Cleveland State University – Washkewicz College of Engineering

Bachelor of Science in Data Science (DS)

Fall 2025

Name _____ **I.D. No.** _____

First Year

Fall Semester	Credits	Major	CC	Spring Semester	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** BIO 266/267 Human Anatomy & Physiology I/Lab **OR** CHM 261/266 General Chemistry I and Lab	5 or 4 or 4	X	SI/SIL
Semester Total	**13**			**Semester Total**	**15-16**		

Second Year

Fall Semester	Credits	Major	CC	Spring Semester	Credits	Major	CC
MTH 283 Multivariable Calculus for Engineers **OR** MTH 281 Multivariable Calculus	2 or 4	X		STA 347 Applied Statistics	3	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 242 University Physics II **OR** BIO 268/269 Human Anatomy & Physiology II/Lab **OR** CHM 262/267 General Chemistry II and Lab	5 or 4 or 4	X	SI/SIL
DSA 230 Introduction to Data Science I	3	X					
Semester Total	**15-17**			**Semester Total**	**16-17**		

(Electives can be taken in any order.)

Third Year

Fall Semester	Credits	Major	CC	Spring Semester	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	Credits	Major	CC	Spring Semester	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

* INQ 170 is required for all engineering, technology, and computer science majors, and meets the Core Curriculum requirement for Inquiry Launch. ESC 120 is required in place of INQ 170 in the following cases: (a) transfer students; however, those who have had co-op experience in engineering/computer science and/or have transferred 12 credits of engineering/computer science courses can petition to waive ESC 120; (b) students who, as freshmen at CSU, started in another major and completed an Inquiry Launch course different from INQ 170; (c) Honors students who take the Honors Inquiry Launch course. Neither INQ 170 nor ESC 120 is required for transfer students with an Associates of Applied Science degree.

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.

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

Cleveland State University – Washkewicz College of Engineering

Bachelor of Science in Data Science

Co-op version

Curriculum Sheet (Effective Fall 2025)

Name:_____ **I.D. No:**_____

Fall Semester	Credits	CC		Spring Semester	Credits	CC		Summer Semester	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 or 4 or 4	SI/SIL				
				ESC 130 Engineering & Comp Science Career Prep	1					
Semester Total	*13*			*Semester Total*	*16-17*			*Semester Total*		

Second Year										
Fall Semester	**Credits**	**CC**		**Spring Semester**	**Credits**	**CC**		**Summer Semester**	**Credits**	**CC**
MTH 283 Multivariable Calculus for Engineers (OR) MTH 281 Multivariable Calculus	2 or 4			STA 347 Applied Statistics	3			ESC 300/400 Fenn Co-op Education Experience	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 242 University Physics II (OR) BIO 268/269 Human Anatomy & Physiology II/Lab (OR) CHM 262/267 General Chemistry II and Lab	5 or 4 or 4	SI/SIL				
Semester Total	*15-17*			*Semester Total*	*16-17*			*Semester Total*		

Third Year										
Fall Semester	**Credits**	**CC**		**Spring Semester**	**Credits**	**CC**		**Summer Semester**	**Credits**	**CC**
CIS 430 Database Concepts	3			ESC 300/400 Fenn Co-op Education Experience	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								
Semester Total	*15*			*Semester Total*				*Semester Total*		

Fourth Year										
Fall Semester	**Credits**	**CC**		**Spring Semester**	**Credits**	**CC**		**Summer Semester**	**Credits**	**CC**
ESC 300/400 Fenn Co-op Education Experience	1			STA 400 Data Visualization	3			ESC 300/400 Fenn Co-op Education Experience	1	
				CIS 467 Artificial Intelligence	3					
				DSA 460 Data Mining	3					
				Global Human Perspectives (A&H)	3	GHP				
				ESC 282 Engineering Economy	3					
Semester Total				*Semester Total*	*15*			*Semester Total*		

Fifth Year										
Fall Semester	**Credits**	**CC**		**Spring Semester**	**Credits**	**CC**		**Summer Semester**	**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				
						`				
Semester Total	*14*			*Semester Total*	*15*			*Semester Total*		
Degree Total: 120 – 123 hours (excludes ESC 300/400)										

* INQ 170 is required for all engineering, technology, and computer science majors, and meets the Core Curriculum requirement for Inquiry Launch. ESC 120 is required in place of INQ 170 in the following cases: (a) transfer students; however, those who have had co-op experience in engineering/computer science and/or have transferred 12 credits of engineering/computer science courses can petition to waive ESC 120; (b) students who, as freshmen at CSU, started in another major and completed an Inquiry Launch course different from INQ 170; (c) Honors students who take the Honors Inquiry Launch course. Neither INQ 170 nor ESC 120 is required for transfer students with an Associates of Applied Science degree.

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

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

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