

# **MAT137\_Maurice\_S13**

CRN 10414

ROOM E 221

M/W 2:00-3:15

OFFICE: C 206; OFFICE PHONE: 860-383-5221

OFFICE HOURS: MW: 1:00 - 2:00; TR: 12:00 – 1:00

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## COURSE DESCRIPTION

A graphing calculator is required. Instructor will use a Texas Instrument calculator (TI83). This course continues the development of algebraic skills and concepts. The topics include: linear equations, functions and graphs, applications of systems of equations, inequalities, rational expressions and equations, operations of radicals and rational exponents, quadratic equations, exponential and logarithmic functions.

## PREREQUISITE

Acceptable placement score or Math 095 with a “C” grade or better.

## TEXTBOOK

Elementary & Intermediate Algebra: Graphs & Models 4<sup>th</sup> edition – Bittinger Ellenbogen Johnson

## COURSE OUTCOMES

1. Factor an algebraic expression using a combination of greatest common factor, difference of two squares, sum or difference of two cubes, and/or trinomial factoring .
2. Use factoring procedures to solve equations and problems.
3. Solve compound linear inequalities of the form  $C < ax + b < d$ . Express answer algebraically, graphically, and using interval notation.
4. Isolate a particular variable in a literal equation.
5. Use quadratic formula to find exact values of a quadratic equation with irrational or imaginary solutions. Approximate the irrational solutions.
6. Solve basic exponential and logarithmic equations.
7. Evaluate basic logarithmic expressions, and convert between logarithmic and exponential form.
8. Solve an exponential equation that requires the use of logarithms.
  
9. Graph a quadratic function by finding the vertex, x- and y-intercepts.
10. Relate the discriminant in the quadratic formula to the graph of a parabola.
11. Graph a basic exponential or logarithmic function.
12. Know the graphical relationship between exponential and logarithmic functions.
13. Express the slope as a rate of change using appropriate units.
14. Write the equation of a linear function given data. Use functional notation in the answer.
15. Write the equation of an exponential function given data. Use functional notation in the answer.
16. Solve a  $2 \times 2$  and  $3 \times 3$  system of equations.
17. State the domain of linear, quadratic, exponential and logarithmic functions.
  
18. Evaluate functions using numerical and algebraic values.
19. Identify domain (inputs) and range (outputs) graphically for basic functions.
20. Interpret functional notation in a variety of application problems.
21. Determine if a relation is a function by looking at a graph, table, or equation.

22. Solve a rational equation and check for extraneous solutions.
23. Solve a radical equation that produces a second-degree equation. Check for extraneous solutions.
24. Know and apply the rules of integer and fractional exponents
  
25. Add, subtract, multiply, divide rational expressions. Reduce the answers.
26. Simplify a complex fraction.
27. Know the meaning of rational exponents and their relationship to radical form.
28. Simplify radical expressions with emphasis on cube roots and lower.
29. Rewrite radical expressions by rationalizing numerator or denominator.
30. Add, subtract, multiply, and divide radical expressions.
31. Solve application problems involving the Pythagorean Theorem.
32. Given a quadratic model, find and interpret the maximum or minimum values, and the intercepts.
33. Solve an application problem involving quadratic equations.
34. Solve an application problem that involves rational expressions.
35. Solve an application problem involving a given exponential or logarithmic model.
36. Solve applications involving linear systems.
  
37. Find the six trigonometric values of an acute angle
38. Solve triangles using right triangle trig, distinguish between the angle of depression and elevation.
39. Solve applied problems using right triangle trigonometry

### TENTATIVE SCHEDULE

- |   |      |   |                          |
|---|------|---|--------------------------|
| M | 1/28 | Factoring   | 6.5 – 6.7                |
| W | 1/30 | Factoring continued                                 |                          |
| M | 2/4  | Trigonometry  | Handout                  |
| W | 2/6  | Trigonometry  | Handout                  |
| M | 2/11 | Rational Expressions                                | 7.1                      |
| W | 2/13 | Multiplication and division of Rational Expressions | 7.2                      |
| M | 2/18 | President's Day                                     | – Classes not in session |
| W | 2/20 | Addition and Subtraction of Rational Expressions    | 7.3 – 7.4                |
| M | 2/25 | Complex rational expressions                        | 7.5                      |
| W | 2/27 | Rational equations                                  | 7.6                      |
| M | 3/4  | Applications and formulas                           | 7.7 – 7.8                |
| W | 3/6  | Review  |                          |
| M | 3/11 | Test # 1 (CH. 6 – 7)                                |                          |
| W | 3/13 | Systems of equations                                | 9.1 – 9.2                |

