

BACHELOR OF SCIENCE IN COMPUTER SCIENCE

Computer Science spans the range from theory through programming to cutting-edge development of computing solutions. Computer Science offers a foundation that permits graduates to adapt to new technologies and new ideas. The work of computer scientists falls into three categories:

- designing and building software
- developing effective ways to solve computing problems, such as storing information in databases, sending data over networks, or providing new approaches to security problems
- devising new and better ways of using computers and addressing particular challenges in areas such as robotics, computer vision, or digital forensics

Like most Computer Science programs, the YSU Computer Science major requires a significant mathematical background.

The Computer Science program leads to the degree of Bachelor of Science. The flexibility of the program allows the student many choices including a second minor.

This degree may be earned in eight semesters if students average 15 hours per semester.

The benefits of Computer Science bachelor's degree include:

- The median annual salary of **\$120,730** for software developers
- **25% projected job growth** for software developers through 2031

The advantages of pursuing a Computer Science bachelor's degree at YSU include:

- Multiple terms throughout the year to help you start anytime to complete your degree.
- Full-time faculty access at any time
- Full-time faculty coverage of core courses
- One of the lowest tuition rates in the nation
- Intensive project-oriented courses

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Like most Computer Science programs, the YSU Computer Science major requires significant mathematical background.

The Computer Science program leads to the degree of Bachelor of Science. The flexibility of the program allows the student many choices including a second minor.

This degree may be earned in eight semesters if students average 16 hours per semester.

In addition to completing all general University requirements, students wishing to receive the Bachelor of Science in computer science must complete the following:

COURSE	TITLE	S.H.
FIRST YEAR REQUIREMENT -STUDENT SUCCESS		
YSU 1500	Success Seminar	1-2
or SS 1500	Strong Start Success Seminar	
or HONR 1500	Intro to Honors	
General Education Requirements		
ENGL 1550	Writing 1	3-4
or ENGL 1549	Writing 1 with Support	
ENGL 1551	Writing 2	3
CMST 1545	Communication Foundations	3
Mathematics Requirement		4
MATH 1571	Calculus 1	4
PHIL 2625	Introduction to Professional Ethics	3
Arts and Humanities (1 course)		3
Natural Sciences (2 courses; one course must include a lab)		6-7
Social Science (2 courses)		6
Social and Personal Awareness (2 courses)		6
Major Requirements		
CSIS 2610	Programming and Problem-Solving	4
CSIS 3700	Data Structures and Objects	4
CSIS 3701	Advanced Object-oriented Programming	3
CSIS 3740	Computer Organization	4
CSCI 3710	Introduction to Discrete Structures	3
CSCI 5806	Operating Systems	3
CSCI 5801	Software Engineering	3
CSCI 5870	Data Structures and Algorithms	3
CSCI 4890	Computer Projects (at least 2 s.h.)	2
ENGL 3743	Introduction to Public, Professional and Technical Writing	3
Select at least 12 additional semester hours from CSCI or CSIS courses. This must include at least 9 s.h. from the following courses:		12
CSIS 3722: Development of Databases		
CSIS 3723: Networking Concepts and Administration		
CSIS 3755: Information Assurance		
CSCI 3770: Survey of Programming Languages		
CSCI 5840: Theory of Finite Automata		
Mathematics Minor		
MATH 1572	Calculus 2	4
MATH 3720	Linear Algebra and Matrix Theory	3
STAT 3743	Probability and Statistics	4
Additional MATH course <small>To meet 18 hour minor</small>		3-4
Free Electives <small>Any courses to meet 120 total hours</small>		20
Total Semester Hours		120-124
Year 1		
Fall		S.H.
YSU 1500	Success Seminar	1
CSIS 2610	Programming and Problem-Solving	4
MATH 1571	Calculus 1	4
ENGL 1550	Writing 1	3-4
or ENGL 1549	or Writing 1 with Support	
GER Social Science		3
Semester Hours		15-16

Spring		
CSIS 3700	Data Structures and Objects	4
MATH 1572	Calculus 2 (minor)	4
ENGL 1551	Writing 2	3
GER Natural Science + Lab		4
Semester Hours		15
Year 2		
Fall		
CSIS 3701	Advanced Object-oriented Programming	3
CSIS 3740	Computer Organization	4
PHIL 2625	Introduction to Professional Ethics (AH)	3
CMST 1545	Communication Foundations	3
GER Arts & Humanities		3
Semester Hours		16
Spring		
CSCI 3710	Introduction to Discrete Structures	3
MATH 3720	Linear Algebra and Matrix Theory	3
ENGL 3743	Introduction to Public, Professional and Technical Writing	3
GER Social Science		3
GER Social & Personal Awareness		3
Semester Hours		15
Year 3		
Fall		
CSCI 5801	Software Engineering	3
CSCI/CSIS Upper Division Elective		3
STAT 3743	Probability and Statistics	4
GER Social Science		3
Free Elective		3
Semester Hours		16
Spring		
CSCI/CSIS Upper Division Elective		3
CSCI/CSIS Upper Division Elective		3
Math Minor Upper Division Elective		3
GER Natural Science		3
GER Social & Personal Awareness		3
Semester Hours		15
Year 4		
Fall		
CSCI 5870	Data Structures and Algorithms	3
CSCI 4890	Computer Projects	2
Math Minor Upper Division Elective		3
GER NS, AH, SS, or SPA		3
Free Elective		3
Semester Hours		14
Spring		
CSCI 5806	Operating Systems	3
CSCI/CSIS Upper Division Elective		3
Free Elective		3
Free Elective		3
Free Elective	Any course to meet a total of 120 hours	1
Semester Hours		13
Total Semester Hours		119-120

Learning Outcomes

Computer science students in the BS degree program will:

- be able to analyze, design, implement and test computer programs by using the appropriate data structures and algorithms.
- obtain full-time employment as programmers, systems analysts, computer specialists and in other closely related fields or/and acceptance to graduate programs.
- communicate effectively with written reports and presentations.