

CALIFORNIA STATE POLYTECHNIC UNIVERSITY, POMONA

ACADEMIC SENATE

GENERAL EDUCATION COMMITTEE

REPORT TO

THE ACADEMIC SENATE

GE-004-190

MAT 1050: College Algebra (GE Sub-Area B4)

General Education Committee

Date: 10/16/2019

Executive Committee  
Received and Forwarded

Date: 11/06/2019

Academic Senate

Date: 11/13/2019  
First Reading

TITLE OF REFERRAL: MAT 1050: College Algebra (GE Sub-area B4)

BACKGROUND:

The Mathematics and Statistics Department wishes to add the course MAT 1050: College Algebra to GE sub-Area B4

RESOURCES CONSULTED:

Office of Academic Programs  
Berit Givens

DISCUSSION:

This is an existing course that needs to be included in GE Sub-area B4 because its equivalent is GE certified at other institutions and, consequently, it would be in harmony with EO 1100 that encourages transfer equity. The course ECO has been upgraded and it meets the rubrics of courses for GE sub-area B4.

RECOMMENDATION:

The GE recommends approval of GE-004-190 MAT 1050: College Algebra (GE sub-area B4).

**Curriculog printout provided for reference only. For latest information refer to Curriculog database**

## MAT - 1050 - College Algebra

### C. Course - New/Modify General Education

<b>Department*</b>	Mathematics and Statistics	
<b>Proposal Type*</b>	<input checked="" type="radio"/> New GE Course <input type="radio"/> Modify GE Course	
<b>Modification Summary</b>	This course is currently not classified as a GE course, but for numerous reasons, including increasing equity between transfer and non-transfer students, and in order to conform with the CSU system norms, we wish to elevate this course to a GE course.	
<b>Establish or Modify Articulation Agreement*</b>	Yes	No
<b>Subject Area*</b>	MAT	<b>Catalog Number*</b> 1050
<b>Formal Course Title*</b>	College Algebra	
<b>Abbreviated Course Title*</b>	College Algebra	
<b>Unit(s)*</b>	(3)	
<b>C/S Classification*</b>	C-04 (Lecture/Recitation)	
To view C/S Classification Long Description click: <a href="http://www.cpp.edu/~academic-programs/scheduling/Documents/Curriculum%20Guide/Appendix_C_CS_Classification.pdf">http://www.cpp.edu/~academic-programs/scheduling/Documents/Curriculum%20Guide/Appendix_C_CS_Classification.pdf</a>		
<b>Component*</b>	Lecture	
<b>Contact Hour(s)</b>		
<b>Instruction Mode(s)*</b>	Face-to-Face	
<b>Grading Basis*</b>		

<b>Repeat for Credit*</b>	May be taken only once
<b>Repeat for Credit Limit</b>	
<b>If course may be repeated for credit, total units applicable to degree and max units per semester.</b>	
<b>When Offered</b>	
<b>Cross Listed Course Subject Area and Catalog Nbr</b>	
<b>Dual Listed Course Subject Area and Catalog Nbr</b>	
<b>Course Category (select all that apply)*</b>	<input type="checkbox"/> Major Course <input checked="" type="checkbox"/> Service Course (used in other programs) <input checked="" type="checkbox"/> GE Course <input type="checkbox"/> None of the above
<b>GE Area/Subarea*</b>	B4

To view the General Education SubArea definitions, click <http://www.cpp.edu/~academic-programs/scheduling/Documents/Ch.3-GeneralEducationProposals.pdf>.

## **I. Catalog Description**

**Catalog Description\*** The theory and applications of real-valued functions, domain and range, compositions, inverses, transformations, equations and inequalities, and absolute value. Emphasis on polynomials, rational functions, power and root functions, piecewise functions, logarithms and exponential functions. Both symbolic and graphical representations of functions. Use of graphing devices to support reasoning about functions.

## **II. Required Coursework and Background (i.e. Enrollment Requirements)**

**Prerequisite(s) (leave blank if none)** Category I, Category II, Category III, appropriate score on ALEKS placement exam, or completion of GE Sub-area B4.

**Pre or  
Corequisite(s)  
(leave blank if  
none)**

**Concurrent (leave  
blank if none)** MAT 1050A (only if Category III).

### **III. Course Note(s) (OPTIONAL)**

**Note(s)**

### **IV. Expected Outcomes**

**A. List the  
knowledge, skills,  
or abilities which  
students should  
possess upon  
completing the  
course.\***

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

1. Analyze and investigate properties of functions;
2. Synthesize results from the graphs and/or equations of functions;
3. Apply transformations to the graphs of functions;
4. Recognize the relationship between functions and their inverses graphically and algebraically;
5. Solve and apply rational, linear, polynomial, radical, absolute value, exponential, and logarithmic equations and solve linear, nonlinear, and absolute value inequalities;
6. Solve systems of equations and inequalities;
7. Apply techniques for finding zeros of polynomials and roots of equations;
8. Apply functions and other algebraic techniques to model real world STEM applications.

**B. If this is a  
course for the  
major, describe  
how these  
outcomes relate  
to the mission,  
goals and  
objectives of the  
major program.**

**C. Explain how the  
course meets the  
description of the  
GE SubArea(s).  
Please select  
appropriate  
outcomes  
according to the  
GE Area/SLO  
mapping.\***

The course description for subarea B4 is:

Courses in this area will require the student to use basic mathematical skills to develop mathematical reasoning, investigative and problem solving abilities, including applications from/to real life situations. Courses in this area will have an explicit intermediate algebra prerequisite, and students shall develop skills and understanding beyond the level of intermediate algebra. Students will not only practice computational skills, but will also be able to explain and apply basic mathematical concepts and solve problems using quantitative methods.

mathematical skills (SLOs 1-7) to develop mathematical reasoning (SLOs 1, 4, 8), investigative and problem solving abilities (SLOs 2, 5, 6, 8), including applications from/to real life situations (SLO 8). The prerequisite is as described and the material goes well beyond the level of intermediate algebra. Students will be required to express their answers in complete sentences, with coherent explanations of the problem-solving and interpretations of the mathematics.

