

Mt. San Jacinto College  
Integrated Course Outline of Record

Form B

Submitted by: Jorge Valdez Date: 12/17/2020

| Department  | Subject          | Course Number | Title                   |
|-------------|------------------|---------------|-------------------------|
| Mathematics | Mathematics MATH | 084           | Support for Precalculus |

Units/Hours

Each lecture unit requires 1 hour per week of class time, and 2 hours per week of study outside of class.  
Each laboratory unit requires 3 hours per week of class time.  
Each activity unit requires 2 hours per week of class time and 1 hour per week of study outside of class.

| Lab Units          | Total Units         |
|--------------------|---------------------|
| 1.00               | 1.00                |
| Lab Contact Hours  | Total Contact Hours |
| 48.00 - 54.00      | 48.00 - 54.00       |
| Lab Homework Hours |                     |
| 0                  |                     |

Stand Alone:

Stand Alone

AA/AS Degree General Ed Breadth Area(s):

-none-

General Education Justification:

|                                   |                |
|-----------------------------------|----------------|
| Maximum Enrollment:               | 40             |
| Maximum Enrollment Justification: | Justification: |
| Grading Method:                   | P/NP Only      |
| TOP code:                         | 1702.00        |

Can be Taken 1 time(s) for credit (max 4)  
 - Visual or Performing Arts course that is required to meet major requirements for UC/CSU

- Intercollegiate athletics course
- Academic/vocational competition course

Catalog Description:

(Please do not refer to transferability or degree, certificate, or employment concentration applicability. Please only describe the course).  
(75 words or less in gray box below).

This course covers topics necessary to be successful in Precalculus. It covers core prerequisite skills from basic trigonometry and algebra. Topics include complex radical and radical expressions, piece-wise functions, conics, evaluating trigonometric and inverse trigonometric functions, and solving logarithmic and trigonometric functions.

Schedule Description:

(Please do not refer to transferability or degree, certificate, or employment concentration applicability. Please only describe the course).  
(25 words or less in gray box below).

This course must be taken concurrently with and covers prerequisite material necessary to be successful in Math 110.

Need for the course:

We need to develop this course to be in compliance with California bill AB705, which encourages some college level classes be offered with a concurrent support class. This course will provide unprepared and underserved students with the necessary material to be successful in precalculus. This course will be offered linked for a few sections of precalculus, but not for all. Students that sign up for linked sections will have to take both classes. The AB705 implementation guidelines have 3 levels that depend on a student’s overall GPA from high school. The higher tier does not have this new course as a recommendation. The middle tier has the course as a recommendation. The bottom tier will have the course as a strong recommendation. Students will not be required to take the course. All students can sign up for a class with or without this course. This course will be taught by the same instructor teaching the college level course that it is linked with.

Prerequisite(s):

Prerequisites go through a separate approval process. See Forms E1-E6 for details.  
(For further clarification, contact the Prerequisite Subcommittee)

-none-

Corequisite(s):

Corequisites go through a separate approval process. See Forms E1-E6 for details.

- MATH 110

Recommend Preparation:

Recommended Preparation goes through a separate approval process. See Forms E1-E6 for details.

-none-

Other Enrollment Criteria:

-none-

Learning Objectives:

(please number each objective and express in behavioral terms)  
Upon the completion of the course the student will be able to do the following:

- Formulate strategies to address effective learning skills such as note taking, time management, studying, and test taking.
- Produce the answer to various arithmetic problems such as operations with integers and rational numbers, exponents,

- and simplifying radicals.
3. Produce the simplified form of various expressions such as complex fractions, rational and radical expression by using algebra.
  4. Produce the graph when given the equation of a function. These will include lines, absolute value, piece-wise, exponential, and simple trigonometric functions.
  5. Deduce which strategy to use to set up equations to solve applications.
  6. Construct the solution to various types of equations, to include logarithmic, systems, exponential, linear, absolute value, and rational.
  7. Derive various answer to simple trigonometric problems such as constructing ratios give information of a triangle and using the unit circle to give several answers.

**Course Content:**

(please number the outline of main topics and subtopics)

This is a lab only class.

