Degree Plan for BSc in Data Science and Machine Learning

Course Code	Course Title	Credits	Prerequisite
Total No. of Credits = 135			
University Requirements = 17 Credits			
ARAB100	Arabic Language I	2	
ARAB101	Arabic Language II	2	ARAB100
COMP101.	Computer Skills	2	COMP-B-DIGITAL LITERACY II
ENGL150	English Language I	2	
ENGL152	English Language II	2	ENGL150
CARC300	Career Counseling	1	ENGL152
MNGT100	Introduction to Entrepreneurship	3	After completing 100 credit hours
HIST150	Islamic Civilization	3	
University Electives = 3 Credits *(Student shall choose from available courses offered by all Colleges of the University)*			
College Requirements = 21 Credits			
MATH116	Pre-Calculus	4	
MATH211	Calculus I	4	MATH116
MATH145	Linear Algebra	3	MATH116
MATH212	Calculus II	3	MATH211
STAT101	Introduction to Statistics	4	
STAT210	Principles of Probability	3	MATH212
Major Requirements = 79 credits			
COMP151	Introduction to Algorithms	4	COMP101.
COMP152	Structured Programming	3	COMP151
COMP222	Object Oriented Programming	3	COMP151
COMP244	Database Concepts and Applications	3	COMP151
COMP 255	Data Structures	3	COMP222
COMP 270	Web Development	3	COMP151
DSML101	Data Science Basics	3	
DSML111	Data Wrangling	3	DSML101
DSML200	Information Visualization	3	DSML101
DSML211	Tools and Algorithms for Data Science	3	DSML101
DSML212	Data Analytics	3	STAT101, DSML111
DSML222	Advanced Data Science Programming	3	DSML211, COMP222
DSML300	Practicing Machine Learning and AI	3	DSML211
DSML305	Graph and Social Network Analysis	3	COMP255
COMP450	Digital Image Processing	3	MATH145, COMP151
DSML344	Programming Models for Big Data	3	COMP244, DSML211
DSML351	Boosting Algorithms and Ensemble Learning	3	STAT210, DSML300

DSML355	Time Series Analysis in Data Science	3	DSML212
DSML405	Deep Learning and Graphical Models	3	DSML300, DSML310
DSML446	Advanced Seminar in Data Science and Machine Learning	1	Section approval
DSML494	Data Science & Society: Ethical, Legal, Social Issues	2	4th Year
DSML498	Internship in Data Science and Machine Learning	12	After completing 90 credits
DSML499	Graduation Project in Data Science and Machine Learning	6	After completing 90 credits
Program Electives = 15 Credits *Students Shall choose from the following courses*			
STAT212	Sampling Techniques	3	STAT101, MATH116
STAT266/L	Computational Techniques in Statistics	3	COMP101, STAT101
STAT320	Mathematical Statistics	3	STAT210, MATH212
STAT339/L	Regression Analysis	3	STAT266L, MATH145
COMP350	Numerical Methods for Computing	3	DSML222, MATH145
DSML352	Data Science Through Statistical Reasoning and Computation	3	DSML212
DSML370	Business Intelligence	3	DSML222
STAT387	Stochastic Processes	3	STAT320
DSML410	Large Language Models	3	DSML405
STAT420	Operation Research I	3	MATH211, MATH145
STAT340	Probability Models in Decisions Making	3	STAT210
STAT351/L	Simulation	3	STAT210
DSML420	Statistical Speech and Language Processing	3	MaTH145, COMP151
STAT428	Quality and Reliability	3	STAT210
STAT442	Operations Research II	3	STAT420
STAT460	Information Theory	3	STAT320
DSML470	Topics in Computer Vision	3	COMP450
DSML472	Video Analytics and Action Recognition	3	COMP450
DSML473	Pattern Recognition	3	COMP450
DSML477	Privacy and Security for Data Sciences	3	4th Year
DSML480	Representation and Generative Learning	3	DSML405
DSML485	Reinforcement Learning	3	DSML405
DSML495	Advanced Topics in Machine Learning/AI	3	Department Approval (must not overlap with DSML496, DSML497)
DSML496	Advanced Topics in Data Science	3	Department Approval (must not overlap with DSML495, DSML497)
DSML497	Emerging trends in Machine Learning/AI	3	Department Approval (must not overlap with DSML495, DSML496)
Note: This list is not exhaustive as the section may recommend any relevant course from Information Systems or Computer Engineering or anywhere in the UoN.			