MSCS DEGREE REQUIREMENTS FORM EFFECTIVE FALL 2009 *last revised (11/05/2015)*

Name: _____ ID #:_____

Requirement A: 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 B: 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 C: 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
- ✷ Computational Photography
- ✷ Computer Games
- ✷ Computer Graphics
- ✷ Computer Vision
- ✷ Computer Vision and Tracking
- ✷ Experiments in Motion Capture
- ✷ Geometric Modeling
- ✷ Graphics Processing Units (GPUs): Architecture & Programming
- ✷ Interactive Shape Modeling
- ✷ Motion Capture for Gaming & Urban Sensing
- ✷ Multimedia
- ✷ Social Multiplayer Games
- ✷ Special Topics in Computer Animation
- ✷ User Interfaces
- ✷ Visualization

Computation for Science and Society

- ✷ Advanced Cryptography
- ✷ Advanced Topics in Numerical Analysis: Convex & Nonsmooth Optimization
- ✷ Advanced Topics: Data Science
- ✷ Advanced Cryptography
- ✷ Algorithmic & Economic Aspects of Internet
- ✷ Applied Cryptography & Network Security
- ✷ Bioinformatics
- ✷ Bioinformatics and Genomics
- ✷ Computational Biology
- ✷ Computational Fluids
- ✷ Computational Fluid Dynamics
- ✷ Computational PDEs
- ✷ Computational Systems Biology
- ✷ Financial Computing
- ✷ Financial Computing Projects
- ✷ Financial Software Projects
- ✷ High Performance Scientific Computing
- ✷ Immersed Boundary Method
- ✷ Information & Communication for Developing Regions
- ✷ Introduction to Cryptography
- ✷ Linear Programming
- ✷ Monte Carlo Methods
- ✷ Music Software Projects
- ✷ Numerical Methods I
- ✷ Numerical Methods II
- ✷ Numerical Methods for Time-Dependant PDEs
- ✷ Numerical Optimization
- ✷ Scientific Computing
- ✷ Security & Privacy
- ✷ Speech Recognition
- ✷ Social Networks
- ✷ Topics in Digital Media
- ✷ Topics in Numerical Analysis
- ✷ Values Embodied in Information & Communications Technology
- ✷ Variational Inverse Problems
- ✷ Information & Communication Technology for Developing Countries

Intelligent Systems

- ✷ Advanced Computer Vision
- ✷ Advanced Topics in Natural Language Processing
- ✷ Artificial Intelligence
- ✷ Big Data: Large Scale Machine Learning
- ✷ Big Data Science
- ✷ Computer Vision
- ✷ Computational Machine Learning
- ✷ Data Mining
- ✷ Data Warehousing and Mining
- ✷ Deductive Verification of Reactive Systems
- ✷ Deep Learning
- ✷ Formal Methods
- ✷ Foundations of Machine Learning
- ✷ Heuristic Problem Solving
- ✷ Information Science of Marketing
- ✷ Logic in Computer Science
- ✷ Machine Learning
- ✷ Machine Learning & Computational Statistics
- ✷ Mobile Robots
- ✷ Natural Language Processing
- ✷ Optimization in Machine Learning
- ✷ Predictive Analytics
- ✷ Programming Semantics, Analysis & Verification by Abstract Interpretation
- ✷ Robot Motion Planning
- ✷ Robotics
- ✷ Social Multiplayer Games
- ✷ Statistical Natural Language Processing
- ✷ Special Topics in Machine Learning: Probabilistic Graphical Models
- ✷ Topics in Automated Deduction
- ✷ Web Search Engines

Databases

- ✷ Advanced Database Systems
- ✷ Big Data
- ✷ Data Mining
- ✷ Data Warehousing
- ✷ Database System
- ✷ Distributed Storage Systems
- ✷ Realtime & Big Data Analytics

Requirement D: 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