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| Board Approval Date: | 07/22/2009 |
| Technical Review Approval Date: | 03/26/2009 |
| CRC Approval Date: | 04/29/2009 |
| |  | | --- | |  | | **MISSION COLLEGE** | | **Associate and Non-Associate Degree** | | **Credit Course Outline** | |  | | **SECTION ONE - Course Specific Information** | |  | | 1. **Type of Credit Course:**     X    Degree Applicable \_\_\_\_ Non Degree Applicable 2. **Course Number and Title:** MATH 000CMX - Intermediate Algebra MAPS Extra 3. **General Information:** 3 **Total Units** (Based on 16-18 hours per semester for 1 lecture unit, and 48-54 hours per semester for 1 lab unit)   Number of Lecture Units: 3  Number of Student Contact Hours Per Semester: 54  Total hours of student work required outside of class per semester: 108  Number of Laboratory Units: 0  Number of Student Contact Hours Per Semester: 0  Number of Arranged Lab Units: 0  Number of Student Contact Hours Per Semester: 0  Total Hours of Student Work Required Per Semester: 162  Other Contact Hours: 0  Distance Learning: No   1. **Size of Class:** Optimal Class Size based on instructional methodology described: 25 2. **Grade Type:** Pass/No Pass Only 3. **Repeatability:** This course may be taken a total of No Repeats time(s). 4. **Recommended for Credit By Examination:** No 5. **Catalog Description** This is a lecture course that is a co-requisite for MATH 000CM. This course provides students with additional lecture time, and consequently additional required homework assignments, in order for them to fully engage and succeed in the enhanced and innovative learning strategies and activities used by the MAPS program. 6. **Description for the Schedule of Classes** This is a lecture course that is a co-requisite for MATH 000CM. It is part of the MAPS program and provides additional time to help students succeed by participating in enhanced and innovative learning strategies and activities. 7. **Content Review** List any prerequisites, corequisites, and advisories here. **Advisory** Eligibility for ENGL 001A and READ 053  **Prerequisite**  MATH 903 and/or  MATH 903M  **Corequisite**  MATH 000CM 8. Instructional Methodology:  |  | | --- | | Audio/Visual | | Collaborative Learning | | Demonstrations | | Drills | | Guest Speakers | | Guided Discussions | | Hands-on Activities/Exercises | | Peer Critique/Evaluation | | Small Group Discussion | | Web-based Activities/Exercises | | Lecture | | Guided Practice | | | **SECTION TWO - Course Content** | |  | | 1. **Course Content and Scope**    1. **Student Course Objectives** Upon completion of the course the student should be able to:       1. Solve rational equations, proportions, variation, and uniform motion problems.       2. Simplify expressions with rational exponents. Add, subtract, multiply and divide expressions with rational exponents.       3. Solve systems of linear equations by graphing, substitution, addition method, using matrices and determinants.       4. Solve systems of linear inequalities.       5. Simplify, add, subtract, multiply, and divide complex numbers.       6. Simplify and perform operations with radical expressions.       7. Solve radical equations.       8. Solve quadratic equations by factoring, completing the square, and by using the quadratic formula.       9. Solve a nonlinear inequality.       10. Distinguish between function and non-function relations and evaluate functions expressing functional notation.       11. Find the minimum or maximum of a quadratic function.       12. Find the composition of two functions, and the inverse of a function.       13. Graph conic sections.       14. Apply properties of logarithms and exponents to the simplification of expressions and the solution of equations.       15. Identify and evaluate terms and sums of arithmetic and geometric progressions and series.       16. Solve application problems.       17. Add, subtract, multiply and divide radical expressions.    2. **Outline of Topics to be Addressed**   1. Operations with and applications of rational expressions including complex fractions  2. Rational equations, variation and applications 3. Rational exponents 4. Operations with radical expressions 5. Definition and operations with complex numbers 6. Methods of solution of quadratic equations 7. Quadratic inequalities 8. Graphing equations and inequalities in two variables 9. Solving systems of equations in two and three variables 10. Relations and functions including functional notation 11. Properties of exponential functions and equations  12. Properties of logarithmic functions and equations 13. Equations and graphs of conic sections 14. Introduction to sequences and series and the binomial theorem  Additional topics may include:  15. Scientific notation 16. Linear Inequalities   * 1. **Cultural Pluralism/Diversity** Students will study and discuss the historical and current development and use of algebra throughout the world and solve culturally diverse applications.  