LIBERAL ARTS: EMPHASIS IN MATH AND SCIENCE

Associate in Arts
Non-Transfer: Option 1 (Major Code: 01378) [Footnote 1]
Transfer Preparation: Option 2 (Major Code: 01870) [Footnotes *, 1, 2]

The Associate of Arts in Liberal Arts Degree is designed for students who wish a broad knowledge of liberal arts and sciences plus additional coursework in an "Area of Emphasis." The Associate of Arts in Liberal Arts Degree would be an ideal choice for those students planning on transferring to the California State University or University of California as the student can satisfy their general education requirements, plus focus on transferable course work that relates to majors at CSU or UC.

- Choose either Option 1 or 2 for the General Education pattern related to your educational goal.
- Complete a minimum of 18 units from the courses listed below. For Option 1, courses cannot be double-counted to satisfy general education requirements.
- Complete a minimum of 60 degree applicable transferable semester units (including major and general education courses).
- For ALL OPTIONS: complete necessary Southwestern College Graduation Requirements. (http://catalog.swccd.edu/certificates-certifications-degrees-csuuc-requirements/)
- Courses with an "*" are not UC transferable.
- Courses should be selected with the assistance of a counselor. Refer to ASSIST.org (https://assist.org/) for transfer details.
- Completion of the Liberal Arts Degree does not guarantee acceptance into a four year institution nor into a major.

Program Student Learning Outcome

- Demonstrate mathematical, scientific and quantitative reasoning skills necessary to engage competently in personal, professional, civic, and social contexts.

Code	Title	Units
Option 1 [Footnote 1]		
Southwestern College Associate Degree General Education		
Minimum units necessary to meet Southwestern Associate Degree requirements		21
Option 2 [Footnotes *, 1, 2]		
Cal-GETC		
Minimum units necessary to meet Cal-GETC Certification requirements		34

Code	Title	Units
Math & Science Emphasis		

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.

Select a minimum of 18 units of the following courses:		18
ANTH 101	BIOLOGICAL ANTHROPOLOGY	
ANTH 101L	LABORATORY IN BIOLOGICAL ANTHROPOLOGY	
ASTR 100	PRINCIPLES OF ASTRONOMY	
ASTR 109	ASTRONOMY LABORATORY	
ASTR 120	SOLAR SYSTEM ASTRONOMY	
ASTR 150	DISCOVERY OF THE COSMOS	
ASTR 170	THE RADICAL UNIVERSE	
ASTR 180	LIFE IN THE UNIVERSE	
ASTR 201	ASTRONOMY FOR SCIENCE MAJORS	
ASTR 205	ELEMENTARY ASTROPHYSICS	
BIOL 100	PRINCIPLES OF BIOLOGY	
BIOL 101	PRINCIPLES OF BIOLOGY LABORATORY	
BIOL 111	CANCER BIOLOGY	
BIOL 130	ANIMAL BIOLOGY: A BEHAVIORAL APPROACH	
BIOL 131	ANIMAL BIOLOGY LABORATORY	
BIOL 140	ENVIRONMENTAL BIOLOGY	
BIOL 145	ECOMUNDO: ECOLOGY AND ENVIRONMENTAL SCIENCE	
BIOL 150	NATURAL HISTORY OF PLANTS AND ANIMALS	
BIOL 151	INTRODUCTION TO FERMENTATION SCIENCE	
BIOL 151L	INTRODUCTION TO FERMENTATION SCIENCE LAB	
BIOL 160	MARINE BIOLOGY	
BIOL 161	MARINE BIOLOGY LABORATORY	
BIOL 180	HUMAN HEREDITY, EVOLUTION, AND SOCIETY	
BIOL 185	BIOLOGY OF ALCOHOL AND OTHER DRUGS	
BIOL 190	HUMAN ANATOMY AND PHYSIOLOGY	
BIOL 210	GENERAL ZOOLOGY	
BIOL 211	INTRODUCTION TO CELL AND MOLECULAR BIOLOGY	
BIOL 212	BIOLOGY OF PLANTS	
BIOL 215	BIOSTATISTICS	
BIOL 260	HUMAN ANATOMY	
BIOL 261	PRINCIPLES OF HUMAN PHYSIOLOGY	
BIOL 265	GENERAL MICROBIOLOGY	
CHEM 100	INTRODUCTION TO GENERAL CHEMISTRY	
CHEM 102	GENERAL, ORGANIC, AND BIOLOGICAL CHEMISTRY	
CHEM 110	ELEMENTARY ORGANIC AND BIOLOGICAL CHEMISTRY	
CHEM 151	INTRODUCTION TO FERMENTATION SCIENCE	
CHEM 151L	INTRODUCTION TO FERMENTATION SCIENCE LAB	
CHEM 170	PREPARATION FOR GENERAL CHEMISTRY	

