

MERRITT COLLEGE COURSE OUTLINE

COLLEGE:		STATE APPROVAL DATE:	02/26/2019
ORIGINATOR:	Daniel Lawson	STATE CONTROL NUMBER:	CCC00037 3164
		BOARD OF TRUSTEES APPROVAL DATE:	01/08/2019
		CURRICULUM COMMITTEE APPROVAL DATE:	09/13/2018
		CURRENT EFFECTIVE DATE:	08/01/2019

DIVISION/DEPARTMENT:

1. REQUESTED CREDIT CLASSIFICATION:

Credit - Degree Applicable
Course is a basic skills course.
Program Applicable

2. DEPT/COURSE NO:

MATH 203

3. COURSE TITLE:

Intermediate Algebra

4. COURSE: MC Course Changes in Catalog Info

TOP NO. 1701.00

5. UNITS: 4.000

HRS/WK LEC: 5.00 **Total:** 87.50

HRS/WK LAB:

6. NO. OF TIMES OFFERED AS SELETED TOPIC: AVERAGE ENROLLMENT:

7. JUSTIFICATION FOR COURSE:

Course satisfies the General Education analytical thinking requirement for the associate degree and prepares students for subsequent courses in mathematics (Statistics, Trigonometry); also prepares students for courses in other disciplines such as Computer Science and vocational majors (Construction Technology, Electronics Technology).

8. COURSE/CATALOG DESCRIPTION

Intermediate algebraic operations: Real number properties and operations; solutions and graphs of linear equations in one and two variables; absolute value equations; advanced factoring; complex numbers; quadratic equations and systems of quadratic equations; conics; determinants; solutions and graphs of first-degree, quadratic, and rational inequalities; exponential and logarithmic functions; and sequences and series.

9. OTHER CATALOG INFORMATION

- a. Modular: No If yes, how many modules:
- b. Open entry/open exit: No
- c. Grading Policy: Letter Grade Only
- d. Eligible for credit by Exam: Yes
- e. Repeatable according to state guidelines: No
- f. Required for degree/certificate (specify):
Existing - Math (from list); AA/AS area 4b
- g. Meets GE/Transfer requirements (specify):
- h. C-ID Number: Expiration Date:

i. Are there prerequisites/corequisites/recommended preparation for this course? Yes

10. LIST STUDENT PERFORMANCE OBJECTIVES (EXIT SKILLS): (Objectives must define the exit skills required of students and include criteria identified in Items 12, 14, and 15 - critical thinking, essay writing, problem solving, written/verbal communications, computational skills, working with others, workplace

needs, SCANS competencies, all aspects of the industry, etc.)(See SCANS/All Aspects of Industry Worksheet.)

Students will be able to:

Demonstrate satisfactory competency in the following:

1. Demonstrate satisfactory competency in the following:
2. Explain the concept of real numbers and perform arithmetic operations.
3. Solve linear equations.
4. Solve absolute value equations.
5. Do advanced factoring.
6. Explain the concept of complex numbers.
7. Solve quadratic equations.
8. Solve conic equations.
9. Solve system of linear equations using determinants.
10. Solve for inequalities.
11. Solve equations involving radicals and rational expressions.
12. Solve equations using exponential and logarithmic functions.
13. Solve for sequences and series.

Solve word problems by assessing given information, exploring alternative approaches, and arriving at conclusions based on evidence and the application of appropriate concepts.

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11A. COURSE CONTENT: List major topics to be covered. This section must be more than listing chapter headings from a textbook. Outline the course content, including essential topics, major subdivisions, and supporting details. It should include enough information so that a faculty member from any institution will have a clear understanding of the material taught in the course and the approximate length of time devoted to each. There should be congruence among the catalog description, lecture and/or lab content, student performance objectives, and the student learning outcomes. List percent of time spent on each topic; ensure percentages total 100%.

LECTURE CONTENT:

