**LEHMAN COLLEGE
OF THE
CITY UNIVERSITY OF NEW YORK**

DEPARTMENT OF COMPUTER SCIENCE

CURRICULUM CHANGE

Name of Program and Degree Award: Computer Science, MS
Hegis Number: 0701.00
Program Code: 83247
Effective Term: Fall 2026

1. **Type of Change:** Change in Degree Requirements

2. **From:**

The Computer Science program is offered for (a) recent graduates who wish to continue their studies while beginning their professional careers; (b) individuals presently employed in computer-related fields who wish to qualify for advanced career opportunities or training; and (c) individuals who seek a career change.

Master's Requirements – Admission Requirements (Prerequisite)
- Bachelor's degree (or its equivalent) from an accredited college or university.
- Demonstrate the potential to successfully pursue graduate study by having attained a minimum undergraduate grade average of B in the field selected for the graduate major and a minimum grade average of B- in the undergraduate record as a whole.
- Have taken the following courses: two semesters of calculus, one semester of linear algebra, two semesters of programming in high-level languages, one semester of programming in assembly language, and one semester in data structures. Admission may be granted with the provision that undergraduate courses will be taken to satisfy these course requirements.
- Two letters of recommendation.
- A 500-word essay outlining intellectual and academic interests, accomplishments, and career objectives.
- If conditionally admitted, satisfy the conditions within one year.

Master's Requirements
Earn at least 36 credits

Complete ~~ALL of~~ the following ~~Courses~~:
- ~~CMP 692 - Programming Languages~~
- ~~CMP 697 - Operating Systems~~
- CMP 761 - Analysis of Algorithms

Earn at least 24 credits

- The remaining six courses must be chosen from among all CMP courses numbered 683 and above.
- Chosen with permission of the Graduate Adviser
- A master's thesis or a written comprehensive examination. The thesis option is subject to approval of the Graduate Adviser.

3. **To:**

The Computer Science program is offered for (a) recent graduates who wish to continue their studies while beginning their professional careers; (b) individuals presently employed in computer-related fields who wish to qualify for advanced career opportunities or training; and (c) individuals who seek a career change.

Master's Requirements – Admission Requirements (Prerequisite)
- Bachelor's degree (or its equivalent) from an accredited college or university.
- Demonstrate the potential to successfully pursue graduate study by having attained a minimum undergraduate grade average of B in the field selected for the graduate major and a minimum grade average of B- in the undergraduate record as a whole.
- Have taken the following courses: two semesters of calculus, one semester of linear algebra, two semesters of programming in high-level languages, one semester of programming in assembly language, and one semester in data structures. Admission may be granted with the provision that undergraduate courses will be taken to satisfy these course requirements.
- Two letters of recommendation.
- A 500-word essay outlining intellectual and academic interests, accomplishments, and career objectives.
- If conditionally admitted, satisfy the conditions within one year.

Master's Requirements

Completion requirement
- Earn a minimum GPA of 3.0. Students are required to maintain a cumulative B average to stay in good standing, and must have an overall B average to graduate. Two consecutive semesters in attendance out of good standing is cause for dismissal.

Earn at least 36 credits

Complete the following Course:
- CMP 761 - Analysis of Algorithms

Complete at least 2 of the following Courses:
- CMP 697 - Operating Systems
- CMP 743 - Principles of Communications Networks
- CMP 758 - Database Systems

- CMP 765 - Artificial Intelligence
- CMP 776 - Parallel Algorithms and Architecture

Earn at least 24 credits
- The remaining six courses must be chosen from among all CMP courses numbered 683 and above.
- Chosen with permission of the Graduate Adviser
- A master's thesis or a written comprehensive examination. The thesis option is subject to approval of the Graduate Adviser

4. **Rationale:**
The Department of Computer Science is revising the degree requirements for the MS program to better reflect the contemporary expectations for graduate students and to align more closely with courses currently available to students.

First, maintaining a 3.0 GPA is a requirement specified in Lehman College's graduate bulletin, which the program has consistently followed. We restate this requirement in our curriculum to ensure clarity and transparency for the students.

