MSCS DEGREE REQUIREMENTS (36 credits with concentration) *last revised (04/30/2025)*

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: ____
  Course _____ Semester_____ Grade_____ Credits: ____
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  Course _____ Semester_____ Grade_____ Credits: ____
  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: ____

  Course _____ Semester_____ Grade_____ Credits: ____

  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). For AI concentration, students are **required** to take either CSCI-GA 2560 Artificial Intelligence OR CSCI-GA 2565 Machine Learning.

Course _____ Semester_____ Grade_____ Credits: ____

Course _____ Semester_____ Grade_____ Credits: ____

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
- Computer Vision for Science and Engineering
- Conceptual Gaps in Modern Machine Learning
- Data Analytics and Visualization in Healthcare
- Data Mining
- Data Science for Health
- Deep Decision Making & Reinforcement Learning
- Deep Generative Models
- Deep Learning
- Efficient AI and Hardware Accelerator Design
- Embodied Learning and Vision
- Emerging Topics in Natural Language Processing
- 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 and LLM based Generative AI Systems
- Introduction to Machine Learning
- Learning with Large Language and Vision Models
- Logic in Computer Science
- Machine Learning
- Machine Learning for Healthcare
- Mathematical Foundations of Deep Learning & Large Language Models
- Mathematics of Deep Learning
- Natural Language Processing
- Predictive Analytics
- Probabilistic Graphical Models
- Protein Design
- Randomized Algorithms
- Reinforcement Learning with Foundation 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 Decision Making & Reinforcement Learning
- Deep Learning
- Embodied Learning and Vision
- Graphics Processing Units (GPUs): Architecture and Programming
- High Performance Machine Learning
- Information Technology Projects (approved on a case-by-case basis; requires DGS approval)
- Multicore Processors: Architecture & Programming
- Reinforcement Learning with Foundation Models

Systems and Security

- Advanced Database Systems
- Applied Cryptography and Network Security
- Big Data and ML Systems
- Big Data Application Development
- Blockchain and Its Applications
- Cloud and Machine Learning
- Compiler Construction
- Cryptocurrencies and Decentralized Ledgers
- Cryptography of Blockchains
- Data Communications and Networks
- Database Systems
- Distributed Systems
- Efficient AI and Hardware Accelerator Design
- Encrypted Computation
- Graphics Processing Units (GPUs): Architecture and Programming
- High Performance Computing
- Interactive Proofs
- Introduction to Agent-Based Modeling
- Introduction to Cryptography
- Multicore Processors: Architecture & Programming
- Networks & Mobile Systems
- Programming Parallel Algorithms
- Quantum Computation
- Realtime & Big Data Analytics
- Recent Developments in Algorithm Design
- Software Engineering
- Technologies of Finance
- Virtual Reality

Systems and Security (Capstone)

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