MAJOR IN DATA SCIENCE, NEUROSCIENCE CONCENTRATION

TO PREPARE FOR FIRST SEMESTER: The curriculum for the Major in Data Science assumes students enter college prepared to begin a year-long calculus sequence (either MATH 155/MATH 255 or MATH 160/MATH 161) in the first semester of their first year. LIFE 102 requires high school chemistry as a prerequisite; CHEM 111 requires Algebra II as a prerequisite (this prerequisite is met by having Algebra II by test credit, transfer credit, or placement out of MATH 117 and MATH 118 on Math Placement Exam).

Major Completion Map

Distinctive Requirements for Degree Program:

Freshman

Semester 1		**Critical**	**Recommended**	**AUCC**	**Credits**
CO 150	College Composition (GT-CO2)	X		1A	3
CS 150B	Culture and Coding: Python (GT-AH3)	X		3B	3
DSCI 100	First Year Seminar in Data Science	X			1
MATH 156	Mathematics for Computational Science I (GT-MA1)			1B	4
PSY 100	General Psychology (GT-SS3)	X		3C	3
	Total Credits				**14**
Semester 2		**Critical**	**Recommended**	**AUCC**	**Credits**
CS 164	CS1--Computational Thinking with Java	X			4
DSCI 369	Linear Algebra for Data Science				4
LIFE 102	Attributes of Living Systems (GT-SC1)	X		3A	4
STAT 158	Introduction to R Programming	X			1
STAT 315	Intro to Theory and Practice of Statistics	X			3
	Total Credits				**16**

Sophomore

Semester 3		**Critical**	**Recommended**	**AUCC**	**Credits**
CHEM 107	Fundamentals of Chemistry (GT-SC2)	X		3A	4
CHEM 108	Fundamentals of Chemistry Laboratory (GT-SC1)	X		3A	1
CS 165	CS2--Data Structures	X			4
MATH 256	Mathematics for Computational Science II				4
STAT 341	Statistical Data Analysis I	X			3
	Total Credits				**16**
Semester 4		**Critical**	**Recommended**	**AUCC**	**Credits**
CS 220	Discrete Structures and their Applications	X			4
DSCI 235	Data Wrangling	X			2
MATH 151	Mathematical Algorithms in Matlab I	X			1
STAT 342	Statistical Data Analysis II	X			3
Select one course from the following:		X			3-4
BZ 350	Molecular and General Genetics				
LIFE 201B	Introductory Genetics: Molecular/Immunological/ Developmental (GT-SC2)			3A	
	Total Credits				**13-14**

Junior

Semester 5		**Critical**	**Recommended**	**AUCC**	**Credits**
BMS 300	Principles of Human Physiology	X			4
DSCI 320	Optimization Methods in Data Science	X			3
PSY 252	Mind, Brain, and Behavior	X			3
Select one course from the following:		X			3
CO 300	Writing Arguments (GT-CO3)			2	
CO 301B	Writing in the Disciplines: Sciences (GT-CO3)			2	
CO 302	Writing in Digital Environments (GT-CO3)			2	
JTC 300	Strategic Writing and Communication (GT-CO3)			2	

Data Science Electives (see list on Concentration Requirements tab)		X			4
	Total Credits				**17**
Semester 6		**Critical**	**Recommended**	**AUCC**	**Credits**
CS 201/PHIL 201	Ethical Computing Systems (GT-AH3)			3B	3
DSCI 335	Inferential Reasoning in Data Analysis	X			3
DSCI 336	Data Graphics and Visualization	X			1
Diversity, Equity, and Inclusion (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#diversity-equity-inclusion)				1C	3
Historical Perspectives (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#historical-perspectives)		X		3D	3
	Total Credits				**13**
Senior					
Semester 7		**Critical**	**Recommended**	**AUCC**	**Credits**
BMS 325	Cellular Neurobiology	X			3
DSCI 445	Statistical Machine Learning	X		4B	3
Neuroscience Elective (See List on Concentration Requirements Tab)		X			3
Electives					7-8
	Total Credits				**16-17**
Semester 8		**Critical**	**Recommended**	**AUCC**	**Credits**
BMS 345	Functional Neuroanatomy	X			4
DSCI 478	Capstone Group Project in Data Science	X		4A,4C	4
PSY 458	Cognitive Neuroscience	X			3
Neuroscience Elective (See List on Concentration Requirements Tab)		X			3
The benchmark courses in the 8th semester are the remaining courses in the entire program of study.		X			
	Total Credits				**14**
	Program Total Credits:				**120**