PELLISSIPPI STATE TECHNICAL COMMUNITY COLLEGE
MASTER SYLLABUS

INTERMEDIATE ALGEBRA
DSPM 0850 (formerly DSM 0840)

Class Hours: 3.0 Credit Hours: 3.0
Laboratory Hours: 0.0 Revised: Fall 04

NOTE: This course is designed for transfer credit.

Catalog Course Description:
This course includes the study of quadratics and rational functions and their graphs, polynomial expressions, quadratic equations, rational expressions and equations, and related applications. The T1-83 or T1-83 Plus calculator is required and used throughout the course.

Entry Level Standards:
Satisfactory completion of DSPR 0700 or equivalent placement test score

Prerequisites:
ACT Math placement score of 17 or 18 or equivalent math placement score; or DSPM 0800

Textbook(s) and Other Course Materials:

Textbook:

Personal Equipment:
A graphics calculator is required. The TI-83 or TI-83 Plus graphics calculator is recommended. A symbolic manipulator such as the TI-89 or TI-92 is not permitted.

I. Week/Unit/Topic Basis:

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Introduction to polynomials, 8.1; Operations involving non-negative exponents, 9.1</td>
</tr>
<tr>
<td>2</td>
<td>Operations involving negative exponents, 9.2; Polynomial addition/subtraction, 9.3; Polynomial multiplication, 9.4; Polynomial division and applications, 9.5</td>
</tr>
<tr>
<td>3</td>
<td>Review; TEST 1; GCF and grouping, 10.1</td>
</tr>
<tr>
<td>4</td>
<td>Factoring trinomials (trial and error), 10.3; Factoring trinomials (grouping), 10.4</td>
</tr>
<tr>
<td>5</td>
<td>Special cases, 10.2; General strategies, 10.5; Review</td>
</tr>
<tr>
<td>6</td>
<td>TEST 2; Solve quadratics numerically and graphically, 11.1; Solve</td>
</tr>
</tbody>
</table>
quadratics algebraically, 11.2; Square roots, 11.3

7 Solve quadratics using the Principle of square roots, 11.3; Pythagorean theorem, 11.3; Distance formula, 13.1; Solve for a variable, 11.6; Solve using Quadratic Formula, 11.5

8 Review 11.2/11.3/11.5; Review; TEST 3

9 Quadratic functions and graphs; Cost-revenue-profit applications

10 Vertical position formula applications; Review; TEST 4

11 Graphing rational functions, 12.1; Multiplication/division of rational expressions, 12.2; Adding rational expressions, 12.3

12 Subtracting rational expressions, 12.3; Solving rational equations, 12.4; More real world applications, 12.5

13 Review 12.2/12.3/12.4; Review; TEST 5

14 Review for final; Review for final

15 Final Exam

II. Course Objectives*:

DSPM 0850 is a mathematics course in the TBR mandated Developmental Studies program. The program is designed to provide students with skills which support their success in college-level curricula and enable them to achieve their educational goals. Students who complete the developmental studies program will experience about the same or better success in college-level classes as students who did not need to enroll in developmental courses.

A. Simplify and evaluate expressions and formulas. VI.5

B. Factor polynomial expressions. VI.1

C. Solve quadratic equations algebraically, numerically, or graphically. VI.4,5

D. Model word problems algebraically. VI.2,5

E. Use function notation: evaluate, determine the domain and range, and graph a function. VI.3,5

F. Interpret graphical information. VI.1,3,6

G. Solve rational equations algebraically, numerically, or graphically. VI.4,5

*Roman numerals after course objectives reference TBR's general education goals.

