

Faculty of Science and Technology
Department of Computer Science and Engineering
Bachelor's Degree (Four-Year) Major in Data Science
Name of Awarding (Bachelor of Science in Data Science)

YEAR ONE (FOUNDATION YEAR)				
No.	Course Code	Course Title	Credits	Prerequisite
Semester 1				
1	CS 101	A+	3 (2-1-0)	-
2	CS 102	Introduction to Programming	3 (2-1-0)	-
3	DS 101	Introduction to Data Science	3 (2-1-0)	-
4	ENG 115	Academic Writing	3 (2-1-0)	-
5	KHM 101	Khmer Studies	3 (3-0-0)	-
6	MAT 108	Discrete Mathematics	3 (2-1-0)	-
Total			18 (13-5-0)	
YEAR ONE (FOUNDATION YEAR)				
No.	Course Code	Course Title	Credits	Prerequisite
Semester 2				
1	CS 109	Object-Oriented Programming	3 (2-1-0)	CS 102
2	CS 110	R Programming	3 (2-1-0)	-
3	CS 113	Data Structure & Algorithm	3 (2-1-0)	CS 102
4	DS 102	Data Visualization	3 (2-1-0)	-
5	MAT 109	Calculus	3 (2-1-0)	MAT 108
6	STA 103	Probability & Statistics	3 (2-1-0)	-
Total			18 (12-6-0)	
YEAR TWO				
No.	Course Code	Course Title	Credits	Prerequisite
Semester 1				
1	AI 201	Introduction to Machine Learning	3 (2-1-0)	-
2	CS 215	SQL & Data Management	3 (2-1-0)	-
3	CS 220	Git & Version Control	3 (2-1-0)	-
4	DS 203	Database & Data Warehousing	3 (2-1-0)	-
5	MAT 210	Linear Algebra	3 (2-1-0)	MAT 109
6	STA 205	Statistical Inference & Regression	3 (2-1-0)	STA 103
Total			18 (12-6-0)	
YEAR TWO				
No.	Course Code	Course Title	Credits	Prerequisite
Semester 2				
1	AI 202	Machine Learning Model	3 (2-1-0)	AI 201
2	CS 222	Introduction to Relational Database Systems	3 (2-1-0)	CS 215
3	DS 204	Big Data Fundamentals	3 (2-1-0)	-
4	DS 205	Introduction to Hadoop and Tools	3 (2-1-0)	-
5	DS 206	Data Wrangling & Cleaning	3 (2-1-0)	-
6	STA 209	Advanced Statistics	3 (2-1-0)	STA 205
Total			18 (12-6-0)	

YEAR THREE				
No.	Course Code	Course Title	Credits	Prerequisite
Semester 1				
1	AI 303	Deep Learning	3 (2-1-0)	-
2	AI 304	Natural Language Processing	3 (2-1-0)	AI 202
3	DS 307	Data Modeling (Basic)	3 (2-1-0)	-
4	DS 308	Applied Data Science	3 (2-1-0)	-
5	DS 309	Apache Spark for Big Data	3 (2-1-0)	-
Total			15 (10-5-0)	
YEAR THREE				
No.	Course Code	Course Title	Credits	Prerequisite
Semester 2				
1	AI 306	Advanced Topics in AI	3 (2-1-0)	-
2	DS 310	Data Ethics & Governance	3 (2-1-0)	-
3	DS 311	Data Modeling (Advanced)	3 (2-1-0)	DS 307
4	DS 312	Capstone Project Planning	3 (2-1-0)	DS 307
5	DS 313	Time Series Analysis	3 (2-1-0)	-
Total			15 (10-5-0)	
YEAR FOUR				
No.	Course Code	Course Title	Credits	Prerequisite
Semester 1				
1	DS 414	Innovation in Tech	3 (2-1-0)	-
2	DS 415	Capstone Project Phase 1	3 (2-1-0)	DS 312
3	DS 416	Internship Preparation ⁽¹⁾	4 (0-0-4)	-
Total			10 (4-2-4)	
YEAR FOUR				
No.	Course Code	Course Title	Credits	Prerequisite
Semester 2				
1	DS 417	Internship/Industry Attachment ⁽¹⁾	4 (0-0-4)	-
2	DS 418	Capstone Project Phase 2	3 (2-1-0)	DS 415
3	ETC 405	Three Elective Courses ⁽²⁾	9 (6-3-0)	-
Total			16 (8-4-4)	

Noted:

(1) All students are required to have internship for major Data Science.

(2) All students can choose 3 courses (1 course equal 3 credits) among the 4 elective courses: Seminar in Data Science (DS 419), DevOps & CI/DC (DS 420), Cloud in Data Science (DS 421), or MongoDB for Data Science (DS 422).

L (Lecture) = (1 credit= 15 hours); P (Practice) = (1 credit= 30 hours); and F (Fieldwork) = (1 credit= 45 hours)

Elective Courses			
No.	Course Code	Course Title	Credits
Semester 2			
1	DS 419	Seminar in Data Science	3 (2-1-0)
2	DS 420	DevOps & CI/DC	3 (2-1-0)
3	DS 421	Cloud in Data Science	3 (2-1-0)
4	DS 422	MongoDB for Data Science	3 (2-1-0)

Foundation Year	Year II	Year III	Year IV	Total
36 Credits	36 Credits	30 Credits	26 Credits	128 Credits