

LIBERAL ARTS: MATHEMATICS & SCIENCE, A.A.

Choose either **Option B:** CSU General Education Breadth or **Option C:** IGETC (Intersegmental General Education Transfer Curriculum) for the General Education pattern which relates to your educational goal.

Complete 18 units in one “Area of Emphasis” from those outlined below. More than one area of emphasis may be awarded. (Note: Where appropriate, courses in the “Area of Emphasis” may also apply towards General Education areas on the General Education pattern).

AA.LA.MASC.OPTB or AA.LA.MASC.OPTC

Requirements

The requirements for this degree may be met by completing all of MSJC's General Education Option B (CSUGE) or Option C (IGETC) requirements.

Additional major preparation or elective courses may be required for transfer to specific institutions, and students transferring to a CSU or UC can refer to ASSIST.ORG (<https://assist.org/>) to review major preparation for specific majors and programs. Please meet with a Counselor for further transfer information.

Course	Title	Credits
MSJC General Education Option B or C (https://catalog.msjc.edu/degrees-certificates-curricula/general-education-transfer-requirements/)		37-39
Area of Emphasis		18
Electives (as needed to reach 60 units)		3-9

1. Associate Degree in Liberal Arts:

a. General Education CSU-GE Breadth or IGETC: 37-39 units

Units necessary to meet CSU-GE Breadth or IGETC Certification requirements only.

b. Areas of Emphasis: 18 units

- A minimum of 18 units are required in any Areas of Emphasis listed below on either CSUGE or IGETC. For depth of study, 2 or more courses in one discipline are required. More than one area of emphasis may be awarded.
- Courses selected may also be used to fulfill General Education (CSUGE and IGETC) areas. Students should be aware that each transfer institution will have their own double counting policy.

c. Electives:

Elective units may be necessary to total 60 overall units required for the Associate Degree. These units must be transferable to the CSU and/or UC for appropriate credit.

Total Units: 60 transferable units

These 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 investigative tools. Students will also examine the influence that the acquisition of scientific knowledge has on the development of the world's civilizations. (Students following the CSU GE or IGETC must complete two science courses with at least 1 lab AND at least 1 transferable math

to get certified. If a student is transferring in a science or math major more math and/or science courses must be completed.)

CSU - Math and Science

A minimum of 18 units are required in any Areas of Emphasis listed below on either CSUGE or IGETC. Select at least two courses from the same discipline.

Course	Title	Credits
B1. Physical Science		
<i>Astronomy</i>		
ASTR-101	Introduction to Astronomy ¹	4
ASTR/GEOL-111	Planetary Astronomy	3
<i>Chemistry</i>		
CHEM-100	Introduction to Chemistry ¹	4
CHEM-101	General Chemistry I ¹	5
CHEM-101H	Honors General Chemistry I ¹	5
CHEM-102	General Chemistry II ¹	5
CHEM-107	Chemistry of Life ¹	5
CHEM-112	Organic Chemistry I ¹	5
CHEM-113	Organic Chemistry II ¹	5
CHEM-113H	Honors Organic Chemistry II ¹	5
<i>Environmental Studies</i>		
ENVS-100	Humans and Scientific Inquiry	3
ENVS-100H	Honors Humans and Scientific Inquiry	3
ENVS-101	Environmental Science	3
ENVS-101H	Honors Environmental Science	3
<i>Geography</i>		
GEOG-101	Physical Geography	3
GEOG-106	Introduction to Weather and Climate	3
<i>Geology</i>		
GEOL-100	Physical Geology ¹	4
GEOL-103	Environmental Geology	3
GEOL-105	Historical Geology ¹	4
GEOL-106	Earth Science ¹	4
GEOL-107	Scenic Adventure Field Trips in Geology (formerly Geologic Field Trips)	1.5
GEOL-110	Oceanography ¹	4
GEOL-109	Geology of National Parks	3
GEOL/ASTR-111	Planetary Astronomy	3
<i>Physics</i>		
PHY-100	Physical Science in Modern Society (formerly Conceptual Physics)	3
PHY-101	Basic Physics: Energy and Motion ¹	4
PHY-102	Basic Electricity and Modern Physics ¹	4
PHY-201	Mechanics and Wave Motion ¹	4
PHY-202	Electricity and Magnetism ¹	4
PHY-202H	Honors Electricity and Magnetism ¹	4
PHY-203	Optics and Modern Physics	4
B2. Life Science		
<i>Anatomy</i>		
ANAT-101	Human Anatomy & Physiology I ¹	4
ANAT-102	Human Anatomy & Physiology II ¹	4

