Academic Plan

Associate of Science

Computer Science

60 Credits

Catalog Year: 2021/2022

The program provides a computer science foundation in the mathematical and scientific principles underlying computing and information technology, along with hands-on instruction in developing effective design and analysis skills related to computing systems. Career paths for Computer Science include software developer, systems administrator, systems analyst, and applications developer. A full-time student can complete this Associate of Science (AS) degree in two years. This degree prepares students to transfer to a four-year university to complete the second half of a Bachelor of Science (BS) in Computer Science. To be successful, a student should have strong math, computer and keyboarding skills, and be detail-oriented.

Required Courses	Credits	Pre or Co Reqs Rqd	Course Availability Fall	Spr	Sum
General Education Courses					
• Arts / Humanities GT-AH1-AH4	3	☐	☑	☑	☑
• Arts / Humanities GT-AH1-AH4	3	☐	☑	☑	☑
• ENG 121 - English Composition I: GT-CO1*(3 Cr.)	3	☑	☑	☑	☑
• ENG 122 - English Composition II: GT-CO2 (3 Cr.)	3	☑	☑	☑	☑
• History GT-HI1	3	☐	☑	☑	☑
• MAT 201 - Calculus I: GT-MA1 (5 Cr.)	5	☑	☑	☑	☑
• Natural / Physical Science GT-SC1	4	☐	☑	☑	☑
• Natural / Physical Science GT-SC2	3	☐	☑	☑	☑
• Social / Behavioral Science GT-SS1-SS3	3	☐	☑	☑	☑
• Social / Behavioral Science GT-SS1-SS3	3	☐	☑	☑	☑
Additional Required Courses					
• CSC 160 - Computer Science I* (4 Cr.)**	4	☑	☑	☑	☑
• CSC 161 - Computer Science II (4 Cr.)**	4	☑	☑	☑	☐
• CSC 225 - Computer Architecture/Assembly Language Programming (4 Cr.)	4	☑	☑	☐	☐
Elective Course					
• CSC 119 - Introduction to Programming (3 Cr.)	3	☐	☑	☑	☑
• CSC 165 - Discrete Structures (4 Cr.)	4	☑	☐	☑	☐
• Elective	3-5	☐	☑	☑	☑
• MAT 202 - Calculus II: GT-MA1 (5 Cr.)	5	☑	☑	☑	☑

Pre-Requisites, Co-Requisites, and Recommendations (grade C or better required)

Where requirements are listed as course categories (e.g. Electives, Arts/Humanities) rather than as specific courses, please note that depending upon course choice, pre-requisites may be required.

CSC 160 - Computer Science I* (4 Cr.)
- Pre-Requisite: CSC 119 - Introduction to Programming: Java

CSC 161 - Computer Science II (4 Cr.)
- Pre-Requisite: CSC 160 - Computer Science I: Java

ENG 121 - English Composition I: GT-CO1*(3 Cr.)
- Co-Requisite: CCR 094 - Studio 121 (3 Cr.)

ENG 122 - English Composition II: GT-CO2 (3 Cr.)
- Pre-Requisite: ENG 121 - English Composition I OR ENG 131 - Technical Writing I

MAT 201 - Calculus I: GT-MA1 (5 Cr.)
- Pre-Requisite: MAT 122 - College Trigonometry: GT-MA1 OR MAT 166 - Pre-Calculus: GT-MA1

MAT 202 - Calculus II: GT-MA1 (5 Cr.)
- Pre-Requisite: MAT 201 - Calculus I: GT-MA1

CSC 225 - Computer Architecture/Assembly Language Programming (4 Cr.)
- Co-Requisite: CSC 161 - Computer Science II (4 Cr.)
- Pre-Requisite: CSC 160 - Computer Science I* (4 Cr.) OR CSC 161 - Computer Science II (4 Cr.)

