## MATHEMATICS

## Program Description

Mathematics and related subjects play important dual roles in our culture. On the one hand, mathematics is a study in its own right; on the other hand it is an indispensable tool for expressing and understanding ideas in the sciences, engineering, and an increasing number of other fields.

Learn more about the program on the Mathematics website.

## Associate Degree for Transfer

This program also offers an Associate Degree for Transfer. Learn more and review the degree requirements on the Mathematics AS-T listing.

## Program Learning Outcomes

- The student will be able to clearly communicate mathematical ideas through graphs, tables of data, equations, and verbal descriptions.
- The student will be able to construct appropriate mathematical models of natural phenomena, develop those models with appropriate mathematical techniques, and interpret results of those models.


## Career Opportunities

Employment opportunities for persons with training in mathematics have been expanding in recent years. The courses offered are designed to develop the skills and competencies that not only support the skill areas needed in engineering, physical, and biological sciences, but also satisfy the necessary course requirements for the first two years of a bachelor degree program.

## Award Type(s)

- AS = Associate in Science Degree


## Units Required

- Major: 44-49


## Additional Information

Optional Recommended Courses:

| Code | Title |
| :--- | :--- |
| MATH 10 | ELEMENTARY STATISTICS |

## Associate Degree Requirements

| Code $\quad$ Title | Units |  |
| :--- | :--- | ---: |
| English Proficiency |  |  |
| Select one of the following: |  |  |
| ENGL 1A | COMPOSITION \& READING | 5 |
| ENGL 1AH | HONORS COMPOSITION \& READING | 5 |
| ESLL 26 | ADVANCED COMPOSITION \& READING | 5 |
| or equivalent |  |  |

## Mathematics Proficiency

College-level math course at or above the level of Intermediate Algebra

A minimum of 90 units is required ${ }^{1}$ to include:

- Completion of one of the following general education patterns: Foothill General Education, CSU General Education Breadth Requirements or the Intersegmental General Education Transfer Curriculum (IGETC)
- Core courses (44-49 units)
${ }^{1}$ Additional elective course work may be necessary to meet the 90-unit minimum requirement for the associate degree.

Note: All courses pertaining to the major must be taken for a letter grade. In addition, a grade of "C" or better is required for all core courses used for the degree.

## Core and Support Courses

| Code | Title | Units |
| :---: | :---: | :---: |
| Core Courses |  |  |
| MATH 1A <br> or MATH 1AH <br> \& 1 AHP | CALCULUS <br> HONORS CALCULUS I and HONORS CALCULUS I SEMINAR | 5-6 |
| MATH 1B <br> or MATH 1BH <br> \& 1BHP | CALCULUS <br> HONORS CALCULUS II and HONORS CALCULUS II SEMINAR | 5-6 |
| MATH 1C | CALCULUS | 5 |
| MATH 1D | CALCULUS | 5 |
| MATH 2A | DIFFERENTIAL EQUATIONS | 5 |
| MATH 2B | LINEAR ALGEBRA | 5 |
| MATH 22 | DISCRETE MATHEMATICS | 5 |
| or C S 18 | DISCRETE MATHEMATICS |  |
| And two courses from one of the four following options: |  | 9-12 |

Option 1
PHYS 2A GENERAL PHYSICS
PHYS 2B GENERAL PHYSICS
PHYS 2C GENERAL PHYSICS
Option 2
PHYS 4A GENERAL PHYSICS (CALCULUS)
PHYS 4B GENERAL PHYSICS (CALCULUS)
PHYS 4C GENERAL PHYSICS (CALCULUS)
Option 3
CHEM 1A GENERAL CHEMISTRY
CHEM 1B GENERAL CHEMISTRY CHEM 1C GENERAL CHEMISTRY \& QUALITATIVE ANALYSIS
Option 4

| C S 1A | OBJECT-ORIENTED PROGRAMMING <br> METHODOLOGIES IN JAVA |
| :--- | :--- |
| C S 1B | INTERMEDIATE SOFTWARE DESIGN IN JAVA |
| C S 1C | ADVANCED DATA STRUCTURES \& ALGORITHMS <br> IN JAVA |
| C S 2A | OBJECT-ORIENTED PROGRAMMING <br> METHODOLOGIES IN C++ |

C S 2B INTERMEDIATE SOFTWARE DESIGN IN C++
C S 2C ADVANCED DATA STRUCTURES \& ALGORITHMS
IN C++

| C S 3A | OBJECT-ORIENTED PROGRAMMING <br> METHODOLOGIES IN PYTHON |
| :---: | :--- |
| C S 3B | INTERMEDIATE SOFTWARE DESIGN IN PYTHON |
| C S 3C | ADVANCED DATA STRUCTURES \& ALGORITHMS <br> IN PYTHON |
| Total Units | $\mathbf{4 4 - 4 9}$ |

