



College of Computer, Mathematical and Natural Sciences

Computer Science - Quantum Information Effective Fall 2024

This is a curriculum tracking sheet, not an official audit

Name _____ UID _____

Date Entered Major _____ Second degree/major _____ Is CMNS your primary major? Y N

General Education Requirements			
Fundamental Studies			
Requirement	Course	Credits	Completed?
AW Academic Writing		3	
PW Professional Writing		3	
OC Oral Communication		3	
Distributive Studies			
Requirement	Course	Credits	Completed?
NL Natural Science with Lab		4	
NS Natural Science		3 or 4	
HS History and Social Sciences		3	
HS History and Social Sciences		3	
HU Humanities		3	
HU Humanities		3	
SP Scholarship in Practice (non-major)		3	
SP Scholarship in Practice (non-major)		3	
Big Question			
Overlap with Distributive Studies and/or Big Question			
Requirement	Course	Credits	Completed?
IS Big Question			
IS Big Question			
Diversity			
Can overlap with Distributive Studies or Big Question			
Requirement	Course	Credits	Completed?
UP Understanding Plural Societies			
UP or CC Understanding Plural Societies or Cultural Competence			

Gen Ed Mathematics (MA) and Analytic Reasoning (AR) are satisfied by major requirements.

Upper Level Concentration			
Students must complete a minimum of 12 credit hours of 300 - 400 level courses in one discipline outside of Computer Science with an average grade of C- or higher. No course that is in, or cross-listed as, CMSC may be counted in this requirement. Only 1 independent study or experiential learning course may be used. Students who are pursuing a minor or a second major can use those credits in this area.			
Course	Credits	Completed?	

Elective Credits			
Students must take enough elective courses in any discipline(s) they choose to reach the total number of 120 credits required for graduation. Students who are pursuing a minor or a second major can use those credits in this area.			
Course	Credits	Completed?	

Major Requirements			
Lower Level Requirements (Must pass with a grade of C- or higher)			
Title	Course	Credits	Completed?
Calculus I	MATH 140	4	
Calculus II	MATH 141	4	
Object-Oriented Programming I	CMSC 131 or CMSC 141	4	
Programming with Purpose I: Data-Centric Computing			
Object-Oriented Programming II	CMSC 132 or CMSC 142	4	
Programming with Purpose II: Data Structures and Algorithms			
Introduction to Computer Systems	CMSC 216	4	
Discrete Structures	CMSC 250	4	
Organization of Programming Languages	CMSC 330	3	
Algorithms	CMSC 351	3	
STAT 4xx (w/ MATH 141 prerequisite)	STAT 4XX	3	
Linear Algebra course	MATH 240 or MATH 341 or MATH 461	4	

Upper Level Courses (Must pass with a grade of C- or higher)			
Students must fulfill their computer science upper level course requirements from at least 3 areas			
Required:	Course	Credits	Completed?
Introduction to Quantum Computing *	CMSC 457	3	
Introduction to Quantum Technology *	PHYS 467	3	

