





Computer Science, BS

Data Science Concentration

2022-2023 Catalog | catalog.uah.edu

ompleted	Course Number	Credits	Course Name	Prerequisites, Corequisites and/or Prerequisites with Concurrency*	Semester Usuall Offered
			Charger Foundation		
	EH 101	3	Area I: Freshman Composition 3-6 credits - se College Writing I	e attached for more options Placement*	FA/SP/SU
	EH 101	3	College Writing I	EH 101 or EH 101S	FA/SP/SU
	EH 102 EH 103	3	Accelerated College Writing	Placement*	SP
	EH 105	3	Honors English Seminar	Honors	FA
	LITIUS	5	Area II: Humanities and Fine A		TA
		3	Fine Art	See attached for choices	
		3	Literature	Completion of Area I	
	*	3	Non-Literature Humanity - Ethics requirement	See attached for choices	
	*	3	Humanities/Fine Arts/Literature	See attached for choices	
		U	Area III: Mathematics and Science		
			Mathematics 4 credi		
	MA 171	4	Calculus A	Placement* or MA 113 or MA 115	FA/SP/SU
		·	Natural Sciences (Lab) 8		17401700
	AES 103/103L	4	Environmental Earth Science + Lab		
	& AES 104/104L	4	Weather & Climate Change + Lab		FA/SP/SU
	BYS 119/121	3/1	Principles of Biology + Lab		
	& BYS 120/122	3/1	Organismal Biology + Lab		FA/SP/SU
			0 01		
	CH 121/125 CH 123/126	3/1 3/1	General Chemistry I + Lab General Chemistry II + Lab	Placement* or CH 101, prereq w/ conc: MA 113+ CH 121	FA/SP/SU
			,		
	PH 111/114	3/1	General Physics w/ Calculus I + Lab	MA 171	FA/SP/SU
	PH 112/115	3/1	General Physics w/ Calculus II + Lab	MA 172, PH 111/114	
			Area IV: History and Social & Behavior		
		3	History	See attached for choices	
		3	Social & Behavioral Science	See attached for choices	
		3	Social & Behavioral Science	See attached for choices	
	*	3	History/Social & Behavioral Science	See attached for choices	
			Area V: Pre-Professio	nal	
			For Computer Science Major		
	FYE 101S	1	Charger Success - Science	REQUIRED	FA
		3	Intro to Computer Programming	See attached for choices	
	EH 301	3	Technical Writing	Junior standing (60+ hours), EH 102/103/105	FA/SP/SU
	MA 172	4	Calculus B	MA 171	FA/SP/SU
	MA 201	4	Calculus C	MA 172	FA/SP/SU
	MA 244	3	Intro to Linear Algebra	MA 120 or MA 172	FA/SP/SU
	MA 385	3	Intro to Probability & Statistics	MA 201	FA/SP/SU
			Major Requirement		
	CC 101	2	Computer Science Core 30		FA/SP SU
	CS 121	3	Computer Science I	CS 102/103/104, prereq w/ conc: MA 113+	
	CS 214		Intro to Discrete Structures	MA 171, (CS 121 or CPE 211)	FA/SP SU
	CS 221	3	Computer Science II: Date Structures	CS 121, MA 113 or 115, prereq w/ conc: MA 171	FA/SP SU
	CS 309/309L	3	Computer Org & Switching Theory + Lab	CS 214	FA/SP SU
	CS 317	3	Intro Design/Analysis of Alg	MA 171, 244, CS 214, (CS 221 or CPE 212)	FA/SP SU
	CS 321	3	Intro Object-Oriented Prog Java	CS 221	FA/SP SU
	CS 413/413	3	Intro to Digital Comp Architecture + Lab	CS 309	FA/SP
	CS 424	3	Principles Programming Language	CS 317	FA/SP/SU
	CS 490	3	Intro to Operating Systems	CS 413	FA/SP
	CS 499	3	Sr Project: Team Software Design	CS 317	FA/SP
_			Data Science Concentration Requi		
	CS 430	3	Survey of Artificial Intelligence	CS 317	FA
	CS 488	3	Intro to Big Data Computing	CS 317	FA/SP
			Data Science Concentration Elective Re	-	
			Choose any two 300-level or high	ier CS courses	
Choose				00.5.5	
	CS 443	3	Intro to Multimedia Systems	CS 317	SP
	CS 445	3	Intro to Computer Graphics	CS 221, MA 244	FA/SP
	CS 454	3	Intro to Cloud Computing	CS 307 or CS 321, and (CS 370 or CPE 348)	SP
	CS 481	3	Modeling & Simulation I	CS 221 and (MA 385 or ISE 390)	FA
				CS 481	
	CS 482	3	Modeling & Simulation II		
		3 3	Modeling & Simulation II Database Systems General Electives	Senior standing (91+ hours)	FA