1. **Student Preparation and Evaluation**    1. **Textbooks and Readings**       1. **Textbooks**   Martin-Gay, Elayn. Beginning and Intermediate Algebra. 4th ed. Pearson Education, 2009.   * + 1. **Manuals**     2. **Periodicals**     3. **Other**   1. **Writing/Skill Building** Students will use the concepts and technical skills learned in the class to analyze and solve practical problems in intermediate algebra from the course objective areas, for example:  A mining company has determined that the cost (C) in dollars per ton of mining a mineral is given by the equation C(x)=0.2x^2 - 2x + 12, where x is the number of tons of mineral that are mined. Find the number of tons of the mineral that should be mined to minimize the cost. What is the minimum cost?   2. **Outside Assignments** Students will read material from the textbook and other sources and will solve assigned problems, for example:   A mining company has determined that the cost (C) in dollars per ton of mining a mineral is given by the equation C(x)=0.2x^2 - 2x + 12, where x is the number of tons of mineral that are mined. Find the number of tons of the mineral that should be mined to minimize the cost. What is the minimum cost?   3. **Critical Thinking Assignments** Math 000CMX provides assignments that will focus on the understanding of fundamental concepts of the course and will have specific assignments designed to involves students in cooperative problem solving sessions, for example:  Joe can landscape a yard by himself in 20 hours and Teri can landscape the same yard in 30 hours. How long would it take them to landscape the yard together?   4. **Student Evaluation** Grades will include the following factors: 1. Participation in class activities, such as quizzes and group activities. 2. Assigned homework problems. 3. At least two tests and a final examination. These tests will include problems requiring written solutions involving intermediate steps and analysis. | | **SECTION THREE - Course Support** | |  | | 1. **Rationale for Course/Needs Assessment** This is a lecture course that is a co-requisite to an existing primary course, MATH 000CM (Intermediate Algebra MAPS). It provides additional lecture time, and consequently additional required homework assignments, in order for students to fully engage and succeed in the enhanced and innovative learning strategies and activities employed by the MAPS program. These students are highly motivated, but have had a history of difficulty mastering the material of MATH 000CM. Many students are extremely slow solving homework problems. This class would provide the needed additional lecture time with discussion and additional activities, plus additional homework assignments in order for the students to understand and master the material. With the increase in mathematics requirements for graduation, there is more emphasis on passing the algebra sequence, and students who have struggled with math have felt more pressure and frustration at not being able to meet these requirements. In addition to this, the state is promoting basic skills competency and requesting that community colleges develop programs, such as our MAPS, to meet student needs. This course as a co-requisite to MATH 000CM is essential. 2. **Discipline Area** (List all acceptable disciplines from state discipline list) Mathematics 3. **Resources Needed or Anticipated** 4. **Plan for Evaluation of Course** **In addition to Program Review, this course will be evaluated by:** This course will be evaluated by student questionnaires given at the end of the course, the instructor's written comments, and scheduled observations by the Department Chair.  Student enrollment and completion will also be tracked on an ongoing basis. | | **SECTION FOUR - Transferability and Classification** | |  | | 1. **Request for Transferability** (Note: Applicable to Associate Degree Level courses only.)    * **California State University (Baccalaureate level):** No    * **University of California (To be submitted to U.C.):** No 2. **Classification of Course for Major and/or General Education** (Note: Necessary for Associate Degree courses only.)    * **Are you requesting that this course be added to the requirements for a major?** No    * **Are you requesting that this course satisfy a General Education requirement?** No | | Curriculum Approval Date: 04/29/2009 | | CID: 2344 | |  |