

Cleveland State University
Washkewicz College of Engineering
Bachelor of Science in Data Science (DS)
Fall 2025

DS Degree Map for students immediately eligible for College Writing I, General Chemistry I, and Calculus I

First Year

Fall Semester				Spring Semester			
Credits	Major	CC		Credits	Major	CC	
ENG 100 Intensive Writing or ENG 101 Writing I	3		FYV	ESC 102 Tech. Writing or ENG 102 College Writing II	3		RPW
MTH 181 Calculus I	4	X	FQR	MTH 182 Calculus II	4	X	FQR/DDL
CIS 151 Invitation to Computing	3	X		CIS 260 Introduction to Programming	4	X	
INQ 170 Inquiry Launch to Engineering*	3	X	IL	PHY 241 University Physics I OR	5		SI/SIL
				BIO 266/267 Human Anatomy & Physiology I/Lab OR	4	X	SI/SIL
				CHM 261/266 General Chemistry I and Lab			
Semester Total	13			Semester Total	15-16		

Second Year

Fall Semester				Spring Semester			
Credits	Major	CC		Credits	Major	CC	
MTH 283 Multivariable Calculus for Engineers OR	2			STA 347 Applied Statistics	3	X	
MTH 281 Multivariable Calculus	or 4	X		CIS 340 Systems Programming	3	X	
STA 323 Statistical Methods	3	X		MTH 288 Linear Algebra	3	X	
CIS 265 Data Structures & Algorithms	4	X		Society and Human Behavior	3	X	SHB
MTH 220 Introduction to Discrete Mathematics	3	X		PHY 243 University Physics II OR	5		SI/SIL
DSA 230 Introduction to Data Science I	3	X		BIO 268/269 Human Anatomy & Physiology II/Lab OR	4	X	SI/SIL
				CHM 262/267 General Chemistry II and Lab			
Semester Total	15/17			Semester Total	16-17		

(Electives can be taken in any order.)

Third Year

Fall Semester				Spring Semester			
Credits	Major	CC		Credits	Major	CC	
CIS 430 Database Concepts	3	X		STA 400 Data Visualization	3	X	
CIS 390 Introduction to Algorithms	3	X		CIS 467 Artificial Intelligence	3	X	
STA 431 Categorical Data Analysis	3	X		DSA 460 Data Mining	3	X	
DSA 330 Introduction to Data Science II	3	X	WAC	Global Human Perspectives (A&H)	3		GHP
PHL 216 AI & Data Ethics	3	X	HCC	ESC 282 Engineering Economy	3	X	
Semester Total	15			Semester Total	15		

(Electives can be taken in any order.)

Fourth Year

Fall Semester				Spring Semester			
Credits	Major	CC		Credits	Major	CC	
DSA 493 Senior Design I	2	X	WAC	DSA 494 Senior Design II	3	X	CAP
CIS 475 Computer Security	3	X		DS Major Elective	3	X	
DSA 469 Big Data Processing Systems	3	X		DS Major Elective	3	X	
DS Major Elective	3	X		DS Major Elective	3	X	
African-American History & Culture	3		AAHC	Diversity in Society	3		DS
Semester Total	14			Semester Total	15		

Degree Total Hours: 120 - 122

College/Program Notes:

The plan above is a suggested guide to ensure that all General Education, College, University, and Major requirements are met within 4 years of study. Students may deviate from the suggested placement of General Education courses, although the M/QL and W/C requirements should be completed during the first year of study. General Electives ensure that a student accumulates the minimum credit hour totals needed for graduation. Students must have a **minimum of 120 total credit hours**, of which a **minimum of 42 credit hours** must be upper division (300 or 400-level courses). Depending upon other elective choices made, students may not need as many general electives as indicated above or may need additional electives. For information about declaring a Math Minor with the courses you already need for the DS major, email: impt.engr.info@csuohio.edu.

* ESC 120 is required in the following cases: (a) for students with an Associate of Science degree; (b) for transfer students with over 60 credits completed before transferring to CSU (those who have had co-op experience in engineering/computer science and/or 12 credits of engineering/computer science courses can petition to waive ESC 120); and (c) students who, as freshmen at CSU started in another major and completed an Inquiry Launch course different from INQ 170 or Honors students who take the Honors Inquiry Launch course.

