

Associate of Programming, AP

Program Description

The Programming degree prepares students for a Bachelor of Science degree in Computer Science, Data Science, or Software Engineering. It includes foundational courses needed in computing disciplines. To earn the degree, students will complete focused coursework in Software Engineering, Computer Science, or Data Science, with fewer general education requirements. This degree includes a minimum of 69 credit hours and a minimum of 30 credits of preparatory, specialized coursework. Students interested in pursuing Computer Science, Data Science, or Software Engineering can earn the Associate of Programming as a milestone to their chosen degree.

Program Curriculum

69 credits

Code	Title	Hours
General Education Requirements		6
Required Courses		
ENGL 1010 or ENGL 1010D	Introduction to Writing (EN)	3-4
CS 1030 or MATH 1010	Problem Solving with Computers Intermediate Algebra	3-4
CS 1400	Fundamentals of Programming	3
CS 1410	Object Oriented Programming	3
CS 2100	Discrete Structures	3
CS 2420	Introduction to Algorithms and Data Structures	3
CS 2450	Software Engineering	3
CS 2810	Computer Organization and Architecture	3
MATH 1100 or MATH 1210	Business Calculus (MA) Calculus I (MA)	3-4
SET 1000	Graduation Planning & Career Prep I	0
Elective Courses		24
It is recommended that students choose 8 elective courses based on their intended program of study		

Select one of the following tracks.

Code	Title	Hours
Software Engineering Track		
ENGL 2100	Technical Writing (ALCS)	3
MATH 2050	Applied Statistics with Programming	3
SE 1400	Web Design Fundamentals (ALCS)	3
IT 1100	Introduction to Unix/Linux	3
Computer Science Track		
BIOL 1610 or CHEM 1210 or PHYS 2210	Principles of Biology I (LS) Principles of Chemistry I (PS) Physics/Scientists Engineers I (PS)	4
BIOL 1615 or CHEM 1215 or PHYS 2215	Principles of Biology I Lab (LAB) Principles of Chemistry I Lab (LAB) Physics/Scientists Engineers I Lab (LAB)	1
Data Science Track		
CS 2500	Data Wrangling	3

IT 1500	Cloud Fundamentals	1
MATH 1220	Calculus II (MA)	4

Graduation Requirements

1. Complete a minimum of 69 college-level credits (1000 and above).
2. Complete at least 20 lower-division credits at Utah Tech for institutional residency.
3. Cumulative GPA 2.0 or higher.
4. Grade C or higher in all Math and Science Requirements, Programming Requirements, and Programming Elective Requirements.

Graduation Plan

1st Year

Fall Semester	Hours Spring Semester	Hours
CS 1400	3 CS 1410	3
ENGL 1010	3 SET 1000	0
MATH 1210	4 General Education (ENGL 2010)	3
Elective	4 General Elective (American Institution)	3
Track Elective	3 Track Elective	4
	Track Elective	5
	17	18

2nd Year

Fall Semester	Hours Spring Semester	Hours
CS 2420	3 CS 2450	3
CS 2810	3 Elective	5
Elective	4 Elective (CS 3005)	3
Elective (MATH 2210)	4 General Education (Literature & Humanities)	3
General Education (GE Fine Arts)	3 General Education (Social & Behavioral Science)	3
	17	17

Total Hours 69

Specialized Associates of Programming Program Learning Outcomes

At the successful conclusion of this program, students completing the **Computer Science track** will be able to:

1. Design, implement, and evaluate computational systems to address needs in a variety of contexts and disciplines.
2. Devise new solutions from foundational principles informed by current practice.
3. Weigh and apply ethical, legal, and social responsibilities in all aspects of practice.
4. Construct effective solutions in teams to accomplish a common goal.
5. Author effective visual, oral, and written communication for a range of audiences.

Students completing the **Data Science track** will be able to:

1. Process and analyze large amounts of data in a compute-efficient manner.
2. Reason about complex problems across heterogeneous datasets using compute-intensive solutions.
3. Weigh and apply ethical, legal, and social responsibilities in all aspects of practice.
4. Construct effective solutions in teams to accomplish a common goal.
5. Author effective visual, oral, and written communication for a range of audiences.

Students completing the **Software Engineering track** will be able to:

1. Plan, design, create, measure, and deliver robust software solutions that address contemporary real-world problems.
2. Differentiate and evaluate modern techniques, skills, and tools necessary for professional practice.

3. Weigh and apply ethical, legal, and social responsibilities in all aspects of practice.
4. Construct effective solutions in teams to accomplish a common goal.
5. Author effective visual, oral, and written communication for a range of audiences.