MSCS DEGREE REQUIREMENTS FORM EFFECTIVE FALL 2009 *last revised (12/18/2014)*

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 rolling 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   ✳ Computer Vision and Tracking   ✳ Multimedia
✳ Advanced Computer Vision   ✳ Experiments in Motion Capture   ✳ Social Multiplayer Games
✳ Computational Geometry   ✳ Geometric Modeling   ✳ Special Topics in Computer Animation
✳ Computational Photography   ✳ Graphics Processing Units (GPUs): ✳ User Interfaces
✳ Computer Games   Architecture & Programming   ✳ Visualization
✳ Computer Graphics   ✳ Interactive Shape Modeling
✳ Computer Vision   ✳Motion Capture for Gaming & Urban Sensing

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 Technology for Developing Countries

- ✳ 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
- ✳ Speech Recognition
- ✳ Social Networks
- ✳ Topics in Numerical Analysis
- ✳ Values Embodied in Information & Communications Technology

Intelligent Systems

- ✳ Advanced Computer Vision
- ✳ Advanced Topics in Natural Language Processing
- ✳ Artificial Intelligence
- ✳ Big Data: Large Scale Machine Learning
- ✳ Computer Vision
- ✳ 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
- ✳ 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 advance 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
- ✳ Software Engineering