PELLISSIPPI STATE TECHNICAL COMMUNITY COLLEGE
MASTER SYLLABUS

FINITE MATHEMATICS
MATH 1610 (formerly MTH 1230)

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

Catalog Course Description:

Introduction to functions, interest, annuities, amortization, systems of linear equations including Gauss-Jordan elimination, and matrix theory. Linear programming using graphical and simplex methods. ACT math score of at least 21 is recommended.

Entry Level Standards:

Students must be able to read at the college level.

Prerequisites:

Two years of high school algebra and satisfactory placement test scores: or MATH 1130 (formerly MTH 1010).

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

Textbook:

References:

Personal Equipment:
A graphing calculator is required. The TI-83 or TI-83 Plus is preferred.

I. Week/Unit/Topic Basis:

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
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<tbody>
<tr>
<td>1</td>
<td>Slopes; equations of lines, 1.1</td>
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<tr>
<td>2</td>
<td>Linear function and applications; regression, 1.2, 1.3</td>
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<tr>
<td>3</td>
<td>Test 1; solving linear systems, 2.1</td>
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<tr>
<td>4</td>
<td>Gauss-Jordan elimination; add/subtract matrices, 2.2, 2.3</td>
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<tr>
<td>5</td>
<td>Matrix multiplication; matrix inverses, 2.4, 2.5</td>
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<tr>
<td>6</td>
<td>Matrix review; Test 2</td>
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Graphing linear inequalities; graphical solutions to linear programming and applications, 3.1, 3.2, 3.3

Linear programming review; Test 3

Introduction to Simplex Method; maximization, 4.1, 4.2

Maximization; minimization; duality, 4.2, 4.3

Minimization; non-standard problems (optional), 4.3, 4.4

Simplex Method review; Test 4

Simple and compound interest; future value of an annuity, 5.1, 5.2

Present value of an annuity; amortization, 5.3

Test 5; review for final

Final Exam

II. Course Objectives*:

A. Demonstrate mastery of the algebraic and linear programming skills necessary for success in the technologies. VI.1,2,3

B. Translate verbal situations into algebraic equations. VI.2,3

C. Construct and discuss mathematical models. VI.4

D. Use the Simplex method to solve maximization or minimization problems. VI.1,5

E. Use mathematics to solve business problems and related business applications. VI.4,5

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

III. Instructional Processes*:

Students will:

1. Use graphing calculator and/or computer software to solve finance problems. Technological Literacy Outcome, Numerical Literacy Outcome, Active Learning Strategy

2. Work collaboratively and/or individually to complete laboratory exercises related to real-world business problems such as revenue, profit, break-even analysis, and supply and demand. Numerical Literacy Outcome, Communication Outcome, Problem Solving and Decision Making Outcome, Transitional Strategy, Active Learning Strategy

3. Engage in collaborative activities such as modeling projects, presentations, group assignments, and/or other activities involving linear programming. Numerical Literacy Outcome, Active Learning Strategy

*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
IV. Expectations for Student Performance:

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

1. Graph systems of linear inequalities. A
2. Algebraically solve systems of equations. A
3. Solve linear programming problems graphically. A, B, C
4. Use basic matrix operations and discover their relationships to systems of equations. E
5. Use the Gauss-Jordan method to solve linear equations. D
6. Solve and apply the Simplex Method to linear programming problems. A, B, D, E
7. Calculate simple and compound interest. A, E
8. Determine amount of an annuity and the present value of an annuity. A, E

*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, homework, labs, other projects possibly assigned by the instructor and the comprehensive final exam. A minimum of 4 major tests is recommended.

B. Laboratory Expectations:

As assigned by instructor

C. Field Work:

As assigned by instructor

D. Other Evaluation Methods:

As assigned by instructor

E. Grading Scale:

- 93 - 100 A
- 88 - 92 B+
- 83 - 87 B
- 78 - 82 C+
- 70 - 77 C
- 60 - 69 D
- Below 60 F
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.