<i>Anthropology</i>		
ANTH-101	Biological Anthropology	3
ANTH-101H	Honors Biological Anthropology	3
<i>Biology</i>		
BIOL-100	Human Biology ¹	4
BIOL-100H	Honors Human Biology ¹	4
BIOL-115	Introductory Topics in Biology: Cells to Ecosystems (formerly Topics in Biology) ¹	4
BIOL-115H	Honors Introductory Topics in Biology: Cells to Ecosystems (formerly Honors Topics in Biology) ¹	4
BIOL-117	Conservation Biology	3
BIOL-125	Microbiology ¹	4
BIOL-125H	Honors Microbiology ¹	4
BIOL-130	Marine Biology ¹	4
BIOL-131	Genes and Biotechnology in Society ¹	4
BIOL-131H	Honors Genes and Biotechnology in Society ¹	4
BIOL-134	Human Heredity and Evolution	3
BIOL-140	Ecology ¹	4
BIOL-144	Plant Biology ¹	4
BIOL-144H	Honors Plant Biology	4
BIOL-146	Biodiversity	3
BIOL-150	General Biology I ¹	4
BIOL-150H	Honors General Biology I ¹	4
BIOL-151	General Biology II ¹	4
BIOL-151H	Honors General Biology II ¹	4

Psychology

PSYC-107H	Honors Psychobiology	3
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B3. Laboratory Activity: Select one lab activity associated with a course in B1 or B2

<i>Anthropology</i>		
ANTH-111	Biological Anthropology Lab (concurrent or previous enrollment in ANTH-101/ ANTH-101H required) ¹	1

Environmental Studies

ENVS-102	Environmental Science Laboratory (concurrent or previous enrollment in ENVS-101/ENVS-101H required) ¹	1
ENVS-102H	Honors Environmental Science Laboratory (concurrent or previous enrollment in ENVS-101/ENVS-101H required) ¹	1

Geography

GEOG-104	Physical Geography Lab (concurrent or previous enrollment in GEOG-101 required) ¹	1
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B4. Mathematics/Quantitative Reasoning*Computer Science/Information Systems*

CSIS-213	Discrete Structures	3
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Math

MATH-105	College Algebra	4
MATH-105H	Honors College Algebra	4
MATH-110	Pre-Calculus	4
MATH-115	Ideas of Mathematics	3

MATH-135	Calculus for Social Science and Business	3
MATH-140	Introduction to Statistics	3
MATH-155	Mathematics for Elementary Teaching (formerly Mathematics for Elementary Teaching I)	3
MATH-211	Analytic Geometry and Calculus I	4
MATH-211H	Honors Analytic Geometry and Calculus I	4
MATH-212	Analytic Geometry and Calculus II	4
MATH-212H	Honors Analytic Geometry and Calculus II	4
MATH-213	Analytic Geometry and Calculus III	5
MATH-213H	Honors Analytic Geometry and Calculus III	5
MATH-215	Differential Equations	4
MATH-215H	Honors Differential Equations	4
MATH-218	Linear Algebra	3

Psychology/Sociology

PSYC/SOCI-121	Statistics for Behavioral Sciences	3
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¹ Laboratory science course

IGETC - Math and Science

A minimum of 18 units are required in any Areas of Emphasis listed below on either CSUGE or IGETC. Select at least two courses from the same discipline.

Course	Title	Credits
2. Mathematical Concepts & Quantitative Reasoning		
Computer Science		
CSIS-213	Discrete Structures	3
Mathematics		
MATH-105	College Algebra	4
MATH-105H	Honors College Algebra	4
MATH-110	Pre-Calculus	4
MATH-115	Ideas of Mathematics	3
MATH-135	Calculus for Social Science and Business	3
MATH-140	Introduction to Statistics	3
MATH-211	Analytic Geometry and Calculus I	4
MATH-211H	Honors Analytic Geometry and Calculus I	4
MATH-212	Analytic Geometry and Calculus II	4
MATH-212H	Honors Analytic Geometry and Calculus II	4
MATH-213	Analytic Geometry and Calculus III	5
MATH-213H	Honors Analytic Geometry and Calculus III	5
MATH-215	Differential Equations	4
MATH-215H	Honors Differential Equations	4
MATH-218	Linear Algebra	3
Psychology/Sociology		
PSYC/SOCI-121	Statistics for Behavioral Sciences	3

