

<b>Program:</b>	<b>Programming Languages - Certificate of Achievement</b>
<b>Meta-major:</b>	<b>Science, Technology, Engineering, &amp; Math (STEM)</b>

	Fall Year 1	Spring Year 1	Fall Year 2	Spring Year 2
	CIS 101 (formerly CO SCI 101) INTRODUCTION TO COMPUTERS AND THEIR USES or CS 101 (formerly CO SCI 103) INTRODUCTION TO COMPUTER SCIENCE 3 units	CS 103 (formerly CO SCI 104) MATHEMATICS FOR PROGRAMMERS 3 units	CS 116 (formerly CO SCI 139) PROGRAMMING IN C++ <i>Prerequisite: CS 101/CO SCI 103 or CS 111/CO SCI 108</i> 3 units or CS 113 (formerly CO SCI 141) PROGRAMMING IN JAVA <i>Prerequisite: CS 101/CO SCI 103 or CS 111/CO SCI 108</i> 3 units	CS 136 (formerly CO SCI 136) INTRODUCTION TO DATA STRUCTURES <i>Prerequisite: CS 113/CO SCI 141 or CS 116/CO SCI 139</i> 3 units
	CS 111 (formerly CO SCI 108) PROGRAMMING IN VISUAL BASIC Only recommended if student is taking CIS 101 3 units	CS 102 (formerly CO SCI 107) PROGRAMMING LOGIC AND DESIGN (INTRODUCTION TO PROGRAMMING) 3 units	CS 211 (formerly CO SCI 138) ADVANCED VISUAL BASIC PROGRAMMING <i>Prerequisite: CS 101/CO SCI 103 or CS 111/CO SCI 108</i> 3 units	CIS 220B (formerly CO SCI 188) ORACLE DBA PART 1B: BACKUP AND RECOVERY <i>Prerequisite: CIS 220A or CO SCI 187</i> or CIS 194 COMPUTER ENGINES IN AMAZON WEB SERVICES <i>Prerequisite: CIS 192</i> 3 units
	CIS 219 (formerly CO SCI 186) INTRODUCTION TO ORACLE: SQL AND PL/SQL 3 units	CIS 220A (formerly CO SCI 187) ORACLE DBA PART 1A: ARCHITECTURE AND ADMINISTRATION <i>Prerequisite: CO SCI 186 or CIS 219</i> or CIS 192 INTRODUCTION TO CLOUD COMPUTING <i>Prerequisite: CS 101 or CO SCI 103</i> 3 units	CS 137 (formerly CO SCI 198) PROGRAMMING IN PL/SQL FOR ORACLE <i>Prerequisite: CO SCI 186 or CIS 219</i> or CIS 193 DATABASE ESSENTIALS IN AMAZON WEB SERVICES <i>Prerequisite: CIS 192</i> 3 units	
	CIS 111 (formerly CO SCI 134) SUPPORTING WINDOWS DESKTOPS 3 units			
Semester Units:	9 to 12	9	9	6
	<b>Total Units:</b>			<b>33 to 36</b>

<b>Program:</b>	<b>Cloud Computing - Certificate of Achievement</b>
<b>Meta-major:</b>	<b>Science, Technology, Engineering, &amp; Math (STEM)</b>

	Fall Year 1	Spring Year 1		Fall Year 2	
		1-8 weeks	9-16 weeks	1-8 weeks	9-16 weeks
	CS 101 (formerly CO SCI 103) INTRODUCTION TO COMPUTER SCIENCE 3 units	CIS 192 INTRODUCTION TO CLOUD COMPUTING <i>Prerequisite: CS 101 or CO SCI 103</i> 3 units	CIS 193 DATABASE ESSENTIALS IN AMAZON WEB SERVICES <i>Prerequisite: CIS 192</i> 3 units	CIS 194 COMPUTER ENGINES IN AMAZON WEB SERVICES <i>Prerequisite: CIS 192</i> 3 units	CIS 195 SECURITY IN THE CLOUD <i>Prerequisite: CIS 192</i> 3 units
	CIS 219 (formerly CO SCI 186) INTRODUCTION TO ORACLE: SQL AND PL/SQL 3 units	Choose from: CS 112 (formerly CO SCI 162) PROGRAMMING IN JAVASCRIPT <i>Prerequisites: CIS 148 or CSIT 158</i>			
Semester Units:	6	9		6	
	<b>Total Units:</b>				<b>21</b>