Select four courses from the distributive areas. Two of those four courses must fall in two separate areas outside of Area 4.			
Area 1: Systems	Course	Credits	Completed?
Computer Systems Architecture	CMSC 411	3	
Operating Systems *	CMSC 412	4	
Computer and Network Security	CMSC 414	3	
Introduction to Parallel Computing	CMSC 416	3	
Computer Networks	CMSC 417	3	
Real World Computer Security	CMSC 498I	3	
Area 2: Information Processing	Course	Credits	Completed?
Bioinformatic Algorithms and Methods	CMSC 402	3	
Data Structures	CMSC 420	3	
Introduction to Artificial Intelligence	CMSC 421	3	
Introduction to Machine Learning *	CMSC 422	3	
Bioinformatic Algorithms, Databases and Tools	CMSC 423	3	
Database Design	CMSC 424	3	
Computer Vision *	CMSC 426	3	
Computer Graphics *	CMSC 427	3	
Introduction to Natural Language Processing *	CMSC 470	3	
Introduction to Data Visualization (Area 2 OR Area 3)	CMSC 471	3	
Introduction to Deep Learning *	CMSC 472	3	
Area 3: Software Engineering and Programming Language	Course	Credits	Completed?
Introduction to Compilers	CMSC 430	3	
Programming Language Technologies and Paradigms	CMSC 433	3	
Introduction to Human-Computer Interaction	CMSC 434	3	
Software Engineering *	CMSC 435	3	
Programming Handheld Systems	CMSC 436	3	
Introduction to Data Visualization (Area 2 OR Area 3)	CMSC 471	3	
Area 4: Theory	Course	Credits	Completed?
Design and Analysis of Computer Algorithms	CMSC 451	3	
Elementary Theory of Computation	CMSC 452	3	
Algorithms for Data Science *	CMSC 454	3	
Cryptology	CMSC 456	3	
Introduction to Computational Game Theory	CMSC 474	3	
Area 5: Numerical Analysis	Course	Credits	Completed?
Computational Methods *	CMSC 460 or CMSC 466	3	
Introduction to Numerical Analysis *			

* Indicates the course has unique prerequisites: □

Upper Level Elective Courses (Must pass with a grade of C- or higher)			
Select 3 credits from CMSC 300- or 400-level courses (not eligible CMSC330 & CMSC351)			
Title	Course	Credits	Completed?

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Year 1	Fall			Spring		
Gateway & Benchmark 1 Requirements: CMSC131, CMSC132, and MATH140 must be completed with a C- or higher by 45 credits (AP/IB credits excluded)	Course	Credit	Grade	Course	Credit	Grade
	CMSC131 or CMSC141	4		CMSC132 or MATH142	4	
	MATH140 (FSMA, FSAR)	4		MATH141	4	
	ENGL101 (FSAW)	3		Natural Science w/ Lab (DSNL)	4	
	Oral Comm (FSOC)	3		History & Social Science (DSHS)*	3	
	CMSC100	1				
	Total	15		Total	15	
Year 2	Fall			Spring		
Benchmark 2 Requirements: CMSC330, CMSC351, and MATH or STAT must be completed with a C- or higher by 75 credits (AP/IB credits excluded)	Course	Credit	Grade	Course	Credit	Grade
	CMSC216	4		CMSC330	3	
	CMSC250	4		CMSC351	3	
	MATH240 or MATH341 or MATH461	3 or 4		STAT4XX	3	
	Scholarship in Practice (DSSP)*	3		Natural Science (DSNS)	3	
				Humanities (DSHU)*	3	
	Total	14 or 15		Total	15	
Year 3	Fall			Spring		
	Course	Credit	Grade	Course	Credit	Grade
	PHYS467	3		CMSC457	3	
	CMSC4XX	3		CMSC4XX	3	
	History & Social Sciences (DSHS)*	3		ENGL39X (FSPW)**	3	
	Humanities (DSHU)*	3		Scholarship in Practice (DSSP)*	3	
	Big Question (SCIS)	3		Big Question (SCIS)	3	
	Total	15		Total	15	
Year 4	Fall			Spring		
	Course	Credit	Grade	Course	Credit	Grade
	CMSC4XX	3		CMSC Elective	3	
	CMSC4XX	3		UL Concentration	3	
	UL Concentration	3		UL Concentration	3	
	UL Concentration	3		Plural Societies (DVUP) or Cultural Competence (DVCC)*	3	
	Plural Societies (DVUP)*	3		Elective	3 or 4	
	Total	15		Total	15 or 16	

*All students must complete two Distributive Studies courses that are approved for Big Question courses. The Understanding Plural Societies (UP) and Cultural Competence (CC) courses may also fulfill Distributive Studies categories.

**Students may take any Professional Writing course to fulfill this requirement.