

# MSCS DEGREE REQUIREMENTS FORM (36 credits with concentration) *last revised (06/26/2024)*

First Name: \_\_\_\_\_ Last Name: \_\_\_\_\_ N number: \_\_\_\_\_ NYU Email: \_\_\_\_\_

Required: 36 credits with concentration in Artificial Intelligence OR Systems/Security (effective Fall 2024)

- **21 credits** – Standard graduate CS classroom-based courses

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

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

- **6 credits** – related electives from CS, Math and Data Science classroom-based courses (3 or 6 credits)

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

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

- Remaining **9 credits** in any of above or outside electives (9 credits); two maximum internships (6 credits max); transfer credits (9 credits max) - see page 2 for the course list; MS Thesis does not fulfill the Capstone requirement

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

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

**Requirement A:** A student must take the three foundational courses and maintain a GPA of 2.667 or higher in the courses:

CSCI-GA 1170-001 Fundamental Algorithms Semester \_\_\_\_\_ Grade \_\_\_\_\_ Credits: \_\_\_\_\_ Notes \_\_\_\_\_

CSCI-GA 2110-001 Programming Languages Semester \_\_\_\_\_ Grade \_\_\_\_\_ Credits: \_\_\_\_\_ Notes \_\_\_\_\_

CSCI-GA 2250-001 Operating Systems Semester \_\_\_\_\_ Grade \_\_\_\_\_ Credits: \_\_\_\_\_ Notes \_\_\_\_\_

**Requirement B: 9 credits** are for concentration of study with Capstone either in Artificial Intelligence OR Systems and Security (see page 2 for the course list). A student must complete ONE concentration study (Artificial Intelligence OR Systems/Security).

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

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

**Requirement C: 3 credits** A student must complete a concentration Capstone course with the grade of B (3.0) or better (see page 2 for the course list)

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

## Artificial Intelligence

- ❖ Advanced Computer Vision
- ❖ Advanced Machine Learning
- ❖ Advanced Topics in Natural Language Processing
- ❖ Artificial Intelligence
- ❖ Bayesian Machine Learning
- ❖ Big Data and ML Systems
- ❖ Big Data Science
- ❖ Big Data: Large Scale Machine Learning
- ❖ Cloud and Machine Learning
- ❖ Computer Vision
- ❖ Conceptual Gaps in Modern Machine Learning
- ❖ Data Analytics and Visualization in Healthcare
- ❖ Data Mining
- ❖ Data Science for Health
- ❖ Deep Generative Models
- ❖ Deep Learning
- ❖ Deep Reinforcement Learning
- ❖ Fair and Ethical Machine Learning for Social Good
- ❖ Foundations of Deep Learning Theory
- ❖ Foundations of Machine Learning
- ❖ Heuristic Problem Solving
- ❖ High Performance Computing for Machine Learning
- ❖ High Performance Machine Learning
- ❖ Integrating Machine Learning to Computer Vision
- ❖ Introduction to Data Science
- ❖ Introduction to Deep Learning Systems
- ❖ Introduction to Machine Learning
- ❖ Learning with Large Language and Vision Models
- ❖ Logic in Computer Science
- ❖ Machine Learning
- ❖ Machine Learning for Healthcare
- ❖ Mathematics of Deep Learning
- ❖ Natural Language Processing
- ❖ Predictive Analytics
- ❖ Probabilistic Graphical Models
- ❖ Responsible Data Science
- ❖ Robot Motion Planning
- ❖ Social Multiplayer Games
- ❖ Statistical Natural Language Processing
- ❖ Vision Meets Machine Learning
- ❖ Web Search Engines

## Artificial Intelligence (Capstone)

- ❖ Big Data and ML Systems
- ❖ Cloud and Machine Learning
- ❖ Deep Reinforcement Learning
- ❖ High Performance Machine Learning
- ❖ Graphics Processing Units (GPUs): Architecture and Programming
- ❖ Multicore Processors: Architecture & Programming
- ❖ Info Tech Projects (approved on a case-by-case basis; requires DGS approval)

## Systems and Security

- ❖ Advanced Database Systems
- ❖ Applied Cryptography and Network Security
- ❖ Big Data Application Development
- ❖ Big Data Realtime & Big Data Analytics
- ❖ Blockchain and Its Applications
- ❖ Cryptocurrencies and Decentralized Ledgers
- ❖ Database Systems
- ❖ Distributed Systems
- ❖ Graphics Processing Units (GPUs): Architecture and Programming
- ❖ High Performance Computing
- ❖ Information and Communication Technology for Developing Countries
- ❖ Introduction to Agent-Based Modeling
- ❖ Introduction to Cryptography

## Systems and Security (Capstone)

- ❖ Advanced Database Systems
- ❖ Big Data and ML Systems
- ❖ Cloud and Machine Learning
- ❖ Cloud Computing
- ❖ Compiler Construction
- ❖ Distributed Systems
- ❖ Graphics Processing Units (GPUs): Architecture & Programming
- ❖ High Performance Computing
- ❖ Multicore Processors: Architecture & Programming
- ❖ Networks & Mobile Systems
- ❖ Software Engineering
- ❖ Networks & Mobile Systems
- ❖ Software Engineering
- ❖ Virtual Reality