

COMPUTER SCIENCE - DATA SCIENCE EMPHASIS REQUIREMENTS (MS)

The Computer Science Master of Science degree prepares students for leadership roles in the planning, development, testing, validation, and maintenance of software systems in a range of applied areas. Students in the program acquire a thorough understanding of the essential principles of modern computing, which provide a foundation for new discoveries in the field. Building on this foundation, students develop cutting-edge technical skills, strong problem analysis abilities, and project experiences that prepare them for careers in growing industries such as cloud computing, big data, cybersecurity, healthcare, biotechnology, advanced manufacturing, and financial services.

Code	Title	Units
Major Requirements - 30 units ¹		
COMPSCI 723	MATHEMATICAL AND PROGRAMMING FOUNDATIONS OF DATA SCIENCE	3
COMPSCI 732	MACHINE LEARNING	3
COMPSCI 733	ADVANCED ALGORITHM DESIGN AND ANALYSIS	3
COMPSCI 761	STATISTICAL COMPUTING AND APPLICATIONS	3
COMPSCI 767	BIG DATA AND DATA MINING	3
COMPSCI 768	DEEP LEARNING	3
Select 6-9 units from:		6-9
COMPSCI 735	OPTIMIZATION: TECHNIQUES AND APPLICATIONS	
COMPSCI 736	IMAGE PROCESSING AND COMPUTER VISION	
COMPSCI 739	MATRIX METHODS IN DATA MINING AND PATTERN RECOGNITION	
COMPSCI 755	CRYPTOGRAPHY AND SECURITY PROTOCOLS	
COMPSCI 764	CLOUD COMPUTING	
COMPSCI 766	ADVANCED DATABASES	
COMPSCI 776	ADVANCED SOFTWARE ENGINEERING	
CYBER 757	INFORMATION PRIVACY	
Select 3-6 units from: ²		3-6
COMPSCI 789	CAPSTONE PROJECT ³	
COMPSCI 799	THESIS RESEARCH ⁴	
Total Units		30

¹ Students pursuing the Computer Science M.S. degree may declare either the applied research project option or the thesis option to fulfill their capstone requirement for graduation.

² 30 credits required to earn the master's degree. If only 3 credits of capstone/thesis are taken, additional elective credits will be required.

³ Students who choose the applied research project option must earn at least 3 units of COMPSCI 789.

⁴ Students who choose the thesis option must earn at least 3 units of COMPSCI 799.