similarity

Instructional Methodology: Class time will be used to introduce new concepts, practice skills, and discuss a limited number of student requested homework problems; methods include lecture, large and small group discussions, individual and group problem-solving activities, geometry computer labs. (Or **CBI**)

INSTRUCTIONAL UNITS:

A. Statistics

1. The Graphical representation of data
2. Measures of the center
 - Mean
 - Median
 - Mode
3. Variability
 - Range
 - Standard deviation
4. Statistical inference
 - Populations and samples
 - Random samples
 - Population mean and standard deviation

B. Probability

1. Experimental and theoretical probability
 - Experimenting
 - Mutually/non-mutually exclusive events
 - Independent/dependent events
 - Complementary events
2. Counting
 - Addition principle
 - Multiplication principle
 - Combinations and permutations

C. Measurement

1. Measurement process
2. Standard/non-standard units of measure
3. Unit analysis

D. Geometry

1. Figures, curves, and polygons in the plane
2. Special angle relationships
3. Regular polygons
4. Special quadrilaterals
5. Area and perimeter
6. The Pythagorean Theorem
7. Figures in space
8. Surface area and volume
9. Inductive and deductive reasoning
10. Constructing geometric figures
11. Congruent triangles
12. Similar triangles
13. Transformational geometry
 - Similarity transformations
 - Patterns and symmetry
 - Tilings
 - Self-similarity and fractals

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: CBI

Absences and Attendance

- 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 Cancellation: 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.]

(NOTE if any: CBI)

Make-up Policy: CBI

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.

(NOTE if any: CBI)

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.

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 Non Discrimination: 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: **CBI**

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 for the semester: **CBI**

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

Hours for the semester: **CBI**

Academic Affairs
08/15/14