**D. Describe how these outcomes relate to the associated GE Learning Outcomes listed below.\***

Students are required to present their solutions to problems in clear and coherent form. Solutions must be organized so as to give a clear exposition of the problem or topic being discussed. These go towards Course SLO 8, which supports the GE SLOs (1a) and (1e).

GE SLO (2a) is related to Course SLOs 2 and 8.

GE SLO (4b) is related to all of the Course SLOs, as the topics of algebra are challenging subjects that require intellectual growth to master.

This course also includes a meaningful written component as described in section IX.

**General Education Outcomes\***

**Ia. Write effectively for various audiences**

**Ie. Apply and communicate quantitative arguments using equations and graphical representations of data.**

**IIa. Apply scientific methods and models to draw quantitative and qualitative conclusions about the physical and natural world.**

**IVb. Demonstrate activities, techniques, or behaviors that promote intellectual or cultural growth.**

To view the mapping, click <https://www.cpp.edu/~academic-programs/Documents/GE%20SLO%20Mapping.pdf>

## **V. Instructional Materials**

Provide bibliography that includes texts that may be used as the primary source for instruction, and other appropriate reference materials to be used in instruction. The reference list should be current, arranged alphabetically by author and the materials should be listed in accepted bibliographic form.

**Instructional Materials\***

Suggested Texts:

Sullivan, *Algebra and Geometry*, 8th edition.

Faculty are encouraged to make all materials accessible. Indicate with an asterisk those items that have had accessibility (ATI/Section 508) reviewed. For more information, <http://www.cpp.edu>

## **VI. Minimum Student Materials**

List any materials, supplies, equipment, etc., which students must provide, such as notebooks, computers, internet access, special clothing or uniforms, safety equipment, lockers, sports equipment, etc. Note that materials that require the assessment of a fee may not be included unless the fee has been approved according to University procedures.

**Minimum Student Materials\*** Pencil and paper, some instructors may require calculators.

## **VII. Minimum College Facilities**

List the university facilities/equipment that will be required in order to offer this class, such as gymnastic equipment, special classroom, technological equipment, laboratories, etc.

**Minimum College Facilities\*** Classroom, chalkboard/whiteboard, chalk/markers, classroom projection system, computer/laptop.

## **VIII. Course Outline**

Describe specifically what will be included in the course content. This should not be a repetition of the course description but an expansion that provides information on specific material to be included in the class, e.g. lecture topics, skills to be taught, etc. This should not be a week-by-week guide unless all instructors are expected to follow that schedule.

### **Course Outline\***

1. Functions including linear, polynomial, rational, radical, exponential, absolute value, logarithmic: definitions, evaluation, domain and range;
2. Inverses of functions;
3. Algebra of functions;
4. Graphs of functions including asymptotic behavior, intercepts, vertices;
5. Transformations of quadratic, absolute value, radical, rational, logarithmic, exponential functions;
6. Equations including rational, linear, polynomial, radical, exponential, absolute value, logarithmic;
7. Linear, nonlinear, and absolute value inequalities;
8. Systems of equations and inequalities;
9. Characterization of the zeros of polynomials.

Describe the type(s) of method(s) that are required or recommended for the instruction of this course (lectures, demonstrations, etc.). Include any method that is essential to the course, such as the use of particular tools or software.

**Instructional Methods\***

Lecture, classroom discussion and activity.

**X. Evaluation of Outcomes**

**A. Describe the methods to be used to evaluate students' learning, i.e. written exams, term papers, projects, participation, quizzes, attendance, etc.\***

1. Homework and/or quizzes.
2. Exams.
3. Final Exam.
4. In-class activities (optional).

**B. Describe the required meaningful writing assignments to be included.\***

This course contains multiple assessments with a written component. Clear writing is important in mathematics, as it is in any other field. Students are required to present their solutions to problems in a clear and coherent form. Complete sentences are required, whether they be verbal or symbolic, and these sentences must be organized in such a fashion as to give a clear exposition of the problem. Feedback will be given throughout the quarter by the instructor.

**C. Discuss how these methods may be used to address the course and program outcomes, as appropriate. Include or attach a matrix to align the evaluation methods to the outcomes.\***

	HW/quizzes	Exams	Final Exam	Written assignments
SLO 1	X	X	X	
SLO 2	X	X	X	X
SLO 3	X	X		
SLO 4	X	X		
SLO 5	X	X	X	
SLO 6	X	X	X	
SLO 7	X	X	X	
SLO 8	X	X	X	X

**D. If this is a general education course, discuss how these methods may be used to address the associated G**

	HW/quizzes	Exams	Written Assignments	
Goal 1a	X	X	X	
Goal 1e	X	X	X	
Goal 2a		X	X	



below. Include or attach a matrix to align the evaluation methods to the outcomes.\*

**XI. Course/Department/College Specific Requirements (OPTIONAL)**

Department/  
College Required  
ECO Information  
(Optional)

**FOR OFFICE OF ACADEMIC PROGRAMS USE ONLY**

AY Proposal Submitted 2019-2020

AY Proposal Implemented

PS Academic Group 75-CSCI

PS Academic Organization 487-MATH

Course Type Mathematics

PS Course ID (for modified courses only) 005000

Impact Report (for modified courses only)  Attached

**FOR ACADEMIC SENATE OFFICE USE ONLY**

Senate Referral Number GE-004-190

Senate Report Number