**Lab Content:**

(please number the outline of main topics and subtopics)

- Effective learning strategies
1. Time management
  2. Organizationl skills
  3. Study skills
  4. Test preparation
  5. Test taking skills
  6. Relaxation techniques
  7. Seeking help and resources
- Arithmetic
1. Do all operations with integers and rational number (including order of operations)
  2. Do operations with fractions where the numerator and denominator has irrational numbers such as pi.
- Algebra
1. Simplify expressions with exponents
  2. Simpligy complex fractions
  3. Simplify rational expressions
  4. Simplify radicals
  5. Factoring binomials and trinomials
  6. Solve linear equations
  7. Solve quadratics
  8. Solve logarithmic equations
  9. Solve systems of equations
  10. Solve absolute value equations
  11. Solve exponential functions
  12. Solve rational equations
  13. Graph conics
  14. Graph lines
  15. Graph piecewise functions
  16. Graph absolute value equations
- Applications
1. Making a drawing with the information given in an application problem
  2. Making a list of know applications through the class
  3. Setting up an equation for applications, both algebraic and trigonometric
- Basic Trigonometry
1. Give all the sides of a triangle using the Pythagorean theorem (including simplifying radicals)
  2. Give all the ratios given the sides of a triangle and the location of an angle.

- 3. Graphing simple sine and cosine functions
- 4. Using the unit circle
- 5. Solving simple trigonometric equations
- 6. How to do conversions between degrees and radians
- 7. How to divide a plane into needed units of radians for graphing and plotting.

**Methods of Instruction:**

Methods of instruction may include, but are not limited to the following:

- **Method:** Lecture  
**Integration:** Lecture will be used to illustrate definitions, concepts and example problems to promote comprehension of how to give ratios of trigonometric functions given a triangle and an angle location.
- **Method:** Discussion  
**Integration:** Discussion will be used to guide students on how to solve simple trigonometric equations.
- **Method:** Activity  
**Integration:** Activities will be used where the students are in groups of 3 or 4 to reinforce the comprehension of how to make a diagram and set up an equation to a trigonometric application.
- **Method:** Mediated Learning  
**Integration:** Mediated learning will be used to enforce how to produce the solution to simple trigonometric equations.
- **Method:** In-class Exercises  
**Integration:** In-class exercises will be used to reinforce topics such as how to simplify complex fractions.

**Methods of Evaluation:**

A student's grade shall be determined by the instructor using multiple measures of performance related to the course objectives. Methods of evaluation may include but are not limited to the following:

- **Method:** Class Participation  
**Integration:** Class participation will be required during class to explain the process of solving a system of equations. The work will be graded for correctness of answers given.
- **Method:** Projects  
**Integration:** A project will be presented in class by the student on how trigonometry can be used in a real world application. The student will be graded by a rubric that has all things that they have to complete.
- **Method:** Quizzes  
**Integration:** Quizzes can be given to evaluate how well students can produce the simplified version of an algebraic expression. The student will be graded on completeness and correctness of each problem using a point scale.
- **Method:** Class Work  
**Integration:** Class work will be given in the form of a worksheet to see how well students can create several types of graphs. The students will grade and correct their own papers and turn it in once it is completely correct.

**Examples of Assignments:**

Students will be expected to understand and critique college level texts or the equivalent. Reading and writing, as well as out of class assignments are required. These assignments may include but are not limited to the following:

- 1. Worksheet: Complete the worksheet with several algebraic expressions where you have to simplify. The worksheet includes several types of radicals such as radicals with integers, radicals with variables, fractions with radicals on the numerator and denominator.
- 2. Project: Develop a real world application problem using trigonometry that applies to your major. Write down the situation first, then make a drawing with all important information in it, and then set up an equation and solve it.

3. Make a schedule: Develop a schedule for how you will manage your time so you will have enough time for school, work, and family and what can you do to stick to that schedule.
4. Group work: Work in groups of 3 or 4 to complete this quiz on factoring.

**Textbooks:**

- Sullivan (2021). *Precalculus* Pearson. ISBN: 9780136872825

**Other Resources:**

**Minimum Qualification**

- Mathematics (Masters Required)