III. Instructional Processes*:

Students will:

1. Use graphing calculators and/or computer software to graph functions, solve polynomial and rational equations. Technological Literacy Outcome

2. Engage in collaborative activities, e.g., modeling projects, teamwork, presentations, and/or other activities involving linear, quadratic, and/or rational functions. Mathematics Outcome, Transitional Strategy, Active Learning Strategy

3. Use multiple approaches—physical, numerical, graphical, symbolic, and verbal—to solve polynomial and rational equations. Mathematics Outcome
4. Participate in interactive discovery exercises that lead to the development of mathematical relationships. *Active Learning Strategy*

5. Actively engage in quadratic modeling project that connects 0850 to entry-level college mathematics courses. *Mathematics Outcomes, Transitional Strategy, Active Learning Strategy*

*Strategies and outcomes listed after instructional processes reference TBR’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. Simplify an exponential expression with positive and negative exponents using the rules of exponents. *A*

2. Add, subtract, multiply and divide polynomial expressions. *A*

3. Rewrite a polynomial as a product of factors using GCF, trial and error, grouping, perfect trinomial squares, difference of squares or state that the polynomial "cannot be factored." *B*

4. Simplify a square root using the product and quotient rule. *A*

5. Find an acceptable solution set for equations with quadratics numerically, graphically, algebraically by factoring, using square roots, or the quadratic formula. *C, D*

6. Calculate the distance between two points using the distance formula. *D*

7. Find a missing side on a triangle using the Pythagorean Theorem. *D*

8. Evaluate, determine the domain and range, and graph a linear, quadratic and rational function. *A, E*

9. Interpret important characteristics of a polynomial function, quadratic function and their graphs. *F*

10. Model and solve word problems with quadratic and rational equations. *C, D, F*

11. Rewrite a rational expression in simplest form. *A*

12. Add, subtract, multiply and divide rational expressions. *A*

13. Find an acceptable solution set for equations with rational expressions. *G*

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

**V. Evaluation:**

A. Testing Procedures:

Students have a maximum of two attempts on each chapter test and the final exam. If a student retests a chapter test, their grade for the test will be determined as follows:

a) If one of the scores is 80 or above, the student will receive the average or 80, whichever is higher.

b) If both scores are less than 80, the student receives the highest grade.

The student must score at least 70 on the final exam to pass the course. If the student does not make at least 70 on the first attempt of the final exam given in class, the student must retest during the final exam period. If the student does not make the required grade of at least 70 on one of the two attempts, the student fails the
course. If the student takes the final exam twice and makes at least 70 on one attempt, the grade will be the average of the two grades or 70, whichever is higher.

B. Laboratory Expectations:

As assigned by instructor.

C. Field Work:

As assigned by instructor.

D. Other Evaluation Methods:

Evaluation will be based on class participation, homework, and projects as outlined on the syllabus supplement distributed by the instructor.

E. Grading Scale:

Unless otherwise stated on the syllabus supplement, the course grade will be the average of the individual chapter exams and the final exam.

A=94 - 100
B=87-93
C=78-86
F=below 78

To pass the course, the student must:
1. Achieve at least 70% proficiency on the final exam
2. Achieve a course average of 78% or better

VI. Policies:

A. Attendance Policy:

Pellissippi State Technical Community College expects student to attend all scheduled instructional activities. As a minimum, students in all courses must be present for at least 75 percent of the scheduled class and laboratory meetings in order to receive credit for the course. Students who miss more than the equivalent of one week of class are not eligible for an “I” or “E” grade and are in jeopardy of failing the course.

B. Academic Dishonesty:

Academic dishonesty in any form is prohibited and will be dealt with severely. Penalties range from an F or a zero for the specific project or examination to automatic failure for the course for all students involved. Individual instructors must distribute their policy on academic dishonesty during the first week of class.

C. Accommodations for disabilities:

If you need accommodation because of a disability, if you have emergency medical information to share, or if you need special arrangements in case the building must be evacuated, please inform the instructor immediately. Privately after class or in the instructor’s office.

To request accommodations students must register with Services for Students with Disabilities: Goins 127 or 131, Phone: (865) 539-7153 or (865) 694-6751 Voice/TDD.

D. Other Policies

Withdrawal:
Students placed and enrolled in a DSP course are not permitted to withdraw excepts for serious circumstances. Students wishing to withdraw should discuss this matter first with their mathematics instructor and then must confer with a student development counselor. The counselor will notify the student of the decision to allow him/her to withdraw.

Make-up Work:
Instructor discretion about make-up tests and/or assignments.
Cell phones:
Cellular telephones and paging devices are to be turned off or put on vibration mode while in class. Instructor discretion as to penalty.