What is Computer Science?

Computer science is shaping the future. A degree in computer science can help shape yours.

Michigan CS students have the opportunity for unique experiences through participation in sponsored events, interdisciplinary student teams, and student organizations.

Sponsored Events
CS students can hone their skills, have fun, and learn a few tricks while participating in department-sponsored hackathons and programming contests, and at similar events which take place at the U-M level or through corporate-sponsored events.

Multidisciplinary Student Teams
Many CS students participate in student teams that design and build systems to compete in national and international competitions. Almost always, CS is a critical component for team success. These teams include Michigan Autonomous Aerial Vehicles, UM:Autonomy, U-M Programming, U-M Solar Car, Hybrid Racing, and the Mars Rover Team. Other groups that advance societal good also need CS students, including BLUELab, E-MAGINE, and M-HEAL.

CS Student Organizations

- Michigan Hackers: Experimenting with technology
- gEECS: Girls in electrical engineering and computer science
- MSAIL: Artificial intelligence group
- HKN:Eta Kappa Nu honor society
- Wolverine Soft: Video game development
- CSE Scholars: Students promoting the field of CS

Computer science is an integral part of our lives, shaping virtually everything from the objects around us to the ways in which we communicate, travel, work, and play. And the computer revolution has just begun — CS is now a key enabler for discovery and innovation in most other fields of endeavor, making it an incredibly relevant course of study.

Michigan CS students created a suite of mobile education apps for use in K-12 classrooms in Singapore.

A student in the CS sound lab experiments with new interfaces and modalities for musical expression.

Computing has made possible undertakings such as landing the Curiosity rover on Mars, managing patient care to avoid undesired drug interactions, revolutionizing K-12 teaching and learning through the use of mobile devices, and even the creation of a computer that can win at Jeopardy.

As a CS student, you'll gain expertise in the development of software applications, in creating and analyzing algorithms for a variety of applications, or in designing a new and emerging area of specialization. It's a field of unbounded potential — get ready to change the world!

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Computer Science Programs in Computer Science

Concentration in Computer Science

Gain the knowledge to solve big problems in new ways! With a Bachelor’s degree in Computer Science, you’ll be ready to make an impact in health care, entertainment, business, the performing arts, education, transportation, the environment — or virtually any other part of your world. Completing a CS concentration generally requires about five pre-concentration courses and nine concentration courses.

Minor in CS

Gaining a minor in Computer Science is a smart way to broaden your horizons and make yourself more marketable to employers.

Concentration in CS

- Math 115
- EECS 184, EECS 185, or EECS 186
- EECS 188
- Math 116
- EECS 180
- CS 101
- CS 102
- CS 103

LSA Requirements:
- Satisfy one of the following:
  - 9 hrs of Upper-Level CS Courses
  - One of the Approved Tracks or 16 hrs of Upper-Level CS Courses

Capstone Experience

- Taking full CS 299 in senior year
- Satisfy one of the following:
  - 12 hrs of Upper-Level CS Courses
  - EECS 282, ENGR 101, or Relevant Previous Experience

Electives:
- One of the Approved Tracks or 16 hrs of Upper-Level CS Courses

Legend

- Pre-requisite for Some
- Enforced Prerequisites
- Electives

Artificial Intelligence: Learn the fundamentals of AI through theoretical, experimental, and applied investigations of intelligent systems.

Bioinformatics: Advance your future as a bio-tech scientist who participates in biological research and development.

Data and Information: Meet the challenges of big data via information management and through database design and implementation.

Economics and Computation: Build your capability to think economically about computation, and computationally about economics and markets.

Robotics and Vision: Learn the fundamentals of using robots as mobile information gathering and decision making platforms.

Security: Learn concepts and practices for secure hardware and software design, modern cryptography, and critical security applications.

Software Development: Gain the ability to analyze, design, test, and maintain large software systems and the team skills needed to engage in these efforts.

Software Systems: Tackle the challenges associated with creating operating systems, compiling systems, database systems, and networks.

Theory of Computation: Gain the rigorous mathematical training applicable to a variety of current and emerging computing challenges.

Innovative Tracks of Study

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Future Outlook

Entrepreneurship

Computer science students are uniquely empowered to launch new ventures with the potential to transform industries and lives. You’ll find student groups and campus resources that can help get your startup off the ground, including the Center for Entrepreneurship, the TechArb incubator, and MPower. A CS degree, the connections you develop at U-M, and the assistance offered through these programs all help you realizing your dream.

Companies Hiring Recent Grads:

- 2K Sports
- Apple Inc.
- Arbor Networks
- Are You A Human!
- Autodesk, Inc.
- Back Bay Financial
- Barracuda Networks
- Black Rock
- Bloomberg
- Bosch
- Caltech Health
- Cisco Systems
- Disney
- Dow Chemical USA
- DreamWorks
- DreamWorks SKG
- DRW Trading Group
- Dusa Security
- Electronic Arts (EA)
- eF ate Software Studios
- Epic
- Facebook
- Ford Motor Company

CS Grads Get Jobs!

Computer Science is a growing, exciting field that is an integral part of virtually every field of study. Computer scientists are in high demand, are well paid, and have enormous opportunity for societal impact. CS occupations are projected to account for nearly 60% of all job growth between 2012 and 2018! Michigan CS graduates are highly sought after, and our students often have multiple job offers by the time they graduate.

Full-Time Positions — Median annual salaries (2011)

- $74,000 (with Bachelor’s)
- $90,000 (with Master’s)

Internships — Median monthly pay (2011)

- $4,900 (during undergrad)
- $6,000 (during Master’s)

Medians are based on salary surveys, the rigorous mathematical training applicable to a variety of current and emerging computing challenges.

CS students collaborate on a project as part of their Capstone Experience course.

Students are helping to build intelligent robot systems for search and rescue.

These student entrepreneurs created an app, now publicly available, to encrypt text messages for all but the intended recipient.