



## MASTER COURSE OUTLINE

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### COURSE TITLE

Intermediate Algebra II

### GENERAL COURSE INFORMATION

Dept.: MATH

Course Num: 099

(Formerly: MPC 098)

CIP Code: 33.0101

Intent Code: 11

Program Code:

Credits: 5

Total Contact Hrs Per Qtr.: 55

Lecture Hrs: 55

Lab Hrs: 0

Other Hrs: 0

Distribution Designation: None

### COURSE DESCRIPTION (as it will appear in the catalog)

This course is designed to prepare students for precalculus and finite math. It includes the study of inequalities, applications of systems, rational expressions, functions, radicals, rational exponents, radical equations, complex numbers, quadratic equations and their application. Credit cannot be earned in both MAP 121 and MATH 099.

### PREREQUISITES

MATH 098 or placement

### TEXTBOOK GUIDELINES

Appropriate college level text as chosen by math faculty.

### COURSE LEARNING OUTCOMES

*Upon successful completion of the course, students should be able to demonstrate the following knowledge or skills:*

1. Simplify expressions containing algebraic fractions.
2. Solve algebraic equations containing quadratics, radicals, or rational exponents.
3. Use properties of exponents and radicals to simplify expressions.
4. Convert advanced word problems to algebraic sentences when solving application problems.
5. Perform function algebra and composition of functions given expressions in function notation.
6. Simplify expressions which contain complex numbers.
7. Graph solutions of linear inequalities and compound linear inequalities.
8. Use properties of absolute values to solve linear equations and inequalities.

### INSTITUTIONAL OUTCOMES

IO2 Quantitative Reasoning: Students will be able to reason mathematically.

### COURSE CONTENT OUTLINE

1. Solve, graph, and give interval notation for linear inequality, dividing by negative

2. Solve, graph, and give interval notation for tripartite inequality
3. Solve, graph, and give interval notation for a compound inequality with OR
4. Solve, graph, and give interval notation for a compound inequality with AND
5. Solve absolute value equation by isolating the absolute value
6. Solve, graph, and give interval notation for an absolute value inequality
7. Solve a system of equations using substitution or elimination
8. Solve a system of equations with three variables (easy)
9. Solve a mixture problem with percent
10. Solve a mixture problem with price
11. Simplify expression with rational exponents
12. Simplify expressions with negative rational exponents
13. Simplify radical expressions with binomials
14. Rationalize denominator of monomial with index  $\geq 2$
15. Rational denominator with conjugate
16. Add radical expression with literals
17. Multiply radical expression using FOIL with the same index
18. Reduce the index on a radical
19. Multiply radicals of mixed index (reducing required)
20. Evaluate a large power of  $i$
21. Add and subtract complex numbers
22. Multiply complex numbers
23. Divide complex numbers
24. Simplify expression with complex root
25. Solve equation with rational exponent
26. Solve equation by taking an even root
27. Solve a radical equation with extraneous solution
28. Solve a quadratic by completing the square
29. Solve a quadratic by using the quadratic formula
30. Divide rational expression
31. Subtract rational expression with different denominators (reduce)
32. Solve rational equation with extraneous solution
33. Solve quadratic DRT problem
34. Solve quadratic work problem
35. Solve rectangle problem
36. Evaluate a product of functions
37. Evaluate a composition of functions
38. Graph a quadratic equation using vertex
39. Find the inverse of a function
40. Simplify a compound fraction with negative exponents that reduces

#### **DEPARTMENTAL GUIDELINES** *(optional)*

Course will be Pass/Fail.

Classes taught as a lecture format will use the following grade weights: To earn a P the student must have a weighted average (75% Test, 25% other course work such as quizzes, homework, etc) above 75% and pass both modules of the final exam. Passing a module is defined as a score of 65% or higher.

Classes taught as an emporium format will use the following grade weights: Each unit will be weighted 75% tests, 20% homework, and 5% workbook. Students will earn a passing grade based on units passed and attendance policy as agreed upon by the department.

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**DIVISION CHAIR APPROVAL**

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**DATE**