CSC 165 - Discrete Structures (4 Cr.)
- Pre-Requisite: CSC 161 - Computer Science II
- Pre-Requisite: MAT 201 - Calculus I: GT-MA1

Notes

- **CSC 160 and 161 must be taught in a specific programming language (i.e., Java or C++) to be accepted for transfer by the receiving institution. Please consult with an academic advisor when registering for these courses. CSC 160 has a pre-requisite of CSC 119 or equivalent.
- All courses required for this degree must be completed with a "C" or better to be considered for transfer to another Colorado institution. Transferability of courses to colleges or universities outside of Colorado is determined by the receiving institution.
- In order to meet program requirements, students registered for ENG 121 or ENG 131 must also register for CCR 094 unless they can demonstrate otherwise meeting the CCR 094 standard through assessment testing, prior college coursework, or recent High School coursework. See an Advisor for details.
- Please refer to the Statewide Transfer Articulation Agreement for Computer Science on the CDHE website (https://highered.colorado.gov/transfer-degrees) for specific information on the required courses and elective credits accepted by each of the four-year institutions.
- Recommended courses are listed below for certain electives; consult with the Academic Advising Office (advising@arapahoe.edu or 303.797.5664) or the Sociology Department for additional recommendations.

Graduation Requirements

- All courses required for this degree must be completed with a “C” or better to be considered for transfer to another Colorado institution. Transferability of courses to colleges/universities outside of Colorado is determined by the receiving institution.

- To graduate, students must apply for graduation (form available at www.arapahoe.edu/graduation) by the deadline and meet all degree requirements.

RECOMMENDED COURSE SEQUENCE FULL-TIME TRACK

Year 1: Fall	Credits	Course
	3	Arts / Humanities GT-AH1-AH4
		~Recommended Arts / Humanities Course(s)~
		FRE 112 - French Language II (5 Cr.)
		LIT 115 - Introduction to Literature I: GT-AH2* (3 Cr.)
		LIT 201 - World Literature to 1600: GT-AH2* (3 Cr.)
		PHI 111 - Introduction to Philosophy: GT-AH3* (3 Cr.)
		PHI 113 - Logic: GT-AH3* (3 Cr.)
		PHI 114 - Comparative Religions: GT-AH3* (3 Cr.)
		SPA 211 - Spanish Language III: GT-AH4 (3 Cr.)
	3	CSC 119 - Introduction to Programming (3 Cr.)
	3	ENG 121 - English Composition I: GT-CO1 (3 Cr.)
	5	MAT 201 - Calculus I: GT-MA1 (5 Cr.)
Year 1: Spring	**Credits**	**Course**
	4	CSC 160 - Computer Science I (4 Cr.)
	3	ENG 122 - English Composition II: GT-CO2 (3 Cr.)
	5	MAT 202 - Calculus II: GT-MA1 (5 Cr.)
	3	Natural / Physical Science GT-SC2
		~Recommended Natural / Physical Science Course(s)~
		PHY 211 - Physics: Calculus-Based I with Lab: GT-SC1* (5 Cr.)
Year 2: Fall	**Credits**	**Course**
	4	CSC 161 - Computer Science II (4 Cr.)
	4	CSC 225 - Computer Architecture/Assembly Language Programming (4 Cr.)
	4	Natural / Physical Science GT-SC1
		~Recommended Natural / Physical Science Course(s)~
		PHY 212 - Physics: Calculus-Based II with Lab: GT-SC1* (5 Cr.)
	3	Social / Behavioral Science GT-SS1-SS3
		~Recommended Social / Behavioral Science Course(s)~
		ANT 101 - Cultural Anthropology: GT-SS3* (3 Cr.)
		ECO 201 - Principles of Macroeconomics: GT-SS1* (3 Cr.)
		GEO 105 - World Regional Geography: GT-SS2* (3 Cr.)
		POS 205 - International Relations: GT-SS1* (3 Cr.)
		POS 225 - Comparative Government: GT-SS1* (3 Cr.)
		PSY 102 - General Psychology II: GT-SS3* (3 Cr.)
		SOC 101 - Introduction to Sociology I: GT-SS3* (3 Cr.)