Secondly, we propose removing CMP 692 - Programming Languages from the requirements: this is a course that is currently not consistently offered.

Thirdly, we propose establishing a core set that requires students to choose at least two of the following:
- CMP 697 - Operating Systems: This course studies the functions and implementation of operating systems for various sizes and types of computers. It provides a foundation for understanding how computers execute programs and manage resources, and is essential for many areas of computer science, such as systems and networks. We move this course from the fixed core to the flexible core set because we believe this is no longer a necessity for all areas.
- CMP 743 - Principles of Communications Networks: Networking is fundamental for communication and exchanging data between computer systems. This course studies the most important network protocols at each layer and introduces basic network algorithms. Mastery of these topics is essential for students to build and evaluate networked applications and for advanced work such as cloud computing and network security.
- CMP 758 - Database Systems: Database systems are the backbone of almost every modern software and data-driven research. It is crucial to understand how to store, organize and retrieve data efficiently, and this course teaches students how to use and design database systems.
- CMP 765 - Artificial Intelligence: AI is the fastest-growing area in computer science. Countries around the world are competing in this area, creating numerous job opportunities. This course introduces students to this discipline and covers contemporary topics such as pattern recognition, speech recognition, and natural language processing.
- CMP 776 - Parallel Algorithms and Architecture: With modern computing platforms increasingly relying on multiple processing elements and cloud

clusters, understanding parallel algorithms and architectures has become essential for achieving high performance in real-world applications.

This proposed flexible core requirement ensures that all MS students gain exposure to at least two of the five fundamental areas of computer science—systems, data management, networking, artificial intelligence, and high-performance computation — while also allowing students to tailor their studies to their career goals or research interests. We expect this revised curriculum to strengthen learning outcomes of the major and the department, provide clearer guidance to our students, and better prepare graduates for contemporary research and professional opportunities.

5. **Date of departmental approval: 12/15/2025**

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CURRICULUM CHANGE

1. **Type of change:** New Course

2.

Department(s)	Computer Science
Career	[ ] Undergraduate [X] Graduate
Academic Level	[X] Regular [ ] Compensatory [ ] Developmental [ ] Remedial
Subject Area	Computer Science
Course Prefix & Number	CMP 766
Course Title	Machine Learning
Description	This course provides a broad introduction to applied machine learning models and algorithms. Topics include machine learning concepts; handling, cleaning, and preparing data; main categories of machine learning models; theory of optimizing a machine learning model; selecting and engineering features; selecting a model and tuning hyper-parameter using cross-validation; main challenges of machine learning.
Pre/ Co Requisites	
Credits	4
Hours	4
Liberal Arts	[ ] Yes [X] No
Course Attribute (e.g. Writing Intensive, WAC, etc)	

General Education Component	_X__ Not Applicable ____ Required ____ English Composition ____ Mathematics ____ Science ____ Flexible ____ World Cultures ____ US Experience in its Diversity ____ Creative Expression ____ Individual and Society ____ Scientific World

3. **Rationale:**

Machine learning is a method of data analysis that automates analytical model building. Such systems can learn from data, identify patterns, and make decisions with minimal human intervention. With the growing volumes and varieties of datasets in recent decades, there is a large job market for experts who can analyze the massive datasets and make data-driven decisions by utilizing machine learning models.

This course would prepare Computer Science students with the essential programming tools and machine learning techniques that can be applied to various data analysis tasks. Moreover, it will help students practice the application of quantitative analysis and interpretation skills to draw conclusions based on real-world information. Both skills are crucial for students who want to succeed in a data science career.

4. **Learning Outcomes (By the end of the course students will be expected to):**

- Handle large volumes of data using python scientific libraries.

- Understand the concepts and procedures for popular machine learning algorithms.

- Given a particular learning task, build a machine learning model and train the model on the training dataset.

- Tuning a machine learning model to improve its performance.

- Evaluate the performance of the machine learning model by using the test dataset properly.

5. **Date of Departmental Approval: 12/15/2025**