Computer Science

At the Khoury College of Computer Sciences, we are inspired by an increasingly interconnected society, informed by a rapidly changing job market, and focused on addressing the challenges of a complex world. Our goal is to equip students with knowledge as diverse as it is deep. Our programs provide a strong technical foundation and an essential understanding of computing concepts while integrating computer and data sciences across disciplines and industries.

Our master's degrees are advanced programs that are designed to prepare students to be job ready through a rigorous curriculum, innovative research, experiential learning, and a collaborative environment rich in faculty expertise.

Our research-driven doctoral programs offer students an opportunity to engage in exciting projects, a vibrant community, and a challenging curriculum that offers breadth and depth in areas both within computer science and across disciplines throughout Northeastern University.

Graduate education in computer science also features the top-ranked Northeastern co-op program, enabling students to supplement their classroom education with real-world experience in the field.

Doctor of Philosophy in Computer Science

The PhD program in computer science is designed to prepare students for careers in academia and industry—from conducting research to developing systems to publishing and presenting papers. The rigorous curriculum provides a broad background in the fundamentals of computer science and advanced courses in a wide range of focus areas.

The past decade has witnessed a dramatic increase in Northeastern's international reputation for research and innovative educational programs. Since 2014, the Khoury College of Computer Sciences has hired 71 outstanding faculty members and plans to continue this strategic growth in the coming years, advancing its position (http://csrankings.org/) among the nation's top research universities. Today, the college has a diverse faculty (https://www.ccis.northeastern.edu/role/tenured-and-tenure-track-faculty/) of 103 working in a wide range of research areas (https://www.ccis.northeastern.edu/research/research-areas/). Forty-one faculty members have joint appointments with other colleges and schools including engineering, science, business, social sciences and humanities, health sciences, law and arts, and media and design.

Master of Science in Computer Science

Northeastern's Master of Science in Computer Science is designed to prepare students for a variety of careers in computer science. The program combines both computing and important application domains—enabling students to increase their broad-based knowledge in the field while focusing on one curricular concentration selected from a range of options including artificial intelligence, computer-human interaction, graphics, programming languages, software engineering, data science, networks, theory, game design, systems, and information security.

Align Master of Science in Computer Science

MSCS—Align students come from a wide variety of backgrounds—with undergraduate majors ranging from math, biology, history, engineering, and classics. In this program, students have an opportunity to acquire both the knowledge needed to transition into a new career and the practical skills to build the next great app.

MSCS—Align Online students take online courses from anywhere, with the flexibility to complete the courses fully online or transfer to one of our strategically located campuses after completing the bridge portion of the program. Align Online students will also have three in-person campus visits during the first two semesters to form peer and professional connections. The MSCS—Align Online option is not an F-1 compliant program.

Graduate Certificate in Computer Science

The postbaccalaureate certificate is designed to give students a solid foundation in the mathematical and theoretical underpinnings of computer science, including the areas of discrete mathematics, basic programming, data structures, object-oriented programming, algorithms, and computer systems. The goal of the certificate is to provide foundational knowledge in computer science that is valuable in both the workplace for career advancement as well as to those looking to move into graduate programs within the discipline.

The Graduate Certificate in Computer Science will serve as the foundational premaster's courses in the Align program.

Graduate Certificate in Data Analytics

The interdisciplinary Graduate Certificate in Data Analytics is offered through a collaboration between the Khoury College of Computer Sciences and the College of Social Sciences and Humanities. The certificate curriculum emphasizes the skills needed to bridge between emerging technological capacities and traditional policymaking processes. The program is designed to provide students with foundational knowledge in data science—including data management, machine learning, data mining, statistics, and visualizing and communicating data—that can be applied to data-driven decision making in any discipline.

Graduate Certificate in Inclusive Computer Science Education

The Graduate Certificate in Inclusive Computer Science Education is designed to prepare students to teach computer science principles and concepts in the context of a K–12 environment. Building on the successful Computer Science—Align program, this certificate assumes no prior computer science experience. Through coursework and project-based learning, students have an opportunity to obtain the foundational knowledge necessary to teach basic computing concepts and programming at a variety of educational levels both as stand-alone courses and integrated into other disciplines.

The certificate emphasizes how teachers can create an inclusive classroom environment, actively work to dispel stereotypes, and build student confidence. Students who finish this certificate will be well positioned to obtain K–12 certification in computer science.

Programs

Doctor of Philosophy (PhD)

- Computer Science (Boston) (https://catalog.northeastern.edu/graduate/computer-information-science/computer-science/computer-science-phd/)
- Network Science (Boston) (https://catalog.northeastern.edu/graduate/social-sciences-humanities/interdisciplinary/network-science-phd/)
- Personal Health Informatics (Boston) (https://catalog.northeastern.edu/graduate/computer-information-science/interdisciplinary/personal-health-informatics-phd/)

Master of Science (MS)

- Artificial Intelligence (Boston) (https://catalog.northeastern.edu/graduate/university-interdisciplinary-programs/artificial-intelligence-ms-bos/)
- Artificial Intelligence (Portland) (https://catalog.northeastern.edu/graduate/computer-information-science/computer-science/artificial-intelligence-ms-ptl/)
- Artificial Intelligence (Seattle) (https://catalog.northeastern.edu/graduate/computer-information-science/computer-science/artificial-intelligence-ms-sea/)
- Artificial Intelligence (Silicon Valley) (https://catalog.northeastern.edu/graduate/computer-information-science/computer-science/artificial-intelligence-ms-sjo/)
- Complex Network Analysis (Boston) (https://catalog.northeastern.edu/graduate/university-interdisciplinary-programs/complex-network-analysis-ms-bos/)
- Data Science (Boston) (https://catalog.northeastern.edu/graduate/university-interdisciplinary-programs/science-data-ms-bos/)
- Data Science (Portland) (https://catalog.northeastern.edu/graduate/computer-information-science/computer-science/data-science-ms-ptl/)
- Data Science (Silicon Valley) (https://catalog.northeastern.edu/graduate/computer-information-science/computer-science/data-science-ms-sjo/)
- Data Science—Align (Boston) (https://catalog.northeastern.edu/graduate/university-interdisciplinary-programs/data-science-align-ms-bos/)
- Data Science—Align (Portland) (https://catalog.northeastern.edu/graduate/computer-information-science/computer-science/data-science-ms-align-ptl/)
- Data Science—Align (Silicon Valley) (https://catalog.northeastern.edu/graduate/computer-information-science/computer-science/data-science-ms-align-sjo/)
- Extended Realities (Boston) (https://catalog.northeastern.edu/graduate/university-interdisciplinary-programs/extended-realities-ms-bos/)
- Game Science and Design (Boston) (https://catalog.northeastern.edu/graduate/arts-media-design/art-design/game-science-design-ms/)
- Internet of Things (Boston) (https://catalog.northeastern.edu/graduate/engineering/electrical-computer/internet-things-ms/)
- Robotics (Boston) (https://catalog.northeastern.edu/graduate/university-interdisciplinary-programs/robotics-ms-bos/)
- Robotics (Seattle) (https://catalog.northeastern.edu/graduate/university-interdisciplinary-programs/robotics-ms-sea/)
- Statistics (Boston) (https://catalog.northeastern.edu/graduate/university-interdisciplinary-programs/statistics-ms-bos/)
- Statistics (https://catalog.northeastern.edu/graduate/university-interdisciplinary-programs/statistics-ms-connect-bos/)—Connect (Boston)

Master of Science in Computer Science (MSCS)

- Computer Science (Boston) (https://catalog.northeastern.edu/graduate/computer-information-science/computer-science/computer-science-mscs/)
- Computer Science (Arlington) (https://catalog.northeastern.edu/graduate/computer-information-science/computer-science/computer-science-mscs-arl/)
- Computer Science (Miami) (https://catalog.northeastern.edu/graduate/computer-information-science/computer-science/computer-science-mscs-mia/)
- Computer Science (Oakland) (https://catalog.northeastern.edu/graduate/computer-information-science/computer-science/computer-science-mscs-oak/)
- Computer Science (Portland) (https://catalog.northeastern.edu/graduate/computer-information-science/computer-science/computer-science-mscs-ptl/)
- Computer Science (Seattle) (https://catalog.northeastern.edu/graduate/computer-information-science/computer-science/computer-science-mscs-sea/)
- Computer Science (Silicon Valley) (https://catalog.northeastern.edu/graduate/computer-information-science/computer-science/computer-science-mscs-sjo/)
- Computer Science (Vancouver) (https://catalog.northeastern.edu/graduate/computer-information-science/computer-science/computer-science-mscs-van/)
- Computer Science—Align (Boston) (https://catalog.northeastern.edu/graduate/computer-information-science/computer-science/computer-science-mscs-align/)
- Computer Science—Align (Arlington) (https://catalog.northeastern.edu/graduate/computer-information-science/computer-science/computer-science-mscs-align-arl/)

- Computer Science—Align (Miami) (https://catalog.northeastern.edu/graduate/computer-information-science/computer-science/computer-science-mscs-align-mia/)
- Computer Science—Align (Oakland) (https://catalog.northeastern.edu/graduate/computer-information-science/computer-science/computer-science-mscs-align-oak/)
- Computer Science—Align (Portland) (https://catalog.northeastern.edu/graduate/computer-information-science/computer-science/computer-science-mscs-align-ptl/)
- Computer Science—Align (Seattle) (https://catalog.northeastern.edu/graduate/computer-information-science/computer-science/computer-science-mscs-align-sea/)
- Computer Science—Align (Silicon Valley) (https://catalog.northeastern.edu/graduate/computer-information-science/computer-science/computer-science-mscs-align-sjo/)
- Computer Science—Align (Vancouver) (https://catalog.northeastern.edu/graduate/computer-information-science/computer-science/computer-science-mscs-align-van/)

Graduate Certificate

- Computer Science (Boston) (https://catalog.northeastern.edu/graduate/computer-information-science/computer-science/computer-science-graduate-certificate/)
- Data Analytics (Boston) (https://catalog.northeastern.edu/graduate/computer-information-science/computer-science/data-analytics-graduate-certificate/)
- Inclusive Computer Science Education (Portland) (https://catalog.northeastern.edu/graduate/computer-information-science/computer-science/inclusive-computer-science-education-graduate-certificate/)