Year 2: Spring	Credits	Course
	3	Arts / Humanities GT-AH1-AH4
		~Recommended Arts / Humanities Course(s)~
		FRE 211 - French Language III: GT-AH4 (3 Cr.)
		LIT 202 - World Literature After 1600: GT-AH2* (3 Cr.)
		LIT 225 - Introduction to Shakespeare: GT-AH2* (3 Cr.)
		MUS 120 - Music Appreciation: GT-AH1* (3 Cr.)
		PHI 112 - Ethics: GT-AH3* (3 Cr.)
		PHI 205 - Business Ethics: GT-AH3 (3 Cr.)
		SPA 212 - Spanish Language IV: GT-AH4 (3 Cr.)
	4	CSC 165 - Discrete Structures (4 Cr.)
	3-5	Elective
		CSC 234 - C++ Programming (Platform) (4 Cr.)
		MAT 203 - Calculus III: GT-MA1 (4 Cr.)
		MAT 204 - Calculus III with Engineering Applications: GT-MA1 (5 Cr.)
		MAT 255 - Linear Algebra (3 Cr.)
	3	History GT-HI1
		~Recommended History Course(s)~
		HIS 101 - Western Civilization: Antiquity-1650: GT-HI1* (3 Cr.)
		HIS 102 - Western Civilization: 1650-Present: GT-HI1* (3 Cr.)
		HIS 111 - The World: Antiquity-1500: GT-HI1* (3 Cr.)
		HIS 112 - The World: 1500-Present: GT-HI1* (3 Cr.)
		HIS 235 - History of the American West HI1* (3 Cr.)
		HIS 245 - US in the World: GT-HI1* (3 Cr.)
		HIS 247 - 20th Century World History: GT-HI1* (3 Cr.)
	3	Social / Behavioral Science GT-SS1-SS3
		~Recommended Social / Behavioral Science Course(s)~
		COM 220 - Intercultural Communication: GT-SS3* (3 Cr.)
		ECO 202 - Principles of Microeconomics: GT-SS1* (3 Cr.)
		ECO 245 - Environmental Economics
		POS 111 - American Government: GT-SS1* (3 Cr.)
		POS 225 - Comparative Government: GT-SS1* (3 Cr.)
		PSY 101 - General Psychology I: GT-SS3* (3 Cr.)
		SOC 207 - Environmental Sociology: GT-SS3* (3 Cr.)

