



Certificate/AS-Computer Software Developer 21-22

Recommended Program Sequence

All courses with a + sign indicate a pre-requisite or co-requisite

GP

Term 1 (Fall/Spring: Max. 19 units, 12-15 u. recommended)		Units	Term 3 (Fall/Spring: Max. 19 units, 12-15 u. recommended)		Units
CIS 101, Introduction to Computer Information Science		3	CIS 113+, Data Structures		3
G.E. Area D2: # MATH 128+, College Algebra for Liberal Arts or (MATH 150+, or MATH 220+)		3	CIS 123, Assembly Language and Computer Architecture		3
CA 151, Microcomputer Operating Systems		3	Program Elective: #CA 157		3
General Education Area D1 ENGLISH 101+		3	General Education Area A #PHYS 110		4
General Education Area B #HIST 102		3	Gen. Ed. Area F #BUS 212		3
# Recommended	Total	15		Total	16
Term 2 (Fall/Spring: Max. 19 units, 12-15 u. recommended)		Units	Term 4 (Fall/Spring: Max. 19 units, 12-15 u. recommended)		Units
CIS 111, Introduction to Programming & Algorithms		3	CA 131, Relational Database Management and Design		3
CIS 121, Computer Mathematics		3	Program Elective: #CIS 177		3
CIS 161, Intro. to C Programming		3	General Education C. #COMM 103		3
PHIL 110, Intro. to Logic		3	General Education Area E #SOC 111		3
General Elective: #MATH 150		5			
	Total	17		Total	12
(Summer: Max. 15 units, 12 units recommended)			Transfer or Graduate		

Take Summer classes if needed to complete the program in a timely manner.

The state requires all students to have a Comprehensive Educational Plan. Make a counseling appointment as soon as enrollment is established on any term. Come by the Counseling Center or call. Online Counseling is available: <https://www.avc.edu/student-services/counseling>

Certificate/Major Required Courses:		AS General Education: At least 3 units from each of the following areas below: A, B, C, D1, D2, E, and F. Minimum Total GE Units Required: 21	
CA 131, Relational Database Management and Design	3	Area A Natural Sciences: (min. 3 units)	
CA 151, Microcomputer Operating Systems	3	ANTH 101, 101L	
CIS 101, Introduction to Computer Info. Science	3	ASTR 101+, 101L+	
CIS 111, Introduction to Programming & Algorithms	3	BIOL 100, 101+, 101L+, 102, 103, 104, 110+, 120+, 201+, 202+, 204+,	
CIS 113+, Data Structures	3	CHEM 101+, 102+, 110+	
CIS 121, Computer Mathematics	3	ELTE 101	
CIS 123, Assembly Language and Computer Architecture	3	ERSC 101+	
CIS 161, Introduction to C Programming	3	GEOG 101+, 101L+, 102, 102L+	
MATH 128+, College Algebra for Liberal Arts or MATH 150+,	3-5	GEOL 101+, 101L+, 102+, 102L+	
Calculus & Analytic Geometry or MATH 220+, Linear Algebra		PHYS 101, 102+, 110+, 120+, 211+	
PHIL 110, Intro. to Logic	3	PSCI 101	
Program Electives (see below)	4-6	Area B Social & Behavioral Sciences: (min. 3 units)	
Total Minimum Units Required for Certificate/Major	36	AJ 201, 204, 206	
Program Electives: Complete 4-6 units from the following:		ANTH 102, 103, 112, 140	
CA 157, Introduction to LINUX	3	BUS 101	
CIS 173+, Introduction to C++ Programming	3	CFE 102	
CIS 174, Introduction to C#.NET Programming	3	COMM 217+	
CIS 175+, Java Programming	3	DFST 105	
CIS 177+, Introduction to Python	3	ECON 100, 101+, 102+, 110	
CIS 199+, Occupational Work Experience	1-8	GEOG 105, 106, 110	
MATH 128+, College Algebra for Liberal Arts	3	HIST 101, 102, 104, 105, 107, 108, 110, 111, 113, 114, 116+, 118, 119	
MATH 140+, Precalculus	4	POLS 101, 103, 200, 201+, 202+, 203+	
MATH 150+, Calculus and Analytical Geometry	5	PSY 101, 201+, 212+, 230+, 232, 233+, 234+, 235+, 236+	
MATH 220+, Linear Algebra	4	SOC 101, 105, 110, 111, 112, 115, 116, 120	
other requirements for degree		Area C Humanities: (min. 3 units)	
General Education	21-27	ART 100, 101, 102, 103, 104, 106, 110, 113, 120, 132, 135, 136+, 137+, 140,	
Proficiency (See Proficiency Requirements)	*	145, 150, 163+, 170+, 210+, 213+	
Electives	0-3	CHIN 101, 102+, 201+, 202+	
Minimum Units Required for AS Degree:	60	COMM 103, 112, 114, 214+	
Other Requirements:		DA 101	
• Minimum grade of "C" required on each course		DFST 101, 102+, 105, 106, 201+, 202+	
• Maximum of 6 pass/no-pass units accepted for the Certificate		ENGL 102, 111+, 112+, 221+, 222+, 225+, 227+, 230+, 231+, 235+, 242+,	
• Maximum of 12 pass/no-pass units accepted for the Degree		253+, 256+, 257+, 259+, 265+, 279	
• Minimum of 9 units must be completed at AVC for the major/certificate		FREN 101, 102+, 201+, 202+, 203+	
• Refer to catalog or online website for course listings and descriptions		FTV 101, 103, 107, 108, 201, 203, 241, 251, 261	
• Substitutions, with prior permission, may be made for certain courses not be offered in a two-year period		GER 101, 102+, 201+, 202+	
		HIST 115	
		ID 150, 201 (ID courses no longer offered 20-21)	
		LATN 101, 102+, 201+	
		MUS 101, 105, 111, 131, 132+, 151+, 153+, 185+, 231+, 232+, 251A+,	
		251B+, 253A+, 253B+	
		MUSC 102, 103, 107, 108	
		PHIL 105, 106, 108, 109	

