

GENERAL STUDIES— NATURAL SCIENCES AND MATHEMATICS, ASSOCIATE IN ARTS

The Associate in Arts in General Studies—Natural Sciences and Mathematics will examine the physical universe, its life forms, and the measurement of natural phenomena. Students will develop an understanding of and appreciation for the scientific method, mathematical evaluation, and the relationships between science, mathematics, and other human activities. This degree enables students to take courses that will satisfy lower division major preparation requirements for areas including, but not limited to: Allied Health, Biology, Chemistry, Environmental Science, Geological Sciences, Geography, Health Sciences, Mathematics, Nursing, Physics, and related disciplines.

Students are required to:

1. Complete Ventura College's General Education requirements to include areas 1-7 or the California General Education Transfer Curriculum (Cal-GETC).
2. Complete a minimum of **18 units** in the Natural Science and Mathematics major requirements. Each course in the major must be completed with a grade of "C" or better (or a "P"). (Note: Universities have limitations on the number of units that can be taken "Pass/No-Pass" and therefore it is strongly recommended that students take all major coursework for a letter grade.) Courses in the area of emphasis may also be used to fulfill general education requirements but the units may count only once.
3. Complete a minimum of 60 degree-applicable units. Students intending to transfer will need to complete 60 CSU or UC transferable units.
4. Complete requirements in scholarship (2.0 minimum cumulative degree-applicable GPA).
5. Complete a minimum of 12 semester units in residence within the Ventura County Community College District.
6. Apply for the A.A. degree in the Counseling Office by the stated deadlines.

NOTE: *Students planning to transfer to a four-year university are advised to choose courses that meet the lower division major preparation and general education requirements for their chosen university in consultation with a college counselor.*

Course ID	Title	Units/ Hours
Required Core Courses		
Select 18 units from the following:		
AG V04	Introduction to Soil Science	3
AG V06	Introduction to Plant Science (with Laboratory)	3
AG V21	Introduction to Integrated Pest Management (IPM)	3
AG V22	Introduction to Plant Pathology: Insects and Diseases of Plants	3
AG V30	Plant Propagation and Production	3

AG V42	Plant Identification and Culture: Spring Specimens	3
AG V43	Plant Identification and Culture: Fall Specimens	3
AG V61	Introduction to Animal Science	3
AG V66	Anatomy and Physiology of Animals	4
ANAT V01	Human Anatomy	4
ANPH V01	Introduction to Human Anatomy and Physiology	5
ANTH C1001	Introduction to Biological Anthropology	3
ANTH C1001L	Biological Anthropology Lab	1
ANTH V35	Introduction to Forensic Science	3
ANTH V35L	Introduction to Forensic Science Laboratory	1
ANTH V36	Forensic Anthropology	3
ASTR C1001	Introduction to Astronomy	3
ASTR C1001L	Introduction to Astronomy Lab	1
BIOL C1001	Introduction to Biology	3
BIOL C1001L	Introduction to Biology Lab	1
BIOL V03	Evolution, Ecology, and Organismal Biology	4
BIOL V04	Cell and Molecular Biology	4
BIOL V10	Introduction to Environmental Issues	3
BIOL V12	Human Biology	3
BIOL V14	Field Biology: A Natural History of California	4
BIOL V18	Human Heredity	3
BIOL V29	Marine Biology	3
BIOL V29L	Marine Biology Laboratory	1
CHEM V101	Elementary Chemistry	5
CHEM V102	Introduction to Organic and Biochemistry	5
CHEM V104	Foundations of General, Organic, and Biochemistry	5
CHEM V120A	General Chemistry I	5
CHEM V120B	General Chemistry II	5
CHEM V160A	General Organic Chemistry I	5
CHEM V160B	General Organic Chemistry II	5
CJ V35	Introduction to Forensic Science	3
CJ V35L	Introduction to Forensic Science Laboratory	1
CJ V36	Forensic Anthropology	3
CS V11	Programming Fundamentals	3
CS V17	Discrete Structures	3
CS V30	Beginning C++	3
CS V40	Beginning Java	3
ESRM V01	Introduction to Environmental Issues	3
ESRM V02	Introduction to Environmental Science	3
ESRM V10	Environmental Ecology	3
ESRM V14/AG V54A	Conservation of Natural Resources	3
GEOG V01	Elements of Physical Geography	3
GEOG V01L	Elements of Physical Geography Laboratory	1
GEOG V05	Introduction to Weather and Climate	3
GEOG V22	Fundamentals of Mapping and Geographic Information Systems	3

