# DEGREES & CERTIFICATES

## LIBERAL ARTS & SCIENCES: MATHEMATICS AND SCIENCE ASSOCIATE OF ARTS (AA)

**About the Program**
The Liberal Arts & Sciences: Mathematics and Science AA courses emphasize the natural sciences, which examine the physical universe, its life forms and its natural phenomena. Courses in math emphasize the development of mathematical and quantitative reasoning skills beyond the level of intermediate algebra. Students will be able to demonstrate an understanding of the methodologies of science as investitative tools. Students will also examine the influence that the acquisition of scientific knowledge has on the development of the world's civilizations.

**Program Goals and Objectives**
The Liberal Arts & Sciences: Mathematics and Science AA is designed to prepare the students to enter the workforce prepared with an associate degree. The curriculum allows student to develop an appreciation of the beauty and values that have shaped and enriched our culture. This program prepares students in analytical thinking, critical analysis, group collaboration, and effective communication.

**Career Opportunities**
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## Program Outcomes

- Upon completion of the AA in Liberal Arts & Sciences: Mathematics and Science, students are able to apply mathematical and scientific ideas to analyze real-world situations.
- Upon completion of the AA in Liberal Arts & Sciences: Mathematics and Science, students are able to read, write, listen to, and speak about mathematical and scientific ideas with understanding.
- Upon completion of the AA in Liberal Arts & Sciences: Mathematics and Science, students are able to use appropriate technology and/or tools to enhance their scientific thinking and understanding.
- Upon completion of the AA in Liberal Arts & Sciences: Mathematics and Science, students are able to use scientific reasoning to solve problems or conduct research, and assess the reasonableness of their results.

**Required Core: Select at least 18 units from below with at least 6 units from Science and 3 units from Mathematics (18-21 units)**

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| CS 17 Discrete Mathematical Structures | 4 |
| MATH 1 Calculus I | 5 |
| MATH 2 Calculus II | 5 |
| MATH 3 Multivariable Calculus | 5 |
| MATH 5 Ordinary Differential Equations | 3.5 |
| MATH 7 Elementary Linear Algebra | 3.5 |
| MATH 10 Discrete Mathematical Structures | 4 |
| MATH 27 Number Systems for Educators | 3 |
| MATH 30 College Algebra for STEM | 4 |
| MATH 33 Finite Mathematics | 4 |
| MATH 34 Business Calculus | 4 |
| MATH 39 Trigonometry | 4 |
| MATH 40 Statistics and Probability | 4 |
| MATH 47 Mathematics for Liberal Arts | 3 |
| ANTR 1 Biological Anthropology | 3 |
| ANTR 1L Biological Anthropology Lab | 1 |
| ANTR 2L Archaeology Field Laboratory | 1 |
| ANTR 13 Introduction to Forensic Anthropology | 3 |
| ASTR 30L Introduction to Astronomy Laboratory | 1 |
| ASTR 31 Introduction to Astronomy: The Solar System | 3 |
| ASTR 32 Introduction to Astronomy: Stars and the Universe | 3 |
| BIO 1A General Botany | 5 |
| BIO 1B General Zoology | 5 |
| BIO 1C Cell and Molecular Biology | 5 |
| BIO 7A Human Anatomy | 5 |
| BIO 7B Human Physiology | 5 |
| BIO 7C Microbiology | 5 |
| BIO 10 Introduction to the Science of Biology | 4 |
| BIO 20 Contemporary Human Biology | 3 |
| BIO 30 Introduction to College Biology | 4 |
| BIO 40 Humans and the Environment | 3 |
| BIO 50 Anatomy and Physiology | 4 |
| BIO 60 Marine Biology | 4 |
| BIO 70 Field Biology | 3 |
| CHEM 1A General College Chemistry I | 5 |
| CHEM 1B General College Chemistry ll | 5 |
| CHEM 6 Environmental Chemistry | 4 |
| CHEM 12A Organic Chemistry I | 5 |
| CHEM 12B Organic Chemistry II | 5 |
| CHEM 30A Introductory and Applied Chemistry I | 4 |
| CHEM 30B Introductory and Applied Chemistry II | 4 |
| CHEM 31 Introduction to College Chemistry | 4 |
| EVST 5 Energy and Sustainability | 3 |
| EVST 5L Energy and Sustainability Laboratory | 1 |
| GEOG 1 Introduction to Physical Geography | 3 |
| GEOG 1L Introduction to Physical Geography Laboratory | 1 |
| GEOG 8 Introduction to Atmospheric Science | 3 |
| GEOG 12 Geography of California | 3 |
| GEOL 1 Physical Geology | 3 |

**Total Units in the Area of Emphasis.......................................................................................................... 18-21**

**Additional General Education and Elective Units.......................................................................................... 39-42**