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Recommended Program Sequence

PHOT 107

PHTC 101, 150+, 201+

SPAN 101, 110SS, 102+, 201+, 202+, 210SS+, 220SS+

THA 101, 102, 103, 110, 115A, 115B+, 116A+, 116B+, 117A+, 117B+, 118A+, 118B+, 121A, 121B, 130, 133, 225+, 239

Area D Language & Rationality: (min. 3 units from (1) and 3 units from (2))

1. *Academic Composition:* Courses fulfilling the written composition requirement shall be designed to include both expository and argumentative writing.

ENGL 101+

2. *Communication and Analytical Thinking*

BUS 113+

CA 103

CIS 101, 111, 141, 157, 161

COMM 101, 103, 107, 109, 112, 114, 115, 217+, 219+

ENGL 102+, 103+

GEOG 201, 205

MATH 102+, 110+, 115+, 116+, 120+, 124+, 128+, 135+, 140+, 148+

150+, 160+, 220+, 230+, 250+

PHIL 101, 106, 110, 201+

Area E - Additional Breadth: (min. 3 units)

From areas A**, B**, C**, D2, ** or

CFE 102 NF 100, 102, 103, 110, 150

COMM 103, 107, 219+ PSY 212

DFST 105 SOC 111, 116

HD 100, 101, 102, 103, 105

HE 101, 120, 201

ID 100, 120 (ID courses no longer offered 20-21)

KINT 100

LIB 107, 110

MUSC 108

Any DA activity course(s) from DA102-205, except DA 107A-C, 108, 109, and 111. Any Kinesiology Fitness (KINF) activity course, Intercollegiate Athletics (IATH) activity course, or up to 4 units for military experience.

**** Courses must be taken from a discipline not previously selected.**

Area F Diversity Studies: (min. 3 units)

ANTH 102, 112 FTV 201, 203

BUS 212 HE 201+

CFE 116+ HIST 110, 111, 113

COMM 114, 217+, 219+ MUSC 107, 108

DFST 105, 106 POLS 202+

ECON 110 SOC 105, 110, 116

ENGL 250+, 253+, 256+, 257+, 259+ THA 239

Proficiency Requirements

Proficiency requirements exist for the areas of Writing and Math.

Students must demonstrate competency in each of these areas in order to be eligible for the associate degree.

A. WRITING

Completion of ENGL 101 with a minimum grade of "C." NOTE: ENGL 101 may be taken with the Pass/No Pass option; however, students are cautioned that other colleges and universities may not accept ENGL 101 courses taken on a Pass/No Pass basis, especially for satisfaction of general education and major requirements. Students planning to transfer should check college catalogs for

B. MATHEMATICS

Completion of MATH 102 or higher or CIS 121 with a satisfactory grade or placement by AVC assessment into a math course higher than MATH 102.

***Fulfilling proficiencies** will not require any extra units if the competencies are demonstrated by including the required courses in the general education, or major requirements, or by satisfying the reading proficiency through AVC's policy.

Electives: The remaining number of units (up to a minimum of 60) are considered electives. Any course that has already been counted toward (1) the general education requirements, or (2) the major, cannot be used as an elective. Any course with a designation of "AVC" at the end of a course description can be used as an elective.

Grade Point Average Requirement: An overall grade point average of 2.0 ("C" average) is required.

Double Counting: While a course might satisfy more than one general education requirement, it may not be counted more than once for these purposes. A course may be used to satisfy both a general education requirement and a major or area of emphasis requirement.

• Residency: Minimum of 12 units completed at AVC with a minimum of 9 of those units completed from the certificate/major. (credit earned by examination will not be included in these 12 units) Title 5, Section 54000: <http://ccr.oal.ca.gov>

Requirements for Two or More Associate Degrees: To be eligible for multiple associate degrees, a student must have completed all of the graduation requirements for each degree.

Transfer: Students planning to continue studies at a four-year college or university after AVC should visit the Transfer Resource Center or the Counseling Center and consult with a counselor as soon as possible to develop a plan of studies. Additional preparation for the major information on official transfer articulation agreements from AVC to many CSU/UC campuses can be found at the following Web site: www.assist.org

The "Catalog Rights Policy" sets forth the criteria used for determining the degree requirements under which students may graduate. Please refer to the AVC Catalog for a detailed description or consult with a counselor.

Advisory: A condition of enrollment that a student is advised, but not required, to meet before or in conjunction with enrollment in a course or educational program.

Prerequisite: A condition of enrollment that a student is required to meet in order to demonstrate current readiness for enrollment in a course or educational program.

Prerequisites are enforced and a student will be blocked from enrolling or involuntarily dropped after enrolling if the student does not meet the stated prerequisite. A student must complete a course prerequisite with a satisfactory grade of A, B, C or P (pass).

Corequisite: A condition of enrollment consisting of a course that a student is required to simultaneously take in order to enroll in another course. Corequisites are enforced and a student will be blocked from enrolling if the student does not meet the stated co-requisite.