

*Math 1010 - Mathematics for General Studies*

<b>Course Title:</b>	MATHEMATICS FOR GENERAL STUDIES
<b>Prerequisites:</b>	Two years of high school algebra and a Math Enhanced ACT of at least 19 or COMPASS placement, or successful completion of a DSPM 0850 course.
<b>Text:</b>	<u>Mathematical Ideas</u> , Miller, Heeren & Hornsby, 11th edition
<b>Calculator:</b>	All calculator instruction in the course will be specific for the TI-83 or TI-84 Plus graphing calculator.

<b><u>Purpose:</u></b>	The purpose of this course is to introduce the student to a wide variety of mathematical perspectives. The course is designed to expand the student's appreciation of how mathematics applies to quantitative problems that originate in many fields, and to provide opportunities to solve some of these problems. The student will learn the process of problem-solving. An introduction to logic will provide tools of deductive reasoning that are essential to not only mathematics, but also to other subjects and to daily life. The student will encounter numeration systems, in particular the binary system and its relation to computing devices. Advanced topics in geometry will include such ideas as right triangle trigonometry, graph theory, fractals and projective and non-Euclidean geometry. The formulas of financial mathematics will be derived and applied to problems of annuity, amortization, and interest. Probability and statistics will be introduced. The student will be required to communicate the results of his/her mathematical work in forms such as write-ups of solutions of selected problems and projects, and oral presentations involving the use of technology such as graphing calculators, MS Excel, LOGO, or The Geometer's Sketchpad.
<b><u>Learning Outcomes:</u></b>	Upon completion of this course, the student will have the abilities to: <ol style="list-style-type: none"><li>1. Use inductive reasoning to generate hypotheses from identifiable mathematical patterns, and use logical operators in applications of deductive reasoning.</li><li>2. Apply processes of problem-solving, including Polya's method, in various mathematical connotations.</li><li>3. Make conversions between the binary and decimal numeration systems, and show influences of earlier numeration systems.</li><li>4. Distinguish between Euclidean and non-Euclidean geometries, and apply Euclidean postulates in solving geometrical problems.</li><li>5. Exercise financial management formulas in the consumer</li></ol>

	<p>mathematics topics of installment loans, credit card usage, home buying, and investment opportunities.</p> <ol style="list-style-type: none"> <li>6. Illustrate and prove set relationships using Venn diagrams and carry out combined set operations.</li> <li>7. Generate descriptive statistics from given data sets and find probabilities of given events.</li> <li>8. Determine if given networks are Euler circuits or have Hamiltonian cycles.</li> <li>9. Sort figures into topologically equivalent classes.</li> <li>10. Conduct an individual and/or group project as assigned by instructor and prepare a report on the project.</li> <li>11. Use appropriate technology, such as a graphing calculator, an MS Excel spreadsheet, or Geometer's Sketchpad software, in related mathematical applications.</li> </ol>
<p><b>Topical Outline:</b></p>	<p>This course will include material from Chapters 1-4, 9 - 14 of the required text, along with a selection of applications and independent presentations. For additional information, see the course schedule section (below). Topics included in the course consist of:</p> <ul style="list-style-type: none"> <li>• Problem solving and communication of mathematics</li> <li>• Sets and Logic</li> <li>• Geometry and right triangle trigonometry</li> <li>• Counting and Probability</li> <li>• Introductory Statistics</li> <li>• The Mathematics of Personal Financial Management</li> </ul>
<p><b>Grading:</b></p>	<p>Knowledge will be assessed and grades will be assigned according to the <a href="#">grading scale</a>. Attendance counts in the grading process.</p> <p>Grading Scale:</p>
<p><b>General information:</b></p>	<ul style="list-style-type: none"> <li>• Test policy -</li> <li>• Homework policy -</li> <li>• Class attendance -</li> <li>• A grade of I will be given only in accordance with University policy.</li> <li>• The last day to drop without a grade is _____.</li> <li>• The last day to drop with a grade of W is _____.</li> <li>• The final exam will be _____.</li> <li>• <u>The syllabus may change at the discretion of the instructor.</u></li> </ul> <p>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., please speak with the instructor as soon as possible. Students may also contact the Office of Disabled Students Services (898-2783) with questions about such services.</p>

The syllabus may change at the discretion of the instructor. In particular, the order of the topics may change.

**Schedule: (Sample for MWF class)**

<b>Date:</b>	<b>Chapter:</b>	<b>Topic:</b>
Day 1	Introduction; 1.1	Introduction; Solving Problems by Inductive Reasoning
Day 2	1.2 & 1.3	An Application of Inductive Reasoning; Strategies for Problem Solving
Day 3	1.4	Calculating, Estimating & Reading Graphs; Design of presentations
Day 4	2.1, 2.2 & 2.3	Symbols & Terminology; Venn Diagrams & Subsets; Set Operations
Day 5	2.3 & 2.4	Cartesian Products; Surveys and Cardinal Numbers
Day 6	3.1 & 3.2	Statements & Quantifiers; Truth Tables
Day 7	3.2 & 3.3	Equivalent Statements ; The Conditional & Circuits
Day 8	3.4	More on the Conditional
Day 9		<b>Test I</b>
Day 10	3.5	Analyzing Arguments with Euler Diagrams
Day 11	4.1& 4.2	Historical Numeration Systems; Arithmetic in the Hindu-Arabic System
Day 12	4.3	Conversion between Number Bases
Day 13	5.4	The Fibonacci sequence and the Golden Ration
Day 14		Presentations
Day 15		Presentations
Day 16	9.4	The Geometry of Triangles: Congruence, Similarity, and the Pythagorean Theorem
Day 17	9.5	Space Figures, Volume and Surface Area
Day 18	9.6	Transformational Geometry
Day 19	9.7	Chaos and Fractal Geometry
Day 20		<b>Test II</b>
Day 21	10.4	Right Triangles and Function Values
Day 22	10.4	Right Triangles and Function Values; Presentations
Day 23	10.5	Applications of Right Triangles
Day 24		Presentations
Day 25	11.1; 11.2	Counting by Systematic Listing; Using the Fundamental Counting Principle
Day 26		Presentations
Day 27	11.3	Using Permutations and Combinations
Day 28	11.5	Counting Problems Involving "Not" and "Or"

Day 29	12.1	Basic Concepts of Probability
Day 30		<b>Test III</b>
Day 31	12.2	Events involving "Not" or "Or"
Day 32	12.3	Conditional Probability; Events Involving "And"
Day 33	13.1	Visual Display of Data
Day 34	13.2	Measures of Central tendency
Day 35	13.3	Presentations
Day 36	13.3	Measures of Dispersion
Day 37		<b>Test IV</b>
Day 38	13.4	Measures of Position
Day 39	14.1	The Time Value of Money
Day 40	14.2	Installment Buying
Day 41	14.3	Truth in Lending
Day 42		Presentations
	<b>Final</b>	

Suggested sections for Topics for Presentations: 2.5, 3.6, 4.4, 4.6, 6.3, 6.4, 7.3, 9.2, 9.7, 11.4, 14.4, 14.5, 15.1, 15.2, 16.1

<p>Lottery Scholarships:</p>	<p><b>• Students receiving the lottery scholarships:</b></p> <p>To retain Tennessee Education Lottery Scholarship eligibility, you must earn a cumulative TELS GPA of 2.75 after 24 attempted hours and a cumulative TELS GPA of 3.0 thereafter. 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.</p>
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