



Master of Science in Computer Science

Catalog Year: 2017

Total Degree Credit hours: 36

For students who are interested in this program but do not have the required prerequisite knowledge, completion of the Graduate Certificate in Computer Science Foundations is required prior to admission to the MSCS program.

Computer Science Foundation Courses (15 Credit Hours)

Prerequisites

CS 5000 Foundations of Programming	-	3	
CS 5020 Computer Architectures and Operating Systems	-	3	
CS 5040 Data Structures and Algorithms	CS 5000 recommended	3	
CS 5060 Databases: Design and Applications	-	3	
CS 5070 Mathematical Structures for Computer Science	Undergraduate Calculus course	3	

Core Courses (12 Credit Hours)

Prerequisites

CS 6021 Advanced Computer Architecture	CS 5020	3	
CS 6041 Theory of Computation	CS 5070	3	
Cs 6045 Advanced Algorithms	CS 5040	3	
Select One			
CS 6025 Advanced Operating Systems	-	3	
CS 6027 Advanced Computer Networking	-	3	

MSCS Program Model Options

- **Thesis** (36 hours at the 6000 level or above) – Core courses, one elective track, one or two elective courses, 6-9 hours of Thesis, and conference paper submissions. Faculty thesis advisor require. Thesis must be defended and approved by thesis committee of at least 3 members.
- **Professional Practitioner** (36 hours at the 6000 level or above) – Core courses, one elective track, any 6 elective courses.
- **Interdisciplinary** (36 hours at the 6000 level or above) – Core courses, one interdisciplinary option, any 6 elective courses.
- **Technology Commercialization** (36 hours at the 6000 level or above) – Core courses, 9-hour technology commercialization track with project, any 5 elective courses. Faculty supervisor required. Study plan must be approved by program director.

Elective Tracks (6 Credit Hours)

High Performance Computing Track

Prerequisites

CS 7125 Cloud Computing	-	3	
CS 7172 Parallel and Distributed Computing	-	3	
CS 7174 Modeling and Simulation	-	3	

Big Data Track

CS 7260 Advanced Database Systems	CS 5060	3	
CS 7263 Big Text Mining	CS 6045	3	
CS 7265 Big Data Analytics	CS 6045	3	

Media, Graphics and HCI Track

	Prerequisites		
CS 7327 Computer Graphics and Multimedia	CS 5040	3	
CS 7367 Digital Image Processing and Analysis	CS 5040	3	
CS 7375 Artificial Intelligence and Robotics	CS 6020	3	

Mobile and Game Track

CS 7425 Wireless and Mobile Computing	-	3	
CS 7455 Mobile App Development	CS 5000	3	
CS 7457 Game Design and Development	CS 5040	3	

Cybersecurity Track

CS 7530 Computing Security	CS 6025	3	
CS 7535 Computing Security: Implementation and Application	CS 5040 & CS 5070	3	
CS 7537 Digital Forensics	CS 6025 & CS 6020	3	

Additional Electives

CS 7050 Data Warehousing and Mining	CS 6010 & CS 6050	3	
CS 7060 Mobile Intelligence	CS 7030	3	
CS 7070 Advanced Networking Protocols	CS 6060	3	
CS 7385 Human Factors	-	3	
CS 7827 Real Time Systems	CS 5030	3	
CS 7843 Theory of Programming Languages	CS 5070	3	
CS 7990 Special Topics in Computer Science	Varies	3	
CS 7991 Advanced Topics in Computer Science	-	3	
CS 7992 Directed Studies	-	3	
CS 7995 Internship	-	3	

Thesis (6-9 Credit Hours)

CS 7999 Thesis (May be repeated)	-	6-9	
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Approved Interdisciplinary Track Options

Option One: Information Technology (6 Credit Hours)

	Prerequisites		
IT 6203 IT Design Studio	Department Approval	3	
IT 6413 IT Service Delivery	Department Approval	3	
IT 6423 IT System Acquisition and Integration	Department Approval	3	
IT 6823 Information Security Concepts & Administration	Department Approval	3	
IT 7833 IT Strategy, Policy and Governance	Department Approval	3	

Option Two: MS in Applied Statistics (6 Credit Hours)

STAT 7020 Statistical Computing and Simulation	Department Approval	3	
STAT 7100 Statistical Methods	Department Approval	3	
STAT 8020 Advanced Programming in SAS	Department Approval	3	
STAT 8210 Applied Regression Analysis	Department Approval	3	
STAT 8220 Time Series Forecasting	Department Approval	3	
STAT 8320 Applied Multivariate Data Analysis	Department Approval	3	

Option Three: Software Engineering (6 Credit Hours)

SWE 6613 Requirements Engineering	Department Approval	3	
SWE 6623 Software Engineering	Department Approval	3	
SWE 6633 Software Project Planning & Management	Department Approval	3	
SWE 6673 Software Quality Engineering & Assurance	Department Approval	3	
SWE 6743 Object-Oriented Analysis & Design	Department Approval	3	
SWE 6823 Embedded Systems Analysis and Design	Department Approval	3	
SWE 6843 Embedded Systems Design and Construction	Department Approval	3	