3/18 – 3/24 Spring break

- M 3/25 Radical expressions and rational exponents 10.1 – 10.2
- W 3/27 Multiplying and dividing radical expressions 10.3 – 10.4
- M 4/1 Expressions with radical terms, radical equations, complex numbers 10.5 – 10.6
- W 4/3 Review
- M 4/8 Test # 2 (CH. 9 – 10)
- W 4/10 Quadratic equations and quadratic formula 11.1 – 11.2
- M 4/15 Quadratic equations continued 11.3 – 11.4
- W 4/17 Quadratic equations continued 11.5 – 11.6
- M 4/22 Quadratic equations continued 11.7 – 11.8
- W 4/24 Review
- M 4/29 Test # 3 (CH. 11)
- W 5/1 Inverse functions and exponential functions 12.1 – 12.2
- M 5/6 Logarithmic functions and properties of logarithms 12.3 – 12.4
- W 5/8 Natural logarithm, change of base, exponential and logarithmic equations 12.5 – 12.6
- M 5/13 Review
- M 5/13 Last day to withdraw from classes
- W 5/15 Test # 4 (CH. 12)
- M 5/20 Make up test
- 5/31 Grades available on web ([www.online.commnet.edu](http://www.online.commnet.edu))

### Attendance/Homework/Requirements

It is strongly suggested that students make every effort to attend ALL classes. More than three absences during the semester will jeopardize the student's success in the course. Homework will be assigned on a daily basis. All homework assignments must be completed. Students will be required to have a two-section math notebook. One section is to be dedicated to class notes while the other section will be dedicated to homework. The student's math notebook should be available to the instructor at each class. Students are allowed to use a calculator.

**CELL PHONES MUST BE TURNED OFF DURING CLASS.**

### Methods of Evaluation/Make-ups

Tests will be announced. Unannounced quizzes may be given at the discretion of the instructor. Tests that are missed for any reason cannot be made up (with the exception of snow conditions). If a student misses one of the first THREE tests, a make-up test will be given at the end of the semester. A student can also use this make-up test to improve their lowest test grade. Final grades will be assigned according to the following:

<u>CLASS AVERAGE</u>	<u>FINAL GRADE</u>
90 - 100	A- / A
80 - 89	B- / B+
70 - 79	C- / C+
60 - 69	D- / D+
Below 60	F

### Statement on Disabilities

If you are a student with a disability and believe you will need accommodations for this class, it is your responsibility to contact the Disabilities Counseling Service at 383-5240. To avoid any delay in the receipt of accommodations, you should contact the counselor as soon as possible. Please note that I cannot provide accommodations based upon disability until I have received an accommodation letter from the Disabilities Counselor. Your cooperation is appreciated.

### Class Cancellation

The Three Rivers web site provides a full listing of radio and television stations that alert students to school closings and delays. Go to: [www.trcc.commnet.edu](http://www.trcc.commnet.edu) and click on General Information and Weather Procedures.

## TENTATIVE HOMEWORK ASSIGNMENTS

(eoo – every other odd)

6.5 1 – 27 odd

6.6 1 – 75 odd

6.7 1 – 11 odd

7.1 9 – 77 odd

7.2 13 – 73 eoo

7.3 5 – 35 eoo, 37 – 61 odd

7.4 5 – 71 eoo

7.5 5 – 39 eoo

7.6 11 – 47 odd

7.7 1 – 9 odd, 23, 31, 33

7.8 13 – 27 odd

9.1 9, 11, 17, 23

9.2 9, 13

10.1 9 – 37 odd, 69 – 101 odd

10.2 1 – 109 eoo

10.3 1 – 75 eoo

10.4 1 – 79 odd

10.5 1 – 93 odd

10.6 7 – 15, 21, 27, 29, 39, 41, 43, 45

10.8 9 – 19 odd

11.1 13 – 35 odd, 57 – 69 odd

11.2 17 – 21 odd, 35, 37

11.3 7 – 35 odd

11.4 1, 3, 5, 7

11.5 15 – 43 odd

11.6 1 – 14, 15 – 61 eoo

11.7 9 – 17 odd

11.8 11, 13, 17, 19

12.1 49, 51, 53, 55

12.2 11- 27 odd

12.3 9 – 33 odd, 65 – 109 odd

12.4 1 – 41 odd, 47, 49, 55 – 63 odd

12.5 11 – 37 odd

12.6 1 – 8, 9 – 67 odd