# North Iowa Area Community College
# Course Outline

Please follow the included instructions when completing this form. Direct questions to Division Chair. After Course Outline is completed, please submit to Division Chair for review, who then submits to Administrative Assistant to the Vice President for Academic Affairs for review by the Curriculum and Academic Affairs Council (CAAC).

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| **Prepared by:** | Jason Tepe |
| **Date Approved by CAAC:** | November 19, 2018 |
| **Course Title:** | Math for Liberal Arts |
| **Course Number:** | MAT-110 |
| **Equivalent Prior Course Numbers:** | 40-121; MATH-101 |
| **Academic Division/Department:** | Mathematics |

**Credits – Semester Hours (s.h.):** 3

**Contact Hours** As defined by the Iowa Department of Education in consultation with Division Chair/Registrar (see attached instructions).

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|---|---|---|
| Lecture: | 45 | 1 s.h. = 15 contact hours |
| Lab: | 0 | 1 s.h. = 30 contact hours |
| Clinical Practice: | 0 | 1 s.h. = 45 contact hours |
| Work Experience: | 0 | 1 s.h. = 60, 75, 90, or 105 contact hours |
| **Total:** | **45** | |

**Prerequisite(s):**

MAT-089 Survey of Math with a grade of C or higher; or ALEKS score of at least 38 or ALEKS scores of at least 65% in Whole Numbers, Fractions and Decimals, and at least 50% in Percents, Proportions and Geometry

**Corequisite(s):**

**Course Description:**

Mathematics for Liberal Arts provides a survey of mathematics topics that include sets, logic, statistics, number theory, geometry, metric system, and consumer math. This course will fulfill 3 hours of Natural Sciences requirement for the A.A. Degree.

**Required Textbook(s) and Other Required Materials:**

Topics in Contemporary Mathematics; Bello, Kaul & Britton; 10th edition ISBN 9781133107422; Brooks/Cole.
A scientific calculator is also required.

**Purpose of Course** Check one [X] in consultation with Division Chair.

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|---|---|
| X | Arts and Sciences (General Education) |
| | Arts and Sciences |
| | Career and Technical (General Education) |
| | Career and Technical |
| | Developmental |

**If course is offered only in specific semesters, please explain below:**

**Maximum number of weeks for which the course is offered:**

16

[Do not edit the following section. Managed by Academic Affairs]

**Is this a Core Competency Anchor Course?** YES ☐ NO ☐

If "Yes," list Core Competency Student Learning Outcome Numbers being taught and assessed in this course (2.2, 3.1, etc.)

(Example) 2.2 [Press Tab to create new rows for each SLO]

**Student Learning Outcomes (SLOs):**

The student who successfully completes this course will be able to:

1. Clarify, construct and analyze basic set operations, Venn diagrams and cardinality problems.
2. Clarify the difference between inductive and deductive reasoning.
3. Construct truth tables and symbolic forms of compound declarative statements.
4. Determine tautologies, contradictions and logical equivalences of truth tables and the validity of arguments.
5. Compute measures of center and variation for a given data set.
6. Construct frequency distribution tables and histograms.
7. Determine probabilities from normally distributed data using z-scores.
8. Determine the prime factorization of a natural number and if it is prime or composite using the Fundamental Theorem of Arithmetic.
9. Find the greatest common divisor and the least common multiple of a small set of integers.
10. Identify the subsets of real numbers, classifying them as belonging to one subset or another.
11. Correctly utilize the arithmetic order of operations.
12. Identify basic geometric objects and correctly utilize the vocabulary of geometry.
13. Determine the perimeter or area of a plane figure, and the volume and surface area of a solid figure.
14. Solve problems involving simple interest, compound interest, and installment loans applying and understanding of percents and percentages.
15. Successfully pass an arithmetic test on operations on whole numbers, fractions, decimals, percents, and integers without a calculator.