

Date Submitted: 09/17/21 4:25 pm

# Viewing: **CSCEBS : Computer Science, Bachelor of Science in Computer Science**

Last approved: 12/10/20 10:02 am

Last edit: 09/24/21 8:18 am

Changes proposed by: drt

Catalog Pages Using this Program

- [Computer Science B.S.](#)
- [Computer Science and Computer Engineering.\(CSCE\)](#)

Submitter:	User ID:	drt	Phone:
575-5090			
Program Status	Active		
Academic Level	Undergraduate		
Type of proposal	Major/Field of Study		
Select a reason for this modification			
Making Minor Changes to an Existing Certificate or Degree (e.g. changing 15 or fewer hours, changing admission/graduation requirements, adding/changing Focused Study or Track)			
Are you adding a concentration?			
No			
Are you adding or modifying a track?			
No			
Are you adding or modifying a focused study?			
No			
Effective Catalog Year	Fall 2022		
College/School Code	College of Engineering (ENGR)		

## In Workflow

1. ENGR Dean Initial
2. Director of Curriculum Review and Program Assessment
3. Registrar Initial
4. Institutional Research
5. CSCE Chair
6. ENGR Curriculum Committee
7. ENGR Faculty
8. ARSC Dean
9. ENGR Dean
10. Global Campus
11. Provost Review
12. University Course and Program Committee
13. Faculty