

MATH 1010
MATHEMATICS FOR GENERAL STUDIES
3 Credit Hours

Instructor:

Office:

Phone:

Email:

Office Hours:

Course Description:

Mathematics for General Studies. Three credits. This course satisfies the General Education Mathematics requirement and meets specific requirements for programs as outlined in the MTSU Undergraduate Catalog. Topics include problem solving, set theory, logic, numeration systems, geometry, trigonometry, counting methods, probability, statistics, and financial management.

Prerequisites:

Two years of high school algebra and a Math Enhanced ACT of at least 19, or COMPASS placement, or successful completion of DSPM 0850 or equivalent intermediate algebra course.

Textbook:

Mathematical Ideas, Miller, Heeren & Hornsby, 12th Edition

Calculator: TI-83 or TI-84 Plus calculator will be used for trigonometric, statistical, and financial topics

Upon completion of this course, the student will have the abilities to:

- Use inductive reasoning to generate hypotheses from identifiable mathematical patterns, and use logical operators in applications of deductive reasoning.
- Apply processes of problem-solving in various mathematical connotations.
- Illustrate and prove set relationships using Venn diagrams and carry out combined set operations.
- Use concepts of logic and set theory to analyze logical arguments.
- Make conversions between the binary and decimal numeration systems, and show influences of earlier numeration systems.
- Distinguish between Euclidean and non-Euclidean geometries, and apply Euclidean postulates in solving geometrical problems.
- Know and use right triangle trigonometric functions in solving application problems.
- Use counting techniques and determine probability of given events.
- Generate descriptive statistics, including measures of central tendency, measures of dispersion and measures of position, for given data sets.
- Exercise financial management formulas in the consumer mathematics of installment loans and credit card usage.
- Use appropriate technology, such as a graphing calculator, in related mathematical applications.

- Conduct an individual project as assigned by the instructor, and prepare a report on assigned project.

Course Requirements: In order to accomplish the learning outcomes of this course, the learner is required to

- Attend class lectures
- Participate in class activities
- Read and study assignments
- Solve assigned problem sets
- Complete test, quizzes, homework, etc

Course Sections & Topics:

Chapter 1: The Art of Problem Solving

- 1.1 – Solving problems by inductive reasoning
- 1.2 – An application of inductive reasoning: Number patterns
- 1.3 – Strategies for problem solving
- 1.4 – Calculating, estimating, and reading graphs

Chapter 2: The Basic Concepts of Set Theory

- 2.1 – Symbols and terminology
- 2.2 – Venn diagrams and subsets
- 2.3 – Set operations and Cartesian products
- 2.4 – Surveys and cardinal numbers

Chapter 3: Introduction to Logic

- 3.1 – Statements and quantifiers
- 3.2 – Truth tables and equivalent statements
- 3.3 – The conditional (omit Circuits)
- 3.4– More on the conditional
- 3.5– Analyzing arguments with Euler diagrams (optional)

Chapter 4: Numeration Systems

- 4.1 – Historical numeration systems
- 4.3 – Arithmetic in the Hindu-Arabic system
- 4.4 – Conversion between number bases

Chapter 9: Geometry

- 9.3 – The geometry of triangles: Similarity and the Pythagorean Theorem (omit Congruence)
- 9.4 – Perimeter, area, and circumference
- 9.5 – Volume and surface area
- 9.7 – Non-Euclidean geometry (omit Topology and Networks)

Chapter 10: Counting Methods

- 10.1 – Counting by systematic listing
- 10.2 – Using the fundamental counting principle
- 10.3 – Using permutations and combinations

Chapter 11: Probability

11.1 – Basic concepts

11.2 – Events involving “not” and “or”

11.3 – Conditional probability: Events involving “and”

Chapter 12: Statistics

12.1 – Visual displays of data

12.2 – Measures of central tendency

12.3 – Measures of dispersion

12.4 – Measures of position (optional)

Chapter 13: Personal Financial Management

13.1 – The time value of money

13.2 – Consumer credit

13.3 – Truth in lending

13.4 – The costs and advantages of home ownership

Chapter 14: Trigonometry

14.2 – Trigonometric functions of angles

14.3 – Trigonometric identities

14.4 – Right triangles and function values

14.5 – Applications of right triangles

Evaluation:**Grading Scale:**

100-90% ---A

89-80% ---B

79-70% ---C

69-60% ---D

Below 60% ---F

Drop/Withdrawal Policy (Note: underlined info needs updating for each semester)

Please note the Drop Policy and Withdrawal Procedures as they are stated in the Registration Guide.

The last day to drop this course without a grade is September 10. The last day to drop this course with a “W” is October 15. A grade of “I” will be given only in accordance with University Policy.

No grade of “W” will be assigned after the official drop date except in situations involving extreme extenuating circumstances beyond the student’s control. In particular, a “W” will not be granted merely because the student is failing. Students should be aware that missing the official drop date and thereby receiving an “F” can have ramifications on financial aid.

Lottery Scholarships

To retain Tennessee Education Lottery Scholarship eligibility, you must earn a cumulative TELS GPA of 2.75 after 24 and 48 attempted hours and a **cumulative** TELS GPA of 3.0 thereafter. You may qualify

with a 2.75 **cumulative** GPA after 72 attempted hours (and subsequent semesters), if you are enrolled full-time and maintain a **semester** GPA of at least 3.0. A grade of C, D, F, or I in this class may negatively impact TELS eligibility. Dropping a class after 14 days may also impact eligibility; if you withdraw from this class and it results in an enrollment status of less than full time, you may lose eligibility for your lottery scholarship. Lottery recipients are eligible to receive the scholarship for a maximum of five years from the date of initial enrollment, or until a bachelor degree is earned. For additional Lottery rules, please refer to your Lottery Statement of Understanding form, review lottery requirements on the web at <http://scholarships.web.mtsu.edu/telsconteligibility.htm>, or contact the Financial Aid Office at 898-2830.

Disability Assistance

If you have a disability that may require assistance or accommodation, or you have questions related to any accommodations for testing, note takers, readers, etc., speak with me as soon as possible. Students must also contact the Office of Disabled Students Services (898-2783) with questions about scheduling such services.