

Northwest Arkansas Community College
(Science and Mathematics Division)

Discipline Code

MATH

Course Number

2223

Course Title

Survey of Mathematical Structures II

Catalog Description

MATH 2223 Survey of Mathematical Structures II

(F, S) The fundamental element of this course is the understanding of the underlying concepts of elementary mathematics topics including counting methods, probability, statistics, geometry, measurement, and mathematical systems. Students in the course will prepare and present elementary math lessons and build team technology skills through the completion of an EAST project and/or another research project related to elementary or middle school education. This course is designed for students planning to major in elementary education or middle school education at a senior institution. Computer assisted, WWW, or hybrid versions of this course may be offered in addition to the traditional format. This course will not satisfy the math elective requirement for the Associate of Science in Liberal Arts and Sciences degree at NWACC. Prerequisite: College Algebra (MATH 1203) or Quantitative Reasoning (MATH 1313) with a C or better, or appropriate placement scores.

Prerequisites

MATH 1203 or MATH 1313 with a grade of C or better, or appropriate placement scores.

Credit Hours

3 credit hours

Contact hours

45 lecture contact hours

Load hours

3 load hours

Semesters Offered

Fall & Spring

ACTS Equivalent

No ACTS Equivalent

Grade Mode

A-F

Learning Outcomes

Upon successful completion of this course students should exhibit mastery of certain knowledge and basic skills. Successful Survey of Mathematical Structures II students will be able to:

- 1) Demonstrate understanding of basic geometric concepts including angles, congruence, and similarity
- 2) Calculate area and volume of polygons
- 3) Demonstrate understanding of measurement in both the English and metric systems
- 4) Exhibit understanding of counting techniques and compute basic probabilities
- 5) Distinguish statistical sampling techniques
- 6) Compute measures of central tendency and dispersion
- 7) Demonstrate understanding of mathematical systems
- 8) Prepare and present core mathematics lessons using some form of technology that can be incorporated into the EMPACTS program and/or submit an independent research project that incorporates technology.

General Education Outcomes Supported

- Students can achieve mathematical literacy.

Standard Practices

Topics list

- Linear Functions and Their Graphs
- Measurement
- Geometry
- Counting Methods
- Probability
- Sampling, Frequency Distributions, and Graphs
- Measures of Central Tendency and Dispersion
- The Normal Distribution
- Mathematical Systems
- Rotational Symmetry, Groups, and Clock Arithmetic

Learning activities

- Courses must, at a minimum, cover the core learning outcomes for each topic. Faculty may add to these outcomes but may not omit any of them.

Assessments

- Each instructor will include a set of departmental final exam questions on his or her final exam.
- These questions will be in direct support of the Student Learning Outcomes 1-7. Student Learning Outcome 8 will be assessed via a common grading rubric developed by and made available to all faculty members. The results of the departmental questions, lesson project, and overall student performance will be reported when final grades are reported.

Grading guidelines

- At least 70% of the student's final course grade should come from proctored work