RECOMMENDED COURSE SEQUENCE PART-TIME TRACK

Year 1: Fall	Credits	Course
	3	CSC 119 - Introduction to Programming (3 Cr.)
	5	MAT 201 - Calculus I: GT-MA1 (5 Cr.)
Year 1: Spring	**Credits**	**Course**
	4	CSC 160 - Computer Science I (4 Cr.)**
	3	Natural / Physical Science GT-SC2
		~Recommended Natural / Physical Science Course(s)~
		PHY 211 - Physics: Calculus-Based I with Lab: GT-SC1* (5 Cr.)
Year 1: Summer	**Credits**	**Course**
	3	Arts / Humanities GT-AH1-AH4
		~Recommended Arts / Humanities Course(s)~
		FRE 112 - French Language II (5 Cr.)
		LIT 115 - Introduction to Literature I: GT-AH2* (3 Cr.)
		LIT 201 - World Literature to 1600: GT-AH2* (3 Cr.)
		PHI 111 - Introduction to Philosophy: GT-AH3* (3 Cr.)
		PHI 113 - Logic: GT-AH3* (3 Cr.)
		PHI 114 - Comparative Religions: GT-AH3* (3 Cr.)
		SPA 211 - Spanish Language III: GT-AH4 (3 Cr.)
	3	ENG 121 - English Composition I: GT-CO1 (3 Cr.)
Year 2: Fall	**Credits**	**Course**
	4	CSC 161 - Computer Science II (4 Cr.)**
	4	Natural / Physical Science GT-SC1
		~Recommended Natural / Physical Science Course(s)~
		PHY 212 - Physics: Calculus-Based II with Lab: GT-SC1* (5 Cr.)
Year 2: Spring	**Credits**	**Course**
	4	CSC 165 - Discrete Structures (4 Cr.)
	5	MAT 202 - Calculus II: GT-MA1 (5 Cr.)
Year 2: Summer	**Credits**	**Course**
	3	ENG 122 - English Composition II: GT-CO2 (3 Cr.)
	3	History GT-HI1
		~Recommended History Course(s)~
		HIS 101 - Western Civilization: Antiquity-1650: GT-HI1* (3 Cr.)
		HIS 102 - Western Civilization: 1650-Present: GT-HI1* (3 Cr.)
		HIS 111 - The World: Antiquity-1500: GT-HI1* (3 Cr.)
		HIS 112 - The World: 1500-Present: GT-HI1* (3 Cr.)
		HIS 235 - History of the American West HI1* (3 Cr.)
		HIS 245 - US in the World: GT-HI1* (3 Cr.)
		HIS 247 - 20th Century World History: GT-HI1* (3 Cr.)

Year 3: Fall	Credits	Course
	3	Arts / Humanities GT-AH1-AH4
		~Recommended Arts / Humanities Course(s)~
		FRE 211 - French Language III: GT-AH4 (3 Cr.)
		LIT 202 - World Literature After 1600: GT-AH2* (3 Cr.)
		LIT 225 - Introduction to Shakespeare: GT-AH2* (3 Cr.)
		MUS 120 - Music Appreciation: GT-AH1* (3 Cr.)
		PHI 112 - Ethics: GT-AH3* (3 Cr.)
		PHI 205 - Business Ethics: GT-AH3 (3 Cr.)
		SPA 212 - Spanish Language IV: GT-AH4 (3 Cr.)
	4	CSC 225 - Computer Architecture/Assembly Language Programming (4 Cr.)
Year 3: Spring	**Credits**	**Course**
	3-5	Elective
		CSC 234 - C++ Programming (Platform) (4 Cr.)
		MAT 203 - Calculus III: GT-MA1 (4 Cr.)
		MAT 204 - Calculus III with Engineering Applications: GT-MA1 (5 Cr.)
		MAT 255 - Linear Algebra (3 Cr.)
	3	Social / Behavioral Science GT-SS1-SS3
		~Recommended Social / Behavioral Science Course(s)~
		COM 220 - Intercultural Communication: GT-SS3* (3 Cr.)
		ECO 202 - Principles of Microeconomics: GT-SS1* (3 Cr.)
		ECO 245 - Environmental Economics
		POS 111 - American Government: GT-SS1* (3 Cr.)
		POS 225 - Comparative Government: GT-SS1* (3 Cr.)
		PSY 101 - General Psychology I: GT-SS3* (3 Cr.)
		SOC 207 - Environmental Sociology: GT-SS3* (3 Cr.)
Year 4: Summer	**Credits**	**Course**
	3	Social / Behavioral Science GT-SS1-SS3
		~Recommended Social / Behavioral Science Course(s)~
		ANT 101 - Cultural Anthropology: GT-SS3* (3 Cr.)
		ECO 201 - Principles of Macroeconomics: GT-SS1* (3 Cr.)
		GEO 105 - World Regional Geography: GT-SS2* (3 Cr.)
		POS 205 - International Relations: GT-SS1* (3 Cr.)
		POS 225 - Comparative Government: GT-SS1* (3 Cr.)
		PSY 102 - General Psychology II: GT-SS3* (3 Cr.)
		SOC 101 - Introduction to Sociology I: GT-SS3* (3 Cr.)