College of Science - Computational and Data Sciences, BS				
Catalog Year: 2019 - 2020			**Grades**	
Mason Core Requirements (27-34 credits)	**Course Information**	Credits	Earned	Needed
Written Communication:	ENGH 101 (100)	3		
Oral Communication:	COMM 100 or 101	3		
*Quantitative Reasoning	*Satisfied by Major Requirements			
*Information Technology	*Satisfied by Major Requirements			
Arts		3		
Global Understanding		3		
Literature		3		
*Natural Science	*May be partially satisfied by CDS 101/102	0-7		
Social & Behavioral Sciences		3		
Western Civilization/World History		3		
Written Communication:	ENGH 302	3		
Synthesis/Capstone		3		
Major Requirements (66 credits)				
CDS 130	Computing for Scientists	3		
CDS 151	Data Ethics in an Information Society	1		
CDS 230	Modeling and Simulation I	3		
CDS 301	Scientific Information and Data Visualization	3		
CDS 302	Scientific Data and Databases 1	3		
CDS 303	Scientific Data Mining	3		
Extended Core Courses (18 credits) from the following:				
CDS 101 & 102	Intro to Computational and Data Sciences with Lab			
CDS 201	Introduction to Computational Social Science			
CDS 205	Intro to Agent-based Modeling and Simulation			
CDS 251	Introduction to Scientific Programming			
CDS 290	Topics in Computational and Data Sciences			
CDS 292	Introduction to Social Network Analysis			
CDS 403	Machine Learning Applications in Science			
CDS 411	Modeling and Simulation II			
CDS 486	Topics in Computational and Data Sciences			
CSI 500	Computational Science Tools			
CSI 501	Introduction to Scientific Programming			
Mathematics Courses (10-11 credits) from the following:				
MATH 113	Analytic Geometry and Calculus I			
MATH 114	Analytic Geometry and Calculus II			
MATH 125	Discrete Mathematics I			
MATH 203	Linear Algebra			
MATH 446	Numerical Analysis I			
Statistics Courses (6 credits) from the following:				
STAT 250	Introductory Statistics I			
STAT 350	Introductory Statistics II			
STAT 344	Probability and Statistics for Engineers and Scientists I			
STAT 346	Probability for Engineers			
Science and Engineering Courses (6 credits): Additional Mason Core: Natural Science or Mason Core: Information Technology courses. OR Any course offered by the College of Science or the Volgenau School of Engineering.				
Science and Engineering Course #1:				
Science and Engineering Course #2:				
Degree Notes				
Any remaining credits may be completed with elective courses to bring the degree total to 120 with 45 of these credits at the 300/400 level.				
Advisor Notes:				

B.S. Computational and Data Sciences 2019 - 2020

FALL YEAR 1	CREDITS	SPRING YEAR 1	CREDITS	NOTES
MATH 113	4	MATH 114	4	
CDS 130	3	CDS 101	3	
STAT 250	3	CDS 102	1	
ENGH 100/101	3	STAT 350	3	
UNIV 100	1	CDS 151	1	
		COMM 100/101	3	
Total:	14 credits	Total:	15 credits	

FALL YEAR 2	CREDITS	SPRING YEAR 2	CREDITS	NOTES
MATH 213 OR 203	3	MATH Elective	3	*SCI/ENG Elective
SCI/ENG Elective*	3 or 4	CDS 302	3	= Science or
CDS 301	3	CDS 230	3	Engineering
CDS 303	3	HIST 100/125	3	elective
Art Req.	3	Lit. Req.	3	
Total:	15 or 16 credits	Total:	15 credits	

FALL YEAR 3	CREDITS	SPRING YEAR 3	CREDITS	NOTES
CDS Ext. Core*	3	CDS Ext. Core	3	*CDS Ext. Core =
CDS Ext. Core	3	CDS Ext. Core	3	CDS Extended
ENGH 302	3	G.U. Req.*	3	Core.
Natural Science**	3	Open Elective	3	*G.U. = Global
Open Elective	3	Open Elective	3	Understanding
Total:	15 credits	Total:	15 credits	requirement.

FALL YEAR 4	CREDITS	SPRING YEAR 4	CREDITS	NOTES
CDS 491 OR 492*	3	CDS 491 OR 492	3	*CDS 491 = Intern-
CDS Ext. Core	3	Open Elective	3	Ship (1-3 credits).
S.B.S. Req.*	3	Open Elective	3	CDS 492 = Cap-
Open Elective	3	Open Elective	3	stone course.
Open Elective	3	Open Elective	3	*S.B.S. = Social and
Total:	15	Total:	15	Behavioral Science

*Students must earn 120 credits for graduation; 45 credits must be upper-level (courses 300+).
**The Natural Science requirement should be a science or engineering elective (no lab necessary) approved in the 2018-2019 catalog for the CDS major.

-The Department VERY STRONLGY ADVISES that CDS students NOT TAKE MORE THAN TWO COMPUTER LANGUAGES IN ANY ONE SEMESTER!

-6 credits of Science or Engineering electives are required. The Department prefers that these 6 credits be taken in the SAME SCIENCE or ENGINEERING area. The goal is to BUILD COMPETENCE in a particular knowledge domain. Suggested: MATH 213 (Analytic Geometry and Calculus III), or MATH 203 (Linear Algebra).

-While not strictly required, a MATH elective is strongly suggested. If students have already taken MATH 213, then MATH 214 is suggested for those students interested in *computational science*. If students have not taken MATH 213, then MATH 125 is suggested for students interested in *data science.*

-The Department suggests that a student's OPEN ELECTIVES are utilized to either extend the student's educational experience in CDS, or, to obtain a MINOR DEGREE in a knowledge domain. The Department suggests that the student meet with the CDS academic advisor to plan/map out an elective strategy to achieve this goal.

-If the CDS 491 course is chosen in the seventh semester, then the student will choose CDS 492 in the eighth semester, and vice versa.

-The Mason Core Art, Global Understanding, Western Civilization, and Social and Behavioral Science requirements do not have to be taken in the semesters designated above. They can be taken in the order that best fits the student's schedule.