

**MSCS DEGREE REQUIREMENTS FORM EFFECTIVE FALL 2009** *last revised (6/5/13)*

Name: \_\_\_\_\_ ID #: \_\_\_\_\_

**Requirement A: 36 credits of approved coursework**

- **21** credits - standard graduate CS classroom-based courses.

Course \_\_\_\_\_ Semester \_\_\_\_\_ Grade \_\_\_\_\_ Credits: \_\_\_\_\_

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- **6** credits - standard graduate CS & Math 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: \_\_\_\_\_

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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 Topics in Numerical Analysis: Convex & Nonsmooth Optimization
- \* Advanced Cryptography
- \* Algorithmic & Economic Aspects of Internet
- \* Applied Cryptography & Network Security
- \* Bioinformatics
- \* Computational Biology
- \* Computational Fluids
- \* Computational PDEs
- \* Computational Systems Biology
- \* Cryptographic Tools in Deployed Systems: What Does the Padlock Mean?
- \* 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 for Time-Dependant PDEs
- \* Numerical Optimization
- \* Scientific Computing
- \* Speech Recognition
- \* Social Networks
- \* Topics in Numerical Analysis
- \* Values Embodied in Information and Communications Technology

\* Bioinformatics and Genomics

\* Computational Fluid Dynamics

\* Numerical Methods II

## 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
  - \* Formal Methods
  - \* Foundations of Machine Learning
  - \* Heuristic Problem Solving
  - \* Information Science of Marketing
  - \* Logic in Computer Science
- \* Machine Learning
  - \* Mobile Robots
  - \* Natural Language Processing
  - \* Optimization in Machine Learning
  - \* Programming Semantics, Analysis & Verification by Abstract Interpretation
  - \* 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
- \* Data Mining
- \* Data Warehousing
- \* Database Systems
- \* 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
- \* Info Tech Projects
- \* Multicore Processors: Architecture & Programming
- \* Networks & Distributed Systems
- \* Software Engineering