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 YSU 1500S	Youngstown State University 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
Mathematics Requirement		
MATH 1571	Calculus 1	4
Arts and Humanities (1 course)		3
PHIL 2625	Introduction to Professional Ethics	3
Natural Sciences (2 courses; one course must include a lab)		7
Social Science (2 courses)		6
General Education Electives (9 s.h.) Any Gen Ed Courses		9
Major Requirements		
CSIS 2610 & 2610L	Programming and Problem-Solving and Programming and Problem-Solving Lab	4
CSIS 3700 & 3700L	Data Structures and Objects and Data Structures and Objects Lab	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.	2-4
ENGL 3743	Introduction to Public, Professional and Technical Writing	3
or INFO 3704	Business Communication	
Select at least 12 additional semester hours from CSCI or CSIS courses, or STEM 4890. 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	Concepts of Programming Languages	
CSCI 5840	Automata Theory	
STEM 4890	STEM Internship	
Mathematics Minor		
MATH 1572	Calculus 2	4
MATH 3720	Linear Algebra and Matrix Theory	3
STAT 3743	Probability and Statistics	4
Additional MATH course To meet 18 hour minor		3
Free Electives Any courses to meet 120 total hours		23
Total Semester Hours		**120-124**

Year 1

Fall		S.H.
YSU 1500 or YSU 1500S or HONR 1500	Success Seminar or Youngstown State University Success Seminar or Intro to Honors	1-2
CSIS 2610	Programming and Problem-Solving	3
CSIS 2610L	Programming and Problem-Solving Lab	1

MATH 1571	Calculus 1	4
ENGL 1550 or ENGL 1549	Writing 1 or Writing 1 with Support	3-4
Gen Ed Social Science		3
	Semester Hours	**15-17**
Spring		
CSIS 3700	Data Structures and Objects	3
CSIS 3700L	Data Structures and Objects Lab	1
MATH 1572	Calculus 2 (minor)	4
ENGL 1551	Writing 2	3
Gen Ed 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
Gen Ed Arts & Humanities	PHIL 2625 counts toward the remaining 3 cr AH Gen Ed req.	3
Free Elective	Any YSU course	3
	Semester Hours	**16**
Spring		
CSCI 3710	Introduction to Discrete Structures	3
MATH 3720	Linear Algebra and Matrix Theory	3
ENGL 3743 or INFO 3704	Introduction to Public, Professional and Technical Writing or Business Communication	3
Gen Ed Social Science		3
Gen Ed Elective	Any Gen Ed course in AH, NS, or SS	3
	Semester Hours	**15**
Year 3		
Fall		
CSCI 5801	Software Engineering	3
CSCI/CSIS Upper Division Elective	or STEM 4890	3
STAT 3743	Probability and Statistics	4
Free Elective	Any YSU Course	3
Free Elective	Any YSU Course	3
	Semester Hours	**16**
Spring		
CSCI/CSIS Upper Division Elective	or STEM 4890	3
CSCI/CSIS Upper Division Elective	or STEM 4890	3
Math Minor Upper Division Elective		3
Gen Ed Natural Science		3
Gen Ed Elective	Any Gen Ed course in AH, NS, or SS	3
	Semester Hours	**15**
Year 4		
Fall		
CSCI 5870	Data Structures and Algorithms	3
CSCI 4890	Computer Projects	2-4
Free Elective	Any YSU course	3
Free Elective	Any YSU course	3
Gen Ed Elective	Any Gen Ed course in AH, NS, or SS	3
	Semester Hours	**14-16**
Spring		
CSCI 5806	Operating Systems	3
CSCI/CSIS Upper Division Elective	or STEM 4890	3
Free Elective	Any YSU course	3
Free Elective	Any YSU course	3
Free Elective	Any course	2
	Semester Hours	**14**
	Total Semester Hours	**120-124**

Request a Graduation Evaluation after completing 80-85 s.h. from the STEM Advising Center, 2325 Moser Hall, (330) 941-2512.

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.