CHEM 200	GENERAL CHEMISTRY I
CHEM 210	GENERAL CHEMISTRY II
CHEM 240	ORGANIC CHEMISTRY I
CHEM 242	ORGANIC CHEMISTRY II
CHEM 244	ORGANIC ANALYSIS AND SPECTROSCOPY
CHEM 250	ANALYTICAL CHEMISTRY
CIS/BUS 101	INTRODUCTION TO BUSINESS INFORMATION SYSTEMS
CIS 115	INTRODUCTION TO PROGRAMMING USING C++
CIS 153	PROGRAMMING INTERNET VISUAL/ MOBILE APPLICATIONS USING JAVA
ENGR/CHEM/ PHYS 104	ESSENTIAL MATH SKILLS FOR ENGINEERS AND SCIENTISTS
ENGR 120C	INTRODUCTION TO COMPUTER PROGRAMMING - C/C++ LANGUAGE
GEOG 100	INTRODUCTION TO GEOGRAPHY--- PHYSICAL ELEMENTS
GEOG 101	PHYSICAL GEOGRAPHY LABORATORY
GEOG 130	WEATHER AND CLIMATE
GEOG 150	EXPLORING OUR WORLD-MAPS AND GEOSPATIAL SCIENCE
GEOG 160	GEOGRAPHY OF CALIFORNIA
GEOL 100	PRINCIPLES OF GEOLOGY
GEOL 101	GENERAL GEOLOGY LABORATORY
GEOL 104	INTRODUCTION TO EARTH SCIENCE
MATH 100	MATHEMATICS FOR GENERAL EDUCATION
MATH 101	COLLEGE ALGEBRA
MATH 104	TRIGONOMETRY *
MATH 110	STRUCTURES AND CONCEPTS IN MATHEMATICS I
MATH 111	STRUCTURES AND CONCEPTS IN MATHEMATICS II
MATH 112	CHILDREN'S MATHEMATICAL THINKING *
MATH 118	FINITE MATHEMATICS
STAT C1000	INTRODUCTION TO STATISTICS
MATH 120	CALCULUS FOR BUSINESS ANALYSIS
MATH 121	APPLIED CALCULUS I
MATH 122	APPLIED CALCULUS II
MATH 130	INTRODUCTION TO COMPUTER PROGRAMMING
MATH 140	DATA STRUCTURES AND ALGORITHMS
MATH 230	COMPUTER ORGANIZATION AND ARCHITECTURE
MATH 244	PRE-CALCULUS WITH TRIGONOMETRY
MATH 250	ANALYTIC GEOMETRY AND CALCULUS I
MATH 251	ANALYTIC GEOMETRY AND CALCULUS II
MATH 252	ANALYTIC GEOMETRY AND CALCULUS III
MATH 253	INTRODUCTION TO DIFFERENTIAL EQUATIONS
MATH 254	INTRODUCTION TO LINEAR ALGEBRA
MATH 260	DISCRETE MATHEMATICS
MATH 265	DISCRETE STRUCTURES
PHS 101	INTRODUCTION TO THE PHYSICAL SCIENCES
PHS 110	INTRODUCTION TO OCEANOGRAPHY
PHYS 150	FUNDAMENTALS OF PHYSICS I
PHYS 151	FUNDAMENTALS OF PHYSICS LABORATORY I
PHYS 152	FUNDAMENTALS OF PHYSICS II
PHYS 153	FUNDAMENTALS OF PHYSICS LABORATORY II
PHYS 270	PRINCIPLES OF PHYSICS I
PHYS 271	PRINCIPLES OF PHYSICS LABORATORY I
PHYS 272	PRINCIPLES OF PHYSICS II
PHYS 273	PRINCIPLES OF PHYSICS LABORATORY II
PHYS 274	PRINCIPLES OF PHYSICS III
PHYS 275	PRINCIPLES OF PHYSICS LABORATORY III
PSYC 255	INTRODUCTION TO PSYCHOLOGICAL RESEARCH
PSYC/SOC 270	STATISTICS FOR THE BEHAVIORAL SCIENCES
PSYC/SOC 271	DATA ANALYSIS IN PSYCHOLOGY AND SOCIOLOGY
PSYC/SOC 280	STATISTICAL METHODS FOR THE BEHAVIORAL SCIENCES
Total Units	**18**

* Note: Courses with an "*" are not UC transferable.

[1] Options 1 & 2: For depth, include a minimum of two courses from a single discipline; for breadth, include at least two disciplines in your selection. 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.

[2] Option 2: Students planning to transfer to a four-year college or university should complete courses specific to the transfer institution of choice. University requirements vary from institution to institution and are subject to change. Therefore, it is important to verify transfer major preparation and general education requirements through consultation with a counselor in either the Counseling or Transfer Center. See catalog Transfer Courses Information (http://catalog.swccd.edu/student-success-support-program/student-services-and-college-services/other-services/transfer-courses/) section for further information.