## 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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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 |  |  |
| $\begin{aligned} & \text { YSU } 1500 \\ & \text { or SS } 1500 \\ & \text { or HONR } 1500 \end{aligned}$ | Success Seminar <br> Strong Start Success Seminar Intro to Honors | 1-2 |
| General Education Requirements |  |  |
| ENGL 1550 or ENGL 1549 | Writing 1 <br> Writing 1 with Support | 3-4 |
| 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 ${ }^{\text {To meet } 18 \text { hour minor }}$ |  | 3-4 |
| Free Electives Any courses to meet 120 total hours |  | 20 |
| Total Semester Hours 12 |  | -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 or ENGL 1549 | Writing 1 or Writing 1 with Support | 3-4 |
| GER Social Scienc |  | 3 |
|  | Semester Hours | 5-16 |


| 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 | 120 |

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.

