PELLISSIPPI STATE TECHNICAL COMMUNITY COLLEGE
MASTER SYLLABUS

FUNDAMENTALS OF MATHEMATICS
MATH 1010 (formerly MTH 1100)

Class Hours: 3.0 Credit Hours: 3.0
Laboratory Hours: 0.0 Date Revised: Fall 2001

Catalog Course Description:
Topics include, critical thinking skills, problem solving, logic, geometry with some right triangle trigonometry, measurement, consumer math, probability and statistics.

Entry Level Standards:
Students must be able to read at the college level.

Prerequisite:
Two years of high school algebra and ACT math score of at least 19, or DSPM 0850 (formerly DSM 0840) or equivalent math placement score

Textbook(s) and Other Reference Materials Basic to the Course:

Textbook:

References:

Personal Equipment:
A basic scientific calculator is required. A graphing calculator is recommended.

I. Week/Unit/Topic Basis:

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
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<tbody>
<tr>
<td>1</td>
<td>Critical thinking skills and problem solving: 1.1, 1.2, 1.3</td>
</tr>
<tr>
<td>2</td>
<td>Problem solving and logic: 1.4, 2.1, 2.2</td>
</tr>
<tr>
<td>3</td>
<td>Logic: 2.3, 2.4, 2.5</td>
</tr>
<tr>
<td>4</td>
<td>Review, Test 1, geometry: 6.1</td>
</tr>
<tr>
<td>5</td>
<td>Geometry, right triangle trigonometry: 6.2, 6.3, 6.4, 6.5</td>
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II. Course Objectives*:

A. Translate verbal and written situations into a problem-solving format. VI.1,3

B. Master the logic necessary to interpret set notation, Venn diagrams, and truth tables. VI.1,3,5

C. Master the critical thinking skills necessary for success in the student’s discipline and life. VI.2,4

D. Master geometric principles necessary for success in the student's discipline. VI.3,5

E. Learn enough basic right triangle trigonometry to apply it in current problem solving and future course work. VI.2,3,5

F. Use mathematics to solve personal everyday financial problems. VI.1,2,3,5

G. Use the basic principles of probability. VI.1,2

H. Collect and assemble quantitative data, making wide use of tables and graphs. VI.1

I. Apply principles in statistics to solve real-world problems. VI.1,2,3

*Roman numerals after course objectives reference goals of the university parallel program.

III. Instructional Processes*:

Students will:

1. Successfully convert sentences into statements in logic and then draw correct conclusions. Problem Solving and Decision Making Outcome, Transitional Strategies, Active
Learning Strategies

2. Use algorithmic processes to solve problems deductively, such as solving linear programming problems that involve business applications. Problem Solving and Decision Making Outcome, Numerical Literacy Outcome, Active Learning Strategies

3. Work, either individually or in a group setting, to solve problems from different occupational fields. Solutions must be mathematically correct and be clear and correct in terms of the related occupational field. An example might include using sets and Venn Diagrams to use given information about number of employees and employee preferences and dislikes to determine an optimal reorganization of those employees into smaller work groups. Communication Outcome, Problem Solving and Decision Making Outcome, Numerical Literacy Outcome, Transitional Strategies, Active Learning Strategies

4. Use a scientific or graphing calculator to solve math of finance problems. Formulas are provided, but the student must determine which formulas to use and when to use them. The student must also be able to use the calculator to get correct results, working with numbers that are often very large and that need to have exponents correctly applied to them. Technological Literacy Outcome, Numerical Literacy Outcome, Active Learning Strategies

*Strategies and outcomes listed after instructional processes reference Pellissippi State's goals for strengthening general education knowledge and skills, connecting coursework to experiences beyond the classroom, and encouraging students to take active and responsible roles in the educational process.

IV. Expectations for Student Performance*

Upon successful completion of this course, the student should be able to:

1. Use set notation and Venn diagrams in application problems. B
2. Utilize inductive and deductive reasoning. A, C
3. Use truth tables and the laws of logic to draw conclusions. A, B
4. Translate verbal and written situations into problem-solving models. A, C, H, I
5. Solve problems using geometry and right triangle trigonometry. A, D, E
6. Solve measurement problems involving U.S. system and metric system units. H
7. Calculate simple and compound interest, annuities, and loans. F
8. Solve basic probability problems. G
9. Graph a frequency distribution as a bar graph and a line graph. H, I
10. Use normal curves and z-score tables to solve applied problems. A, B, C, H, I
11. Research library texts related to major and write a word problem demonstrating application of math in that major. H

*Letters after performance expectations reference the course objectives listed above.

V. Evaluation:

A. Testing Procedures:
Students are evaluated primarily on the basis of tests, quizzes, research paper, and a comprehensive final exam. A minimum of 4 chapter tests is recommended.

B. Laboratory Expectations: None

C. Field Work: None

D. Other Evaluation Methods:

The assigned library activity can count no more than half of an individual test grade; where appropriate, grammar and syntax will be evaluated in addition to the content.

E. Grading Scale:

<table>
<thead>
<tr>
<th>Score</th>
<th>Grade</th>
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<tbody>
<tr>
<td>93 - 100</td>
<td>A</td>
</tr>
<tr>
<td>88 - 92</td>
<td>B+</td>
</tr>
<tr>
<td>83 - 87</td>
<td>B</td>
</tr>
<tr>
<td>78 - 82</td>
<td>C+</td>
</tr>
<tr>
<td>70 - 77</td>
<td>C</td>
</tr>
<tr>
<td>60 - 69</td>
<td>D</td>
</tr>
<tr>
<td>Below 60</td>
<td>F</td>
</tr>
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VI. Policies:

A. Attendance Policy:

Pellissippi State Technical Community College expects students to attend all scheduled instructional activities. As a minimum, students in all courses must be present for at least 75 percent of their scheduled class and laboratory meetings in order to receive credit for the course. Individual departments/programs/disciplines, with the approval of the vice president of Academic and Student Affairs, may have requirements that are more stringent.

B. Academic Dishonesty:

Individual instructors must distribute their policy on academic dishonesty during the first week of class.