# MS IN COMPUTER SCIENCE

## Program Overview

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| **Program Coordinator** | Kaitlin Hoffmann, (845) 257-3533, hoffmank4@newpaltz.edu |
| **Program ID** | 270 |
| **Credits** | 30 |
| **Program Length** | MS can be completed in 3 semesters if enrolled full-time, but students must complete degree within 7 years |
| **Modality** | In-person |
| **Full-time/Part-time** | Full-time or Part-time |
| **Transfer Credits** | 6 |
| **Capstone** | Comprehensive Exam or Thesis |

## Program Description

SUNY New Paltz offers a 30-credit master's degree program in Computer Science, designed to help students from all backgrounds advance to new careers in technology fields. Our mission is to prepare the next generation of application developers, start-up entrepreneurs, and business analysts to thrive in a rapidly-changing world. This program offers:

**Flexible Course Scheduling**

Our Fall and Spring semester courses are offered in-person, and the summer courses are offered online. The full program can be completed in as few as 3 semesters of full-time study. A typical full time student takes three courses (9 credits) per semester.

**Building Foundation and Skills**

Our curriculum is focused on building a strong foundation in the theoretical concepts of computer science, while introducing applicable skills in areas like machine learning, web and database development, cybersecurity, and data science.

**Faculty and Facilities**

Courses are taught by dedicated faculty who are experts in their fields with active research programs. Our network and security lab provides advanced computing facilities.

**Responsive Curriculum**

Our curriculum is constantly evolving in step with current trends in technology, emphasizing the skills that employers – especially in the Hudson Valley's growing tech industries – need right now.

**Accessible Format**

Admission to the program is open to ALL undergraduate majors. While many of our students enter the program with undergraduate degrees in computer science or related fields, many successful candidates have come from fields as varied as Philosophy, Fine Arts, Journalism, Business, and Biology.

## Admission Requirements

- One set of official transcripts for all undergraduate and graduate course work, including a baccalaureate transcript from a regionally accredited institution, indicating at least a 3.0 cumulative grade point average.
  - *An evaluation from a member of NACES is required for all international applicants. You may find member organizations from the NACES website: https://www.naces.org/members.*
- Admission Essay
- Three letters of reference.
- Satisfactory TOEFL or IELTS scores for students who have a non-US degree.
- GRE and Resume are optional.

## Application Deadlines

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|---|---|
| **Rolling Admissions** | Fall Admission |
| **Rolling Admissions** | Spring Admission |

Accepting on a rolling basis until the program is full.

## Curriculum Requirements

Graduate study in Computer Science enables students to individualize their program of study by pursuing ten computer science courses (30 credits) and passing a comprehensive exam, or completing eight courses (24 credits) and delving into a 6-credit thesis project. This flexibility allows students to explore conceptually-based classes, enhance technical skills through applied learning courses, stay abreast of current trends in the field through a wide range of special topics courses, and engage in research by pursuing an optional six-credit thesis.

### Sample comprehensive exam option

| Code | Title | Credits |
|---|---|---|
| **Individualized Comprehensive Exam Track (30 Credits)** | | |
| Select 10 courses by advisement and complete a comprehensive exam. | | 30 |
| CPS502 | Discrete Structures | |
| CPS526 | Advanced Data Structures | |
| CPS530 | Computer Networks | |
| CPS534 | Foundations of Computer Science | |
| CPS536 | Machine Learning | |
| CPS540 | Artificial Intelligence | |
| CPS551 | Programming and Data Structures | |
| CPS553 | Web and Database Programming | |
| CPS554 | User Interface Programming | |
| CPS580 | Functional Programming | |
| CPS593 | Computer Science Selected topic * | |
| CPS594 | Fieldwork Comp Science | |
| Comprehensive Exam | | |
| **Total Credits** | | **30** |

* Recently offered special topics courses include Cybersecurity and Database Management.

### Sample thesis option

| Code | Title | Credits |
|---|---|---|
| **Individualized Thesis Track (30 Credits)** | | |
| Select 8 courses by advisement and complete a thesis. | | 24 |
| CPS502 | Discrete Structures | |

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|---|---|---|
| CPS526 | Advanced Data Structures | |
| CPS530 | Computer Networks | |
| CPS534 | Foundations of Computer Science | |
| CPS536 | Machine Learning | |
| CPS540 | Artificial Intelligence | |
| CPS551 | Programming and Data Structures | |
| CPS553 | Web and Database Programming | |
| CPS554 | User Interface Programming | |
| CPS580 | Functional Programming | |
| CPS593 | Computer Science Selected topic * | |
| CPS594 | Fieldwork Comp Science | |
| CPS590 | Thesis in Computer Science | 6 |
| **Total Credits** | | **30** |

* Recently offered special topics courses include Cybersecurity and Database Management.

# Graduate Checklist

- Apply for graduation via my.newpaltz.edu under “Graduation” tab according to the schedule in the academic calendar.
- Resolve any pending admission conditions (outlined in your acceptance letter) and/or missing documents if applicable.
- Review your progress report via my.newpaltz.edu to ensure that you have completed all program requirements.
- Remember that only two grades below a B- may be applied to your plan of study
- Contact your advisor if you need to amend your plan or process transfer credit.
- Ensure that you are in good academic standing with a GPA (Grade Point Average) of 3.0 or higher.
- Pass your capstone or culminating assessment.
- Complete your degree within the specified time limit outlined in the Program Overview.

# Program Requirements

- File a “plan of study” during the first semester after matriculation.
- Complete prescribed course work within seven years after matriculation.
- Complete course work with a cumulative grade point average of 3.0 or better. No more than two grades below B- will count toward the degree.
- Pass the comprehensive examination or submit a thesis.
- Submit degree application (see the Graduation Information website for due date).

## Program Learning Outcomes

**Computer Science (MS)**

- Develop skill in programming in several high-level languages, assembly language, machine language, and microcode.
- Develop the ability to learn new programming languages without formal instruction.
- Design and analyze algorithms.
- Design a new programming language and write a compiler or interpreter for it.
- Apply object-oriented programming and software engineering principles.
- Design and implement digital circuits.
- Understand the structure and operation of a modern operating system.
- Understand theoretical computer science concepts, such as the Turing machines and automata and computability theory.
- Understand continuous and discrete mathematical structures relevant to computing.