GEOL V02	Physical Geology	3
GEOL V02L	Physical Geology Laboratory	1
GEOL V03	Historical Geology	3
GEOL V03L	Historical Geology Laboratory	1
GEOL V07	Geology of National Parks	3
GEOL V09	Earth Science with Laboratory	4
GEOL V11	Introduction to Oceanography	3
GEOL V21	Natural Disasters	3
GIS V22	Fundamentals of Mapping and Geographic Information Systems	3
MATH V03	Intermediate Algebra	5
MATH V04	College Algebra	4
MATH V05	Plane Trigonometry	3
MATH V15	College Algebra for Liberal Arts	3
MATH V20	Precalculus Mathematics	5
MATH C2210	Calculus I: Early Transcendentals	5
MATH C2220	Calculus II: Early Transcendentals	5
MATH V21C	Multivariable Calculus	5
MATH V22	Introduction to Linear Algebra	3
MATH V23	Introduction to Differential Equations	3
MATH V38	Mathematics for Elementary School Teachers	3
MATH V40	Exploration of Mathematical Ideas	3
MATH V46	Business Calculus	3
MATH V52	Discrete Structures	3
MICR V01	General Microbiology	4
NS V07	Pharmacology	3
PHSC V01	Concepts in Physical Science	4
PHSO V01	Human Physiology	4
PHYS V01	Elementary Physics	5
PHYS V02A	General Physics I: Algebra/Trigonometry-Based	4
PHYS V02AL	General Physics I Laboratory: Algebra/Trigonometry-Based	1
PHYS V02B	General Physics II: Algebra/Trigonometry-Based	4
PHYS V02BL	General Physics II Laboratory: Algebra/Trigonometry-Based	1
PHYS V03A	General Physics I: Calculus-Based	4
PHYS V03AL	General Physics I Laboratory: Calculus-Based	1
PHYS V03B	General Physics II: Calculus-Based	4
PHYS V03BL	General Physics II Laboratory: Calculus-Based	1
PHYS V04	Mechanics for Scientists and Engineers	4
PHYS V04L	Mechanics Laboratory for Scientists and Engineers	1
PHYS V05	Electricity and Magnetism for Scientists and Engineers	4
PHYS V05L	Electricity and Magnetism Laboratory for Scientists and Engineers	1
PHYS V06	Optics, Heat, and Modern Physics: For Scientists and Engineers	4

PHYS V06L	Optics, Heat, and Modern Physics Laboratory for Scientists and Engineers	1
PSY V03	Introduction to Biological Psychology	3
PSY V04	Introductory Statistics for the Social and Behavioral Sciences	4
STAT C1000	Introduction to Statistics	4

Required Core Units 18

Required Major Units 18

VCCCD General Education Pattern

Required Major Units	18
VCCCD General Education Units	24
Double-Counted Units	(3-9)
Elective Units	21-27
Total Units for the A.A. Degree	60

OR

Cal-GETC General Education Pattern

Total Required Major Units	18
Cal-GETC	34
Double Count Units	(0-10)
Free Electives Required	8-18
Total Units for the A.A. Degree	60

Plan of Study with VC General Education

This Plan of Study applies to the VCCCD General Education Pattern and illustrates **one** sequence of courses to meet the degree requirements in two years. Students are encouraged to meet with a counselor to design a plan of study which will best meet their specific educational needs.

Year 1

Fall Semester		Units/Hours
ENGL C1000	Academic Reading and Writing (Satisfies VCCCD GE Area 1A)	4
Select Course from Required Course List (Double Counts for VCCCD GE Area 5)		3
Select Course from Required Course List		3
Select Elective Course		3
Select Elective Course		3
Units/Hours		16

Spring Semester

Select Course from Required Course List	3
Select Course...VC GE Area 1B	3
Select Course...VC GE Area 2	3
Select Elective Course	3
Select Elective Course	3
Units/Hours	15

Year 2

Fall Semester

Select Course from Required Course List	3
Select Course from Required Course List	3
Select Course...VC GE Area 3	3
Select Elective Course...VC GE Area 4	3
Select Elective Course	3
Units/Hours	15

Spring Semester

Select Course from Required Course List	3
Select Course...VC GE Area 6	3
Select Course...VC GE Area 7	3

Select Elective Course	3
Select Elective Course	3
Units/Hours	15
Total Units/Hours	61

Plan of Study with Cal-GETC GE Pattern

This Plan of Study applies to the Cal-GETC General Education Pattern and illustrates **one** sequence of courses to meet the degree requirements in two years. Students are encouraged to meet with a counselor to design a plan of study which will best meet their specific educational needs.

Year 1

Fall Semester		Units/Hours
ENGL C1000	Academic Reading and Writing (Satisfies Cal-GETC GE Area 1B)	4
COMM C1000	Introduction to Public Speaking (Satisfies Cal-GETC GE Area 1C)	3
Select Course from Required Course List (Double Counts for Cal-GETC Area 5A or 5B)		3
Select Course from Required Course List Course List		3
Select Elective Course		3
Units/Hours		16

Spring Semester

Select Course from Required Course List (Double Counts for Cal-GETC Area 5A or 5B)		3
Select Course from Required Course List (Double Counts for Cal-GETC Area 5C)		1
Select Course...Cal-GETC Area 1B		3
Select Course...Cal-GETC Area 2		3
Select Course...Cal-GETC Area 4		3
Select Elective Course		3
Units/Hours		16

Year 2

Fall Semester

Select Course from Required Course List		3
Select Course from Required Course List		3
Select Course...VC GE Area 3A		3
Select Elective Course...VC GE Area 4		3
Select Elective Course		3
Units/Hours		15

Spring Semester

Select Course from Required Course List		3
Select Course...Cal-GETC Area 3B		3
Select Course...VC GE Area 6		3
Select Elective Course		3
Select Elective Course		1
Units/Hours		13
Total Units/Hours		60

Upon successful completion of this program, students will be able to:

- Demonstrate through oral and written academic work knowledge of the natural sciences.
- Demonstrate the preparation to pursue further study in a related major at the baccalaureate level.
- Demonstrate the proficiency in the research, analytical, and communication skills necessary to present a critical analysis.