- | | | |
|---|-----|----|
| 1. Review of real numbers: Properties and operations | 5% | |
| 2. First-degree equations in one variable and applications (word problems) | | 5% |
| 3. Absolute value equations | 5% | |
| 4. Linear equations in two variables: Graphs, slopes, intercepts, forms of linear equations | | 5% |
| 5. Polynomials: Operations, factoring (including cubing, grouping) | 5% | |
| 6. Rational expressions: Operations, equations, ratio and proportion | 5% | |
| 7. Exponents and radicals: | 10% | |
| a. Rational exponents: Laws, simplifying | | |
| b. Radicals: Operations and simplifying | | |
| c. Complex numbers | | |
| d. Equations involving radical expressions | | |
| 8. Quadratic equations: | 10% | |
| a. Three methods of solutions | | |
| b. Solving equations reducible to quadratic form | | |
| 9. Conic sections: | 10% | |
| a. Definitions: Relation, domain, range, function | | |
| b. Graphing problems, Parabolas, circles, ellipses, hyperbolas | | |
| c. One-to-one and inverse functions | | |
| 10. Systems of equations: | 10% | |
| a. Linear systems: Solving by graphing, substitution, and addition | | |
| b. Determinants | | |
| c. Systems of quadratic equations | | |
| 11. Inequalities: | 10% | |
| a. Graphing and solving first-degree inequalities | | |
| b. Solving quadratic and rational inequalities | | |
| c. Inequalities in two variables | | |
| 12. Exponential and logarithmic functions: | 15% | |
| a. Definitions, graphing, evaluating | | |
| b. Properties and computations with logarithms | | |
| c. Solving exponential and logarithmic equations | | |

13. Sequences and series: 5%
- Definitions
 - Arithmetic sequences and series
 - Geometric sequences and series
 - Binomial expansion

11B. LAB CONTENT:

n/a

12. METHODS OF INSTRUCTION (List methods used to present course content.)

- Lecture
- Observation and Demonstration
- Activity
- Discussion

13. ASSIGNMENTS: 0.00 hours/week (List all assignments, including library assignments. Requires two (2) hours of independent work outside of class for each unit/weekly lecture hour. Outside assignments are not required for lab-only courses, although they can be given.)

Out-of-class Assignments:

ASSIGNMENTS ARE: (See definition of college level):
Primarily College Level

14. STUDENT ASSESSMENT: (Grades are based on):

ESSAY (Includes "blue book" exams and any written assignment of sufficient length and complexity to require students to select and organize ideas, to explain and support the ideas, and to demonstrate critical thinking skills.)

COMPUTATION SKILLS

NON-COMPUTATIONAL PROBLEM SOLVING (Critical thinking should be demonstrated by solving unfamiliar problems via various strategies.)

SKILL DEMONSTRATION

MULTIPLE CHOICE

ESSAY (Includes "blue book" exams and any written assignment of sufficient length and complexity to require students to select and organize ideas, to explain and support the ideas, and to demonstrate critical thinking skills.)

15. TEXTS, READINGS, AND MATERIALS

A. Textbooks:

Angel, A.R., Runde, D.C.. 2011. *Intermediate Algebra for College Students* 8th. Pearson Education, Inc.

*Date is required: Transfer institutions require current publication date(s) within 5 years of outline addition/update.

B. Additional Resources:

Library/LRC Materials and Services:

The instructor, in consultation with a librarian, has reviewed the materials and services of the College Library/LRC in the subject areas related to the proposed new course

Are print materials adequate? Yes

Are nonprint materials adequate? No

Are electronic/online resources available? No

Are services adequate? No

Specific materials and/or services needed have been identified and discussed. Librarian comments:

C. Readings listed in A and B above are: (See definition of college level):

Primarily college level

16. DESIGNATE OCCUPATIONAL CODE:

E - Non-Occupational

17. LEVEL BELOW TRANSFER:

A - 1 Level Below Transfer

18. CALIFORNIA CLASSIFICATION CODE:

Y - Credit Course

19. NON CREDIT COURSE CATEGORY:

Y - Not Applicable

20. FUNDING AGENCY

CATEGORY:

Not Applicable - Not Applicable

SUPPLEMENTAL PAGE

Use only if additional space is needed. (Type the item number which is to be continued, followed by "continued." Show the page number in the blank at the bottom of the page. If the item being continued is on page 2 of the outline, the first supplemental page will be "2a." If additional supplemental pages are required for page 2, they are to be numbered as 2b, 2c, etc.)

1a. Prerequisites/Corequisites/Recommended Preparation:

PREREQUISITE:

- MATH 201: Elementary Algebra
or

PREREQUISITE:

- MATH 210D - Elementary Algebra (Lab)
or

PREREQUISITE:

- Appropriate placement through multiple-measures assessment process.

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STUDENT LEARNING OUTCOMES

1. **Outcome:** Solve quantitative problems using numerical, graphical, and algebraic methods.
2. **Outcome:** Solve systems of equations.
3. **Outcome:** Graph points and lines.
4. **Outcome:** Solve application problems using algebraic functions.
5. **Outcome:** Use modeling graphs to interpret and make predictions about real-world problems.

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