University Notes:

Core Curriculum Key + Notes

IL = Inquiry Launch	HCC = Human Culture and Creativity	SI = Scientific Inquiry
FYV = Finding Your Voice	GHP= Global Human Perspectives	SIL = Scientific Investigations Lab
RPW = Research & Professional Writing	WAC = Writing Across the Curriculum Req	DS = Diverse Society
AAHC = African-American History and Culture	CAP = Capstone Requirement	DDL= Data & Digital Literacy
Literacy	SHB = Society & Human Behavior	FQR = Formal & Quantitative

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Cleveland State University
Washkewicz College of Engineering
Bachelor of Science in Data Science

Name: _____

I.D. No: _____

Curriculum Sheet (Effective Fall 2025)

Fall Semester			Spring Semester			Summer Semester		
Credits	CC		Credits	CC		Credits	CC	
ENG 101 College Writing I (OR) ENG 100 Intensive Writing	3	FYV	ENG 102 College Writing II or ESC 102 Tech Writing	3	RPW			
MTH 181 Calculus I	4	FQR	MTH 182 Calculus II	4	FQR/DDL			
CIS 151 Invitation to Computing	3		CIS 260 Introduction to Programming	4				
INQ 170 Inquiry Launch to Engineering*	3	IL	PHY 241 University Physics I (OR) BIO 266/267 Human Anatomy & Physiology/Lab (OR) CHM 261/266 General Chemistry and Lab	5/4/4	SI/SIL			
			ESC 130 Engineering Co-Op Orientation	1				
<i>Semester Total</i>			<i>Semester Total</i>			<i>Semester Total</i>		
	13			16/17				

Second Year								
Fall Semester			Spring Semester			Summer Semester		
Credits	CC		Credits	CC		Credits	CC	
MTH 283 Multivariable Calculus for Engineers (OR) MTH 281 Multivariable Calculus	2 or 4		STA 347 Applied Statistics	3		ESC300 or ESC400 Co-Op	1	
STA 323 Statistical Methods	3		CIS 340 Systems Programming	3				
CIS 265 Data Structures	4		MTH 288 Linear Algebra	3				
MTH 220 Intr. To Discrete Mathematics	3		Society & Human Behavior	3	SHB			
DSA 230 Introduction to Data Science I	3		PHY 243 University Physics II (OR) BIO 268/269 Human Anatomy & Physiology II/Lab (OR) CHM 262/267 General Chemistry II and Lab	5/4/4	SI/SIL			
<i>Semester Total</i>			<i>Semester Total</i>			<i>Semester Total</i>		
	15/17			16/17				

Third Year								
Fall Semester			Spring Semester			Summer Semester		
Credits	CC		Credits	CC		Credits	CC	
CIS 430 Database Concepts	3		ESC300 or ESC400 Co-Op	1				
CIS 390 Introduction to Algorithms	3							
STA 431 Categorical Data Analysis	3							
DSA 330 Introduction to Data Science II (WAC)	3	WAC						
PHL 216 AI & Data Ethics	3	HCC						
<i>Semester Total</i>			<i>Semester Total</i>			<i>Semester Total</i>		
	15							

Fourth Year								
Fall Semester			Spring Semester			Summer Semester		
Credits	CC		Credits	CC		Credits	CC	
ESC300 or ESC400 Co-Op	1		STA 400 Data Visualization	3		ESC300 or ESC400 Co-Op	1	
			CIS 467 Artificial Intelligence	3				
			DSA 460 Data Mining	3				
			Global Human Perspectives (A&H)	3	GHP			
			ESC 282 Engineering Economy	3				
<i>Semester Total</i>			<i>Semester Total</i>			<i>Semester Total</i>		
				15				

Fifth Year								
Fall Semester			Spring Semester			Summer Semester		
Credits	CC		Credits	CC		Credits	CC	
DSA 493 Senior Design I (WAC)	2	WAC	DSA 494 Senior Design II (CAP)	3	CAP			
CIS 475 Computer Security	3		DS Major Elective	3				
DSA 469 Big Data Processing Systems	3		DS Major Elective	3				
DS Major Elective	3		DS Major Elective**	3				
African-American History & Culture	3	AAHC	Diversity in Society	3	DS			
<i>Semester Total</i>			<i>Semester Total</i>			<i>Semester Total</i>		
	14			15			0	

Degree Total: 120 to 122 hours (excluding ESC130 and 1 DS Major Elective)

Assumption: University Requirement of Foreign Language has been met: two (2) years of same language in high school; or two (2) semesters of same language in college; or passing of language placement test in reading, writing, and speaking of a second language other than English.

College/Program Notes:

The plan above is a suggested guide to ensure that all General Education, College, University, and Major requirements are met within 5 years of study. Students may deviate from the suggested placement of General Education courses, although the M/QL and W/C requirements should be completed during the first year of study. General Electives ensure that a student accumulates the minimum credit hour totals needed for graduation. Students must have a minimum of 120 total credit hours, of which a minimum of 42 credit hours must be upper division (300 or 400-level courses). Depending upon other elective choices made, students may not need as many general electives as indicated above or may need additional electives. For information about declaring a Math Minor with the courses you already need for the DS major, email: impt.engr.info@csuohio.edu

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**students who complete three semesters of co-op (ESC 300/400) can substitute one CS major elective course with these three co-op credits

University Notes:

Core Curriculum Key + Notes

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FQR = Formal & Quantitative Literacy	SHB = Society & Human Behavior	