Computer science is concerned with the study of the hardware, software, and theoretical aspects of high-speed computing devices and the application of these devices to a broad spectrum of scientific, technological, and business problems.

The curriculum gives students a basic understanding of computer science. After completing a required set of fundamental courses, students can arrange their subsequent work around one of several upper division emphases. These emphases allow concentrations within computer science. This should prepare a student for a variety of industrial, governmental, and business positions involving the use of computers, or for graduate work in the field.

**Admission Requirements**

Applicants must have a minimum modified GPA of 2.70 (all grades from repeated attempts of each grade count) in the required math and CSci courses listed below, and must complete all these courses with a grade of C- or better.

- Math 1271—Calculus I or Math 1371—Calculus: Concepts, Explorations, and Applications I
- Math 1272—Calculus II or Math 1372—Calculus: Concepts, Explorations, and Applications II
- Math 2243—Linear Algebra and Differential Equations
- CSci 1901—Structure of Computer Programming I
- CSci 1902—Structure of Computer Programming II
- CSci 2011—Discrete Structures of Computer Science

**Degree Requirements**

To complete the B.A., students must complete at least 120 credits. Students take three courses in mathematics and one statistics course. The major consists of 41 CSci credits, including eight required courses and an upper division emphasis. The upper division emphasis is any program that (1) forms a coherent academic program in an area of computer science; (2) consists of at least 3 upper division (5xxx-level) elective courses totaling 9 semester credits; (3) contains at most 3 credits of CSci 59xx or 4970 course. The purpose of this emphasis is to allow students to select a coherent program of courses specific to their interests.

Finally, students must also complete a major project. All courses below must be taken A-F and passed with a C- or better.

**Required Courses**

- CSci 2021—Machine Architecture and Organization
- CSci 4011—Formal Languages and Automata Theory
- CSci 4041—Algorithms and Data Structures
- CSci 4061—Introduction to Operating Systems
- CSci 4081—Introduction to Software Engineering
- Stat 3021—Introduction to Probability and Statistics

**Final Project**

The major project requirement may be fulfilled either by taking CSci 4970—Advanced Project Laboratory (this requires finding a suitable project and a faculty member willing to supervise the project), or by taking one of the following courses: 5107, 5115, 5512, 5801, 5802. (This list will be updated periodically.) To fulfill the senior project requirement a course must contain a project that is substantial both in terms of time and scope. It should require at least six weeks of work and involve a number of different tasks such as designing, implementing, testing, and documenting a
significant computer program. The project may be done in groups, and the course fulfilling the project, whether 4970 or one of the other courses, may be used as part of the upper division emphasis.

**Minor Requirements**

The minor consists of at least five 3- or 4-credit approved computer science courses. All courses must be taken A-F and only courses completed with a grade of C- or better count toward the minor. At least three courses must be CSci courses taken at the University. Up to two courses may be taken in another department or institution if they are equivalent to a CSci course. At least one course must be at the 5xxx level. Only computer science courses for majors are acceptable. In particular, 11xx and some 21xx-level CSci courses are not acceptable.

**What can I do with a major in computer science?**

**Skills**

**Computer Science** majors develop skills that are applicable to a wide variety of careers. These skills include:

- Technical knowledge and skills
- Analytical and problem solving skills
- Independent, self-motivated work ethic
- Ability to formulate clear and persuasive messages
- Ability to work well with diverse groups

**Employment**

Common areas of employment for this major include but are not limited to:

- **Computing**—programming, systems development, network technology, Internet
- **Other business**—consulting, marketing, sales, technical writing, training
- **Education**—teaching, research, administration
- **Government**—public information, campaigns, research, diplomacy
- **Nonprofit**—administration, training

Today’s workplace requires individuals with interpersonal skills, the ability to communicate effectively, an ability to solve problems, and adaptability. CLA graduates find that they are well-prepared in all these areas and that their education—especially when combined with experience gained through internships, volunteer positions, past jobs, and other collegiate involvement—makes them competitive.

The **Career & Community Learning Center** provides students with the tools to identify and pursue potential careers. An extensive resource room, the CLA Link website, career courses and workshops, and a helpful staff are just some of the ways we can help.

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**How do I declare a computer science major?**

You will be required to declare a major by the time you have completed 60 credits.

1. Talk with someone from the department: an adviser, a professor, or a teaching assistant to learn more about the major. You may wish to also talk with students who are already in the major.

2. If you decide upon computer science as a major, fill out a petition form stating that you would like to be admitted to the computer science major. Attach current copies of your unofficial transcript and Academic Progress Audit System (APAS) report to your petition and turn it in at the computer science department office in Room 4-192, EE/Csci Building.

3. You should follow the same procedure if you have already selected another major and wish to change to computer science or add it as another major.

4. If you decide to change your major, contact your CLA student community to learn more about your new major’s declaration process.

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**Remember!**

**You have not declared a major until you have:**

- completed a Major Program Form with your major adviser
- filed a copy with the major department
- filed a copy with your CLA student community
- be sure to keep a copy for yourself
About the computer science major:
Undergraduate Advising
4-196B EE/CS
(612) 625-4055
http://www.cs.umn.edu/

About CLA requirements, graduation, and other information about majors:
CLA Languages and Math
114 Johnston Hall
(612) 624-7540
http://langmath.cla.umn.edu/
langmath@adv.cla.umn.edu

or

CLA Martin Luther King, Jr. Program
19 Johnston Hall
(612) 625-2300
http://www.mlk.umn.edu/
mlk@class.cla.umn.edu

About careers, internships, and community learning opportunities in this major and others:
Career and Community Learning Center
135 Johnston Hall
(612) 624-7577
www.cclc.umn.edu
cclc@class.cla.umn.edu

About graduation with honors:
Students interested in graduating with honors should contact:
CLA Honors Division
115 Johnston Hall
(612) 624-5522
www.cla.umn.edu/honors/
honors@class.cla.umn.edu