Crafton Hills College
Course Outline

1. **Discipline:** Mathematics

2. **Department:** Mathematics

3. **Course Title:** Intermediate Algebra part A

4. **Course I.D.:** MATH 095A

5. **Prerequisite(s):**
   MATH 090: Elementary Algebra or MATH 090C or eligibility for MATH 095 as determined through the CHC assessment process.

   Corequisite(s): None

   Departmental Recommendation(s): None

6. **Semester Units:** 1

7. **Minimum Semester Hours:**

   Lecture: 8 **Lab:** 24 **Clinical:** 0 **Field:** 0 **Independent:** 0

8. **Need for the Course:**
   Success in any transfer-level mathematics course demands a knowledge of intermediate algebra. For this reason, CSU and other four-year institutions require that it be a minimum prerequisite to any mathematics course that is to be transferable and Crafton Hills has made the intermediate algebra level the minimum requirement for an AA degree. Many Crafton Hills students are unable to complete the traditional math 095 course even after repeating the course. MATH 095A, which is a lecture lab course, addresses this need. MATH 095A offers the same material in a different format to address different learning styles, provids the support of a lab component and permits more flexibility in scheduling. This format allows more than one semester for the same material if needed. This course is Associate Degree applicable and when MATH 095ABC are completed will meet the AA degree requirement as equivalent to MATH 095.

9. **Goals for the Course:**
   MATH 095A provides the beginning material of the traditional intermediate algebra course. This background is necessary for students to be successful in the rest of MATH 095 and subsequent transferable mathematics courses. The alternative format is designed to address more varieties of learning styles and provide the student with a better chance of success. Combined with Math 095A and MATH 095C it is equal to MATH 095, which addresses part of the quantitative analysis portion of the General Education Philosophy and minimum AA mathematics competency requirement.

10. **Catalog Description:**
    Study of absolute value and rational expressions; rational equations; set and interval notation. MATH 095ABC is equivalent to MATH 095. Credit cannot be granted for both MATH 095A and MATH 095. All three parts, MATH 095ABC are needed to meet the AA degree requirement.

11. **Schedule Description:**
    Study of absolute value and rational expressions and equations; absolute value and linear systems of inequalities. Completion of MATH 095 ABC is equivalent to MATH 095. Credit cannot be granted for both MATH 095A and MATH 095

12. **Entrance Skills:**
    A. Requisite Skills:

Upon entering this course, students must be able to:

1. Denote subsets of the real numbers
2. Use the properties of real numbers with algebraic expressions
3. Apply the order of operations to simplify, manipulate, and evaluate algebraic expressions
4. Define, evaluate, and simplify polynomials
5. Factor the following types of expressions with whole number exponents a. common factors (including factoring out –1) b. grouping (two-by-two) c. simple trinomial d. general Trinomial e. difference of squares f. sum and difference of cubes g. multiple step factoring
6. Solve linear and literal equations
7. Solve systems of linear equations in two variables including applications
8. Use linear equations of two variables to a. Graph b. Find slope c. Locate intercepts d. Find the equation of a line
9. Solve and graph the solution to introductory level linear inequalities in one and two variables
10. Use the properties of integer exponents to simplify algebraic expressions
11. Simplify, multiply, and divide rational expressions

B. Recommended Skills:

None

13. Course Objectives:

Upon satisfactory completion of the course, students will be able to:

1. Factor expressions that are quadratic in form and by completing the square
2. Simplify rational expressions that involve addition, subtraction, complex fractions including ones with integer exponents, and ones with combinations of the four operations multiply, divide, add and subtract.
3. Solve first degree absolute value equations and rational equations involving different denominators and extraneous roots.
4. Use set and interval notation.
5. Use one and two variables to construct a variety of models that represent a wide range of hypothetical applications appropriate to the content of the course
6. Write with and use proper mathematical notation for exercises within this course

14. Representative Texts and Instructional Materials:

Dugopolski, M. (2006). *Elementary& Intermediate Algebra* (2/e). New York NY: McGraw Hill.
Lial, M., Hornsby, J. & McGinnis, T (2008). *Elementary and Intermediate Algebra: Graphs & Models* (3/e). San Francisco, CA: Addison Wesley.
Gustafson, R. & Frisk, P (2008). *Beginning and Intermediate Algebra an Integrated Approach* (5/e). Pacific Grove CA: Thompson Brooks/Cole.
Wright, F. (2004). *Intermediate Algebra* (5/e). Charleston,SC: Hawkes Learning Systems.
Martin-Gay, K. Elayn (2005). *Beginning and Intermediate Algebra* (3/e). Upper Saddle River, NJ: Pearson/Prentice Hall.
Video tapes and computer tutorial programs that cover the topics of this course are available in the Math Center, Learning Center and at the Reserve Desk in the library.

15. Course Content:

A. Factoring expressions
   1. Quadratic in form
   2. By completing the square

B. Simplifying rational expressions including
   1. Addition
   2. Subtraction
   3. Combinations of operations
   4. Complex fractions including integer exponents

C. Solving equations
   1. Absolute value
   2. Rational expressions involving different denominators and extraneous roots

D. Using set and interval notation

E. Use one and two variables to construct a variety of models that represent a wide range of hypothetical applications appropriate to the above content.
F. Writing with and using proper mathematical notation

See attachment for level of difficulty expected on the rational expressions

16. Methods of Instruction:

A. Lecture/Lab
B. Demonstration
C. Guest Speakers
D. Collaborative Group Work
E. Computer-aided Instruction
F. Reading Assignments
G. Class Activities
H. Other: This course will combine lecture and lab activities to provide the student with alternative learning methods. It is important for any instructor teaching this course to keep the directed instruction to no more than 25% of the total hours per week. The lab portion of the course should consist of some combination of the following components; cooperative group interaction for working problems; reading assignments and activities from study skills texts or texts on ways to deal with math anxiety; computer tutorials component and/or other Math Center activities appropriate to the course. The lab component may incorporate individual sessions and /or group sessions. Developmental texts or software with diagnostic tests may be used to determine which topics warrant the most attention.

17. Assignments and Methods of Evaluation:

Students will be required to do at least two hours of homework for each hour of lecture. Students will be directed to show their work and write using proper mathematical notation. Homework will consist of problems chosen from the textbook, supplemental materials, or computer software. Students may also be asked to complete computer enhanced assignments, quizzes or projects, participate in in-class demonstrations, and other classroom activities appropriate for laboratory activities. A minimum of three examinations including a comprehensive final exam will be given not all of which can be take home problems. Readings and activities pertaining to study skills, mathematics avoidance and anxiety will also be required. Materials illustrating the students growth using mathematics will be used to create a portfolio similar to the one started in MATH 090ABC.

1. Comprehensive final exam 25%-40%
2. Tests and quizzes 35%-70%
3. Mathematics portfolio 2%-5%
4. Homework 0%-10%
5. Projects and other activities 0%-10%

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