

**Volgenau School of Engineering - Applied Computer Science, BS
with Concentration in Bioinformatics**

Catalog Year: 2019 - 2020			Grades	
Mason Core Requirements (21 credits)	Course Information	Credits	Earned	Needed
Written Communication:	ENGH 101 (100)	3		
*Oral Communication	*Satisfied by Major Requirements			
*Quantitative Reasoning	*Satisfied by Major Requirements			
*Information Technology	*Satisfied by Major Requirements			
Arts		3		
Global Understanding		3		
Literature		3		
*Natural Science	*Satisfied by Major Requirements			
Social & Behavioral Science		3		
Western Civ/World History		3		
**Written Communication	ENGH 302 - **Natural Science Section Only	3		
*Capstone/Synthesis	*Satisfied by Major Requirements			
Major Requirements (94 credits) Students must earn a C or better in any course intended to satisfy a prerequisite for a computer science course. Applied Computer Science majors may not use more than one course with a grade of C- or D toward department requirements				
Computer Science Foundation Requirements (27 credits)		Credits	Earned	Needed
CS 110	Essentials of Computer Science 1	3		
CS 112	Introduction to Computer Programming	4		
CS 211	Object-Oriented Programming	3		
MATH 113	Analytic Geometry and Calculus I	4		
MATH 114	Analytic Geometry and Calculus II	4		
MATH 125	Discrete Mathematics I	3		
MATH 203	Linear Algebra	3		
Communication	COMM 100 or COMM 101	3		
Core Courses and Major Elective (25 credits)		Credits	Earned	Needed
CS 262	Introduction to Low-Level Programming	3		
CS 310	Data Structures	3		
CS 321	Software Engineering	3		
CS 330	Formal Methods and Models	3		
CS 367	Computer Systems and Programming	4		
CS 471	Operating Systems	3		
CS 483	Analysis of Algorithms	3		
Upper-level CS Elective	One CS course numbered above 400, except CS 498	3		
Concentration in Computer Bioinformatics (42 credits)				
Concentration Foundation Requirements (17 credits)		Credits	Earned	Needed
PHYS 160/161	University Physics I	4		
BIOL 213	Cell Structure and Function	4		
CHEM 211	General Chemistry I	3		
STAT 244	Probability and Statistics for Engineers and Scientists I	3		
CS 306	Synthesis of Ethics and Law for the Computing Professional	3		
Concentration Core Requirements (25 credits)		Credits	Earned	Needed
BINF 450	Bioinformatics for Life Sciences	4		
BIOL 482	Introduction to Molecular Genetics	3		
BIOL 580	Computer Applications for the Life Sciences	3		
CS 450	Database Concepts	3		
BINF 401	Bioinformatics and Computational Biology I	3		
or CS 444	Introduction to Computational Biology			
BINF 402	Bioinformatics and Computational Biology II	3		
or CS 445	Computational Methods for Genomics			
Elective Related to Bioinformatics		3		
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Degree Notes				
Approximately 5 credits of elective courses - to bring the degree total to 120 with 45 credits at the 300/400 level				
Advisor Notes:				