Course	Title	Credits
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5A. Physical Science

<i>Astronomy</i>		
ASTR-101	Introduction to Astronomy ¹	4
ASTR/GEOL-111	Planetary Astronomy	3
<i>Chemistry</i>		

CHEM-100	Introduction to Chemistry ¹	4
CHEM-101	General Chemistry I ¹	5
CHEM-101H	Honors General Chemistry I ¹	5
CHEM-102	General Chemistry II ¹	5
CHEM-107	Chemistry of Life ¹	5
CHEM-112	Organic Chemistry I ¹	5
CHEM-113	Organic Chemistry II ¹	5
CHEM-113H	Honors Organic Chemistry II ¹	5
<i>Environmental Studies</i>		
ENVS-100	Humans and Scientific Inquiry	3
ENVS-100H	Honors Humans and Scientific Inquiry	3
ENVS-101	Environmental Science	3
ENVS-101H	Honors Environmental Science	3
<i>Geography</i>		
GEOG-101	Physical Geography	3
GEOG-106	Introduction to Weather and Climate	3
<i>Geology</i>		
GEOL-100	Physical Geology ¹	4
GEOL-103	Environmental Geology	3
GEOL-105	Historical Geology ¹	4
GEOL-106	Earth Science ¹	4
GEOL-109	Geology of National Parks	3
GEOL-110	Oceanography ¹	4
GEOL/ASTR-111	Planetary Astronomy	3
<i>Physics</i>		
PHY-100	Physical Science in Modern Society (formerly Conceptual Physics)	3
PHY-101	Basic Physics: Energy and Motion ¹	4
PHY-102	Basic Electricity and Modern Physics ¹	4
PHY-201	Mechanics and Wave Motion ¹	4
PHY-202	Electricity and Magnetism ¹	4
PHY-202H	Honors Electricity and Magnetism ¹	4
PHY-203	Optics and Modern Physics ¹	4
5B. Biological Science		
<i>Anatomy & Physiology</i>		
ANAT-101	Human Anatomy & Physiology I ¹	4
ANAT-102	Human Anatomy & Physiology II ¹	4
<i>Anthropology</i>		
ANTH-101	Biological Anthropology	3
ANTH-101H	Honors Biological Anthropology	3
<i>Biology</i>		
BIOL-100	Human Biology ¹	4
BIOL-100H	Honors Human Biology ¹	4
BIOL-115	Introductory Topics in Biology: Cells to Ecosystems (formerly Topics in Biology) ¹	4
BIOL-115H	Honors Introductory Topics in Biology: Cells to Ecosystems (formerly Honors Topics in Biology) ¹	4
BIOL-117	Conservation Biology	3
BIOL-125	Microbiology ¹	4
BIOL-125H	Honors Microbiology ¹	4
BIOL-130	Marine Biology ¹	4
BIOL-131	Genes and Biotechnology in Society ¹	4

BIOL-131H	Honors Genes and Biotechnology in Society ¹	4
BIOL-134	Human Heredity and Evolution	3
BIOL-140	Ecology ¹	4
BIOL-144	Plant Biology ¹	4
BIOL-144H	Honors Plant Biology ¹	4
BIOL-146	Biodiversity	3
BIOL-150	General Biology I ¹	4
BIOL-150H	Honors General Biology I ¹	4
BIOL-151	General Biology II ¹	4
BIOL-151H	Honors General Biology II ¹	4

5C. Science Laboratory

Select one lab activity associated with a course in 5A or 5B.

Anthropology

ANTH-111	Biological Anthropology Lab	1
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Geography

GEOG-104	Physical Geography Lab	1
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¹ Laboratory science courses

Career Exploration

Discover information about careers that interest you!

1. Take a **Career Quiz** (<https://msjc.emsicc.com/assessment/>) to learn about yourself and receive career suggestions based on your interests.
2. Search available **in-demand jobs** (<https://msjc.emsicc.com/browse-careers/>) in your career areas of interest and find up-to-date salaries and education requirements.
3. Find the **MSJC Program** (<https://msjc.emsicc.com/browse-programs/>) that connects your interests to a career.

Note: There are no guaranteed positions for students completing these programs. Education and work experience required will vary by employer. The salary and benefits for specific occupations will be dependent on work experience, education, background, and employer.