# B.S. Computer Science

**WEBSITE**
https://www.swau.edu/
computer-science

**DEPARTMENT PERSONNEL**
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The primary mission of the Department of Computer Science is to prepare students for professional work in the field of computer science, within a Christian context. We believe that each of our students has a calling in life and that each is uniquely equipped with native talents to fulfill that calling. Our goal is to help our students to develop their talents to the full in order that they might be successful in meeting the challenges ahead of them.

The Bachelor of Science in Computer Science is intended for students who wish to pursue careers in computer science, either in industry or in academia.

Job Market

Graduates from our program have found employment as programmers, web developers, database managers, network managers, system administrators, and helpdesk managers. Others have gone on to open their own businesses. Several have continued their education in graduate school. Some have applied their knowledge in fields outside of computer science. For example, two have become teachers. Another has graduated from medical school.

Job Outlook

According to the U.S. Bureau of Labor Statistics, the employment of application software developers is projected to grow an astounding 30.7 percent from 2016 to 2026, far faster than the average for all occupations. They also report that the employment of information security analysts is projected to grow a remarkable 28.5 percent from 2016 to 2026, again far faster than the average for all occupations.

Earnings

According to the U.S. Bureau of Labor Statistics, the median annual wage for applications software developers was $103,620 per year in 2018. They also reported that the median income for information security analysts was $90,120 per year in 2018.

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## Required Courses

| Item # | Title | Credits |
| --- | --- | --- |
| CSIS 110 | Principles of Computer Programming I | 3 |
| CSIS 111 | Principles of Computer Programming II | 3 |
| CSIS 125 | Discrete Structures I | 3 |
| CSIS 201 | Information Literacy for CS Majors | 1 |
| CSIS 211 | Data Structures and Algorithms | 3 |
| CSIS 215 | Object-Oriented Programming in C++ | 3 |
| CSIS 225 | Discrete Structures II | 3 |
| CSIS 245 | Introduction to Local Area Network Technology | 4 |
| CSIS 255 | Issues and Practices in Information Security | 3 |
| CSIS 315 | Application Development for Event-Driven GUI Applications | 3 |
| CSIS 360 | Operating Systems | 3 |
| CSIS 375 | Introduction to Robotic Systems | 4 |
| CSIS 405 | Formal Languages and Automata | 3 |
| CSIS 450 | Principles of Database Design | 3 |
| CSIS 490 | Software Engineering | 3 |
| CSIS 495 | Special Topics Seminar | 3 |
| | CSIS Electives Upper Division | 6 |
| | Sub-Total Credits | 54 |

## Required Cognates

| Item # | Title | Credits |
| --- | --- | --- |
| COMM 115 | Group Communication | 3 |
| MATH 141 | Introduction to Probability and Statistics | 3 |
| | Sub-Total Credits | 6 |

# Sample 4 Year Curriculum

**General Education Requirements**

To view general education requirements for this major please visit: https://catalog.swau.edu/core-curriculum-for-a-bachelors-degree

### First Year First Semester

| Item # | Title | Credits |
| --- | --- | --- |
| CSIS 110 | Principles of Computer Programming I | 3 |
| CSIS 125 | Discrete Structures I | 3 |
| ENGL 121 | Freshman Composition | 3 |
| | History GE Requirement | 3 |
| UNIV 111 | Wellness for Life | 2 |
| | Sub-Total Credits | 14 |

### First Year Second Semester

| Item # | Title | Credits |
| --- | --- | --- |
| COMM 115 | Group Communication | 3 |
| CSIS 111 | Principles of Computer Programming II | 3 |
| CSIS 225 | Discrete Structures II | 3 |
| MATH 141 | Introduction to Probability and Statistics | 3 |
| | Religion GE Requirement | 3 |
| | Sub-Total Credits | 15 |

### Second Year First Semester

| Item # | Title | Credits |
| --- | --- | --- |
| CSIS 201 | Information Literacy for CS Majors | 1 |
| CSIS 211 | Data Structures and Algorithms | 3 |
| CSIS 245 | Introduction to Local Area Network Technology | 4 |
| ENGL 220 | Research Writing | 3 |
| | Kinesiology GE Requirement | 1 |
| | Life and Physical Science GE Requirement | 4 |
| | Sub-Total Credits | 16 |

### Second Year Second Semester

| Item # | Title | Credits |
| --- | --- | --- |
| CSIS 215 | Object-Oriented Programming in C++ | 3 |
| CSIS 255 | Issues and Practices in Information Security | 3 |
| | Electives for 120 | 3 |
| | Fine Arts GE Requirement | 3 |
| | Religion GE Requirement | 3 |
| | Sub-Total Credits | 15 |

### Third Year First Semester

| Item # | Title | Credits |
| --- | --- | --- |
| CSIS 360 | Operating Systems | 3 |
| CSIS 450 | Principles of Database Design | 3 |
| CSIS 495 | Special Topics Seminar | 3 |
| | Electives for 120 | 3 |
| | Life and Physical Science GE Requirement | 4 |
| | Sub-Total Credits | 16 |

### Third Year Second Semester

| Item # | Title | Credits |
| --- | --- | --- |
| CSIS 375 | Introduction to Robotic Systems | 4 |
| | CSIS Electives Upper Division Curriculum Guide | 3 |
| | History GE Requirement | 3 |
| | Kinesiology GE Requirement | 1 |
| | Religion GE Requirement | 3 |
| | Sub-Total Credits | 14 |

### Fourth Year First Semester

| Item # | Title | Credits |
| --- | --- | --- |
| CSIS 315 | Application Development for Event-Driven GUI Applications | 3 |
| | CSIS Electives Upper Division Curriculum Guide | 3 |
| | Electives for 120 | 3 |
| | Literature GE Requirement | 3 |
| | Social Science GE Curriculum Guide | 3 |
| | Sub-Total Credits | 15 |

### Fourth Year Second Semester

| Item # | Title | Credits |
| --- | --- | --- |
| CSIS 405 | Formal Languages and Automata | 3 |
| CSIS 490 | Software Engineering | 3 |
| | Electives for 120 | 3 |
| | Electives for 120 | 3 |
| | Religion GE Requirement | 3 |
| | Sub-Total Credits | 15 |

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