36 of the 120 credits must be taken at 300-level or higher.





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		Charger Foundations Ch	oices			
I. Freshman Composition	Choose 1	College Writing I & II (EH 101 + 102) Intensive Writing & Studio & Freshman Comp II (EH 101S + 101L & EH 102) Honors English Seminar (EH 105; equivalent to EH 101 & EH 102) Accelerated College Writing (EH 103: equivalent to EH 101 & EH 102)				
II. Fine Arts	Choose 1	Ancient to Medieval Art (ARH 100) Renaissance to Modern Art (ARH 101) World Art (ARH 103) Introduction to Drawing (ARS 160) Intro to Film Studies (FMA 123) Intro to Music Literature (MU 100) Theatre Appreciation (TH 122)				
II. Humanities (Literature)	Choose 1	Readings Literature/Culture I (EH 207) Readings Literature/Culture II (EH 208) Honors Literature/Culture I (EH 209) Honors Literature/Culture II (EH 210) Literature Without Borders (EH 241)	Mythology (EH 242) Protest Literature (EH 243) Heroes &/or Monsters (EH 244) Love &/or Romance (EH 245) Speculative Realities (EH 246)			
II. Humanities (Non-Literature)	Choose 1	Intro to Ethics (PHL 102) Science, Tech & Human Values (PHL 150)				
III. Mathematics	\rightarrow	Calculus A (MA 171)				
III. Natural Sciences (Lab) Sequence	Choose one 2-course sequence	Environmental Earth Science (AES 103/103L) and Weather & Climate Change (AES 104/104L) Principles of Biology (BYS 119/121) and Organismal Biology (BYS 120/122) General Chemistry I (CH 121/125) and General Chemistry II (CH 123/126) General Physics w/ Calculus I (PH 111/114) and General Physics w/ Calculus II (PH 112/115)				
IV. History	Choose 1	World History I (HY 103) World History II (HY 104)	United States to 1877 (HY 221) United States Since 1877 (HY 222)			
IV. Social & Behavioral Sciences	Choose 2	World Geography (AES 105) Human Geography (AES 110) Global systems & Cultures (GS 200) Macroeconomics (ECN 142) Microeconomics (ECN 143) American Gov't (PSC 101) Politics & Foreign Govt (PSC 102)	International Relations (PSC 260) General Psychology (PY 101) Life Span Development (PY 201) Intro to Sociology (SOC 100) Analysis of Social Problems (SOC 102) Intro to Criminology (SOC 103)			
	Charlen 4	Students must take one literature and				
Students must also take <u>either</u> a second literature <u>or</u> history course to complete a sequence.						
Area II Sequence OR	i ake a 2 Lite	rature AND History or Social & Behavioral Science				
Area IV Sequence	Sequence Take a 2 nd History AND Fine Arts or Non-Literature Humanities or Literature Humanities					
Area IV Sequence Take a 2 Thistory Area Thistory Area V. Choices						
Intro to Computer Programming	Choose 1	Intro to C Programming (CS 102) Intro to Programming Using Java (CS 103) Intro to Computer Science Using Python (CS 104)				