MSCS DEGREE REQUIREMENTS FORM  last revised (10/19/2017)

First Name: ___________________ Last Name:____________________ N number:_____________________

Required: 36 credits of approved coursework
• 21 credits - standard graduate CS classroom-based courses.

- Course ________________________________ Semester________ Grade____ Credits: ____
- Course ________________________________ Semester________ Grade____ Credits: ____
- Course ________________________________ Semester________ Grade____ Credits: ____
- Course ________________________________ Semester________ Grade____ Credits: ____
- Course ________________________________ Semester________ Grade____ Credits: ____
- Course ________________________________ Semester________ Grade____ Credits: ____
- Course ________________________________ Semester________ Grade____ Credits: ____

• 6 credits - standard graduate CS, Math and Data Science classroom-based courses; independent study; MS thesis (no external internships) Independent study and master’s thesis require DGS approval.

- Course ________________________________ Semester________ Grade____ Credits: ____
- Course ________________________________ Semester________ Grade____ Credits: ____

• Remaining 9 credits in any of above or: credits transferred from graduate study in CS; external internship; and relevant graduate courses. At most 6 credits of external internship. Relevant graduate courses and external internships require DGS approval.

- Course ________________________________ Semester________ Grade____ Credits: ____
- Course ________________________________ Semester________ Grade____ Credits: ____
- Course ________________________________ Semester________ Grade____ Credits: ____

Requirement A: A student must take the three foundational courses and maintain a GPA of 2.7 or better in the courses:

- CSCI-GA 1170-001 Fundamental Algorithms  Semester______ Grade_____ Credits: ___ Placed Out ___
- CSCI-GA 2110-001 Programming Languages  Semester______ Grade_____ Credits: ___ Placed Out ___
- CSCI-GA 2250-001 Operating Systems  Semester______ Grade_____ Credits: ___ Placed Out ___

Requirement B: A student must pass ONE course in TWO of the following four designated application areas

- Course ________________________________ Semester________ Grade____ Credits: ____
- Course ________________________________ Semester________ Grade____ Credits: ____
Graphics
- Advanced Computer Graphics
- Advanced Computer Vision
- Computational Geometry
- Computer Graphics
- Computer Vision
- Geometric Modeling
- Graphics Processing Units (GPUs): Architecture and Programming
- Integrating Machine Learning to Computer Vision
- Social Multiplayer Games
- Vision Meets Machine Learning

Computation for Science and Society
- Advanced Topics in Numerical Analysis:
  - Convex and Nonsmooth Optimization
- Applied Cryptography and Network Security
- Bioinformatics and Genomics
- Cryptocurrencies and Decentralized Ledgers
- Financial Software Projects
- Information and Communication Technology for Developing Countries
- Introduction to Cryptography
- Linear Programming
- Monte Carlo Methods
- Music Software Projects
- Numerical Methods I
- Numerical Methods II
- Numerical Optimization
- Practical Computer Security
- Scientific Computing
- Security and Privacy
- Speech Recognition
- Social Networks
- Topics in Digital Media
- Topics in Numerical Analysis
- Values Embodied in Information & Communications Technology

Intelligent Systems
- Advanced Computer Vision
- Advanced Machine Learning
- Advanced Topics in Natural Language Processing
- Artificial Intelligence
- Big Data: Large Scale Machine Learning
- Big Data and ML Systems
- Big Data Science
- Computer Vision
- Data Mining
- Deep Learning
- Foundations of Machine Learning
- Heuristic Problem Solving
- Integrating Machine Learning to Computer Vision
- Logic in Computer Science
- Machine Learning
- Mathematics of Deep Learning
- Natural Language Processing
- Predictive Analytics
- Probabilistic Graphical Models
- Robot Motion Planning
- Social Multiplayer Games
- Statistical Natural Language Processing
- Vision Meets Machine Learning
- Web Search Engines

Databases
- Advanced Database Systems
- Big Data
- Database Systems
- Realtime & Big Data Analytics

Requirement C: A student must complete a designated capstone course with the grade of B (3.0) or better. Alternatively, subject to requirements and prior approval of the DGS, a student may complete a master’s thesis or a capstone advanced lab.

Course ________________________________ Semester_______ Grade_____ Credits: ____
- Advanced Computer Graphics
- Advanced Database Systems
- Cloud Computing
- Compiler Construction
- Distributed Systems
- Graphics Processing Units (GPUs): Architecture & Programming
- Info Tech Projects
- Multicore Processors: Architecture & Programming
- Networks & Distributed Systems
- Networks & Mobile Systems
- Search Engine Architecture
- Software Engineering
- Virtual Machines: Concepts and Applications