

# Computer Science

Computer Science is the study of computers and their applications, with the goal of discovering what is possible for humans to achieve through computation. While it may seem to the general public that computers are disappearing, as desktops and laptops are replaced by smart phones and tablets, and our applications and data retreat into “the cloud,” what is really happening of course is that we are embedding more powerful, smarter computers and apps deeper into our lives than ever before. It is our job as computer scientists to envision what comes next, and to then implement it. You can choose to work designing the next generation of smart devices themselves, or you can use your new expertise to innovate computational applications in any field of interest to you.

The Computer Science major will train you in computer programming (including graphics programming and Internet programming), computer theory, and even some computer hardware design. Many of our graduates go on to get advanced degrees in Computer Science and many use their degree to open the door to a fascinating career. Our majors have the opportunity to compete in regional programming contests, to attend undergraduate research conferences, to participate in our student-oriented computing clubs, and even to work on original research projects!

## Skills and Competencies

Your education at NMU will be well-utilized when you enter the job market or continue your education in graduate school. Communication skills are absolutely necessary in any career field today, so be sure to take advantage of the opportunities to develop strong speaking and writing skills. Moreover, your research skills, critical thinking, problem-solving ability, and general analysis skills will be sharpened through your mathematics and computer science courses, and also through various elective courses.

## Course Work

This degree includes the following courses as part of the program requirements, and specific major requirements along with general education and graduation requirements.

### Core

- CS120 Computer Science I (4 cr.)
- CS122 Computer Science II (4 cr.)
- CS201 Programming in C++ (3 cr.)
- CS222 Data Structures (4 cr.)
- CS228 Network Programming (3 cr.)
- CS322 Princ. of Programming Languages (4 cr.)
- CS326 Object-Oriented Design (3 cr.)
- CS330 Microcomputer Architecture (4 cr.)
- CS422 Algorithms Design and Analysis (3 cr.)
- CS426 Operating Systems (4 cr.)
- CS480 Senior Project in Computer Science (4 cr.)

### Other Required Courses

- MA161 Calculus I (4 cr.)
- MA163 Calculus II (4 cr.)
- MA211 Linear Algebra (3 cr.)
- MA240 Discrete Mathematics (4 cr.)
- MA courses 265+\*
- Choose from the following:
  - CIS464 Database Mgmt Systems (4 cr.)
  - CS300+\*
  - MA265+\*

### Minor\*\* (16 cr.)

*\*There are exceptions, reference the Bulletin.*

*\*\*Mathematics may be declared as a minor and courses under Other Required Courses may count toward that minor.*

*Detailed course descriptions can be found at [www.nmu.edu/bulletin](http://www.nmu.edu/bulletin).*

## Career Development

You should begin the resume-building process as soon as you can. The Academic and Career Advisement Center can assist you with career planning, while Career Services will help you fine tune your resume and look for jobs related to your field. In the meantime, the more hands-on experience you have, the better you prepare for employment. Becoming involved in a professional related internship is a way to develop your professional skills and gain experience. Your academic course work is important as well, so be sure to maintain a high grade point average.

## Additional Considerations

It is important to make “contacts” if you are interested in securing governmental employment.

Some of these positions may require special certification. A minor or second major in business may be helpful, as would obtaining an internship.

Remember to take any necessary exams early; it can take six weeks for results to be sent to the schools to which you applied.

## Job Outlook

Starting salaries are contingent upon geographic location and the individual applicant’s work experience and initiative and can range anywhere from \$49,000 to \$101,000. Computer science is projected to be one of the fastest growing occupations over the next decade increasing 14 to 20 percent. Strong employment growth combined with a limited supply of qualified workers will result in excellent employment prospects for this occupation and a high demand for its skills.

# Potential Careers

NMU's Computer Science Program prepares students for employment in the following careers:

- Application Developer
- Computer Science Professor
- Database Analyst
- Engineering
- Game Programmer
- IT Consultant
- Market Research Analyst
- Programmer Analyst
- Senior Java Developer
- Senior Web Developer
- Share-point Developer
- Software Engineer
- Systems Operator
- Technical Institutes

# Additional Resources and Information

For Career Planning and Opportunities:  
Academic & Career Advisement Center  
3302.1 C.B. Hedgcock  
906-227-2971  
[www.nmu.edu/acac](http://www.nmu.edu/acac)

Mathematics and Computer Science  
Department  
2200 Jamrich Hall  
906-227-2020  
[www.nmu.edu/math](http://www.nmu.edu/math)

For Job Search, Resume and Career Information:  
Career Services  
3302.3 C.B. Hedgcock  
906-227-2800  
[www.nmu.edu/careers](http://www.nmu.edu/careers)

For Information about NMU Student Organizations Associated with this Major Contact:  
Center for Student Enrichment  
1206 University Center  
906-227-2439  
[www.nmu.edu/cse](http://www.nmu.edu/cse)

Association for Computing Machinery  
<http://csc.nmu.edu> (acm@nmu.edu)  
Facebook: NMU Computer Science  
NMU ACM

NMU Robotics Club  
Facebook: NMU Robotics (jhorn@nmu.edu)

Internet Resource Links:  
[www.careers.org](http://www.careers.org)  
[www.bls.gov](http://www.bls.gov)

For Career Information with National Organizations:

[www.afcom.com](http://www.afcom.com) -Assoc. for Comp. Operations Mgmt  
[www.acm.org](http://www.acm.org) -Assoc. for Computing Machinery  
[www.ieee.org](http://www.ieee.org) -Professional Association for Advancement of Technology  
[www.isoc.com](http://www.isoc.com) -The Internet Society



**NORTHERN MICHIGAN  
UNIVERSITY**

MARQUETTE, MICHIGAN

The Academic & Career Advisement Center  
2021



What to do with  
a major in...

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