COMPUTER SCIENCE (BA)

Program Description

The BA in Computer Science is a particularly good major if you wish to double-major or minor in another field. This major emphasizes problem-solving, organizing and synthesizing ideas, and applications of computing theory. Graduates are well-suited for projects that apply computing to other disciplines.

Entering and Completing the Major

In order to earn a degree, you must complete at least one academic major. SPU encourages students to explore various academic paths, so if you change your mind about a major, or want to include an additional program, you are able to do so, as outlined below.

Note that the University encourages you to enter your chosen major(s) as soon as you have determined it and are eligible to join it, especially by the start of your junior year. Students who transfer as juniors and seniors should enter a major within their first two quarters at SPU.

- If this is your first quarter at SPU and you identified a major in this department as your first choice on your application for admission to the University, you have gained entry to the major. To change or add a major, follow these instructions (https://spu.atlassian.net/l/cp/a3th1keb/).
- If you are an SPU student with an SPU cumulative GPA of 2.0 or better, follow these instructions (https://spu.atlassian.net/l/cp/a3th1keb/) to enter a major in this department.
- The University requires a grade of C- or better in all classes that apply to a major; however, programs may require higher minimum grades in specific courses. You may repeat an SPU course only once for a higher grade.
- To advance in this program, meet with your faculty advisor regularly to discuss your grades, course progression, and other indicators of satisfactory academic progress. If your grades or other factors indicate that you may not be able to successfully complete the major or minor, your faculty advisor can work with you to explore options, which may include choosing a different major.
- You must complete the major requirements that are in effect in the SPU Undergraduate Catalog for the year you enter the major.

Computer Science (BA)

80 Credits Minimum, Including 40 Upper Division (UD)

Code	Title	Credits
General Core		
CSC 1230	Problem Solving and Programming	5
CSC 2430	Data Structures I	5
CSC 2431	Data Structures II	5
CSC 3011	Living in a Digital World	3
CSC 3150	Systems Design	4
CSC 3220	Applications Programming	4
CSC 3221	Netcentric Computing	4
CSC 3310	Concepts in Programming Languages	4
CSC 3350	Operating Systems Programming	3
CSC 3430	Algorithm Design and Analysis	4
CSC 3750	Computer Architecture and Organization	5
CSC 4410	Database Management	5
MAT 1221	Survey of Calculus	5
MAT 1720	Mathematics for Computer Science	5
MAT 2360	Introduction to Statistics for the Sciences	5
Section Credits Required		66
Technical Electives		
Select one of the following:		3
CSC 4210	Theory of Computation and Algorithm	
CSC 4220	Cybersecurity Fundamentals	
CSC 4250	Introduction to Artificial Intelligence	
CSC 4310	Compiler Design	
CSC 4350	Advanced Operating Systems	
CSC 4430	Advanced Programming	
CSC 4750	Computer Networks	
CSC 4760	Advanced Computer Architecture	
CSC 4800	Advanced Issues in Computer Science	
DAT 3380	Introduction to Data Science	
DAT 4500	Data and Society	
EE 4770	Fundamentals of Advanced Embedded Systems	
MAT 3380	Introduction to Data Science	
Section Credits Required		3
Project & Internship		
CSC 3000	Principles of Professional Practice	1
or GS 3001	Internship and Job Search Strategies	
CSC 4151	Software Engineering I	3
CSC 4152	Software Engineering II	3
CSC 4898	Senior Capstone Seminar	3
CSC 4941	Computer Science Professional Experience [1]	1
Section Credits Required		11
Total Credits		**80**

[1]

A tech internship or professional experience must be approved before enrolling in CSC 4941 and must be completed before passing CSC 4941.

Suggested Course Sequences
Four Year Plan

Check the quarter, day and time in the current time schedule as course offerings may change.

Course	Title	Credits
Freshman		
Variable		
UFDN 1000	The Christian Faith	5
WRI 1000	Academic Inquiry and Writing Seminar	5
WRI 1100	Disciplinary Research and Writing Seminar	5
Exploratory Curriculum (https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/exploratory-curriculum/)		0-10
	Credits	**15-25**
Autumn		
CSC 1230	Problem Solving and Programming	5
UCOL 1000	University Colloquium	1
MAT 1010	College Algebra (if needed)	3
	Credits	**9**

Winter		
CSC 2430	Data Structures I	5
	Credits	**5**
Spring		
CSC 2431	Data Structures II	5
MAT 1221	Survey of Calculus	5
	Credits	**10**
Sophomore		
Variable		
MAT 2360	Introduction to Statistics for the Sciences [1]	5
GS 3001	Internship and Job Search Strategies [2]	1
Common Curriculum (https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/common-curriculum/) and Exploratory Curriculum (https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/exploratory-curriculum/) courses as needed		
	Credits	**6**
Winter		
CSC 3220	Applications Programming	4
MAT 1720	Mathematics for Computer Science	5
	Credits	**9**
Spring		
CSC 3221	Netcentric Computing	4
	Credits	**4**
Junior		
Variable		
Technical Elective Courses [3]		3
Select Common Curriculum (https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/common-curriculum/) and Exploratory Curriculum (https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/exploratory-curriculum/) courses as needed		
	Credits	**3**
Autumn		
CSC 3310	Concepts in Programming Languages	4
GS 3001	Internship and Job Search Strategies [4]	1
	Credits	**5**
Winter		
CSC 3430	Algorithm Design and Analysis	4
CSC 3750	Computer Architecture and Organization	5
CSC 3011	Living in a Digital World	3
	Credits	**12**
Spring		
CSC 3150	Systems Design	4
CSC 3350	Operating Systems Programming	3
	Credits	**7**
Senior		
Variable		
CSC 4410	Database Management [5]	5
CSC 4941	Computer Science Professional Experience [6]	1
Technical Elective Courses [7]		
	Credits	**6**
Autumn		
CSC 4151	Software Engineering I	3
	Credits	**3**
Winter		
CSC 4152	Software Engineering II	3
	Credits	**3**
Spring		
CSC 4898	Senior Capstone Seminar	3
	Credits	**3**
	Total Credits	**100-110**

Code	Title	Credits
Technical Elective Courses		**3**
CPE 3280	Microcontroller System Design	5
CSC 4210	Theory of Computation and Algorithm	3
CSC 4220	Cybersecurity Fundamentals	3
CSC 4250	Introduction to Artificial Intelligence	3
CSC 4310	Compiler Design	3
CSC 4350	Advanced Operating Systems	3
CSC 4430	Advanced Programming	3-5
CSC 4750	Computer Networks	5
CSC 4760	Advanced Computer Architecture	5
CSC 4800	Advanced Issues in Computer Science	3-5
DAT 3380	Introduction to Data Science	5
DAT 4500	Data and Society	5
EE 4770	Fundamentals of Advanced Embedded Systems	3-5
MAT 3380	Introduction to Data Science	5
Common Curriculum		
UCOR 2000	The Emergence of the Modern Global System	5
UCOR 3000	Faith, Philosophy, and Science	5
UFDN 2000	Christian Scripture	5
UFDN 3100	Christian Theology	5
Exploratory Curriculum		
Ways of Engaging (https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/exploratory-curriculum/#wetext)		
Cultural Understanding and Engagement (https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/cue-requirement/)		3
Ways of Knowing		
Check Catalog under which you entered SPU Foreign Language if needed		0-15

[1]

Available any quarter.

[2]

Or can be taken Fall of junior year.

[3]

Select a minimum of 3 credits any quarter after satisfying pre-req(s). This can also be taken during the senior year. See link at the bottom of this page for a list of Technical Elective Courses.

[4]

If not already completed.

[5]

Quarter varies. See time schedule.

[6]

Must be taken AFTER completing an approved internship or pursuing an approved certification.

[7]

Select a minimum of 3 credits any quarter after satisfying pre-req(s). See link at the bottom of this page for a list of Technical Elective Courses.

Two Year Plan for a Transfer Student with or without a DTA

See below for the pre-requisite courses required to complete the degree in two years. Note also that without a DTA, it will depend on how many of the General Education Courses (Common Curriculum (https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/common-curriculum/), Exploratory Curriculum (https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/exploratory-curriculum/), etc (https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/graduation-requirements-policies/).) are completed before transferring as to whether or not the degree can be completed in two years.

Check the quarter, day and time in the current schedule as course offerings may change. Pay close attention to the pre-requisites of the courses.

Course	Title	Credits
First Year		
Variable		
Technical Elective Course [1]		3+
Common Curriculum (https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/common-curriculum/) and Exploratory Curriculum (https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/exploratory-curriculum/) courses as needed [2]		
	Credits	**0-3**
Autumn		
CSC 2330	Data Structures Programming	5
GS 3001	Internship and Job Search Strategies	1
UFDN 3001	Christian Scripture for Transfer Students	5
	Credits	**11**
Winter		
CSC 3220	Applications Programming	4
MAT 1720	Mathematics for Computer Science	5
CSC 3011	Living in a Digital World	3
	Credits	**12**
Spring		
CSC 3150	Systems Design	4
CSC 3221	Netcentric Computing	4
CSC 2431	Data Structures II	5
	Credits	**13**
Second Year		
Variable		
CSC 4410	Database Management	5
CSC 4941	Computer Science Professional Experience [3]	1
UFDN 3100	Christian Theology [4]	5
Technical Elective Course [1]		
Common Curriculum (https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/common-curriculum/) and Exploratory Curriculum (https://catalog.spu.edu/undergraduate/degree-requirements/baccalaureate-degree-requirements/exploratory-curriculum/) courses as needed		
	Credits	**11**
Autumn		
CSC 4151	Software Engineering I	3
CSC 3310	Concepts in Programming Languages	4
	Credits	**7**
Winter		
CSC 4152	Software Engineering II	3
CSC 3430	Algorithm Design and Analysis	4
CSC 3750	Computer Architecture and Organization	5
	Credits	**12**
Spring		
CSC 4898	Senior Capstone Seminar	3
CSC 3350	Operating Systems Programming	3
	Credits	**6**
	Total Credits	**72-75**

[1]

Must be at least 3 credits, taken during year 1 or year 2. See link at the bottom of this page for a list.

[2]

Spread between first and second year.

[3]

Must be taken AFTER completing an approved internship or pursuing an approved certification.

[4]

If not already completed.

Prerequisites for the Two Year Plan

The following courses must be completed before coming to SPU in order to finish at SPU in two years.

Code	Title	Credits
Math courses equivalent to SPU's		**10**
MAT 1221 or MAT 1234	Survey of Calculus or Calculus I	
MAT 2360	Introduction to Statistics for the Sciences	
Two Quarters of Object Oriented Programming in the Same Language [1]		**10**
	Object oriented progamming 1	
	Object oriented programming 2 with Data Structures	

[1]

The second must include data structures concepts.

Technical Electives List

See the Requirements (p. 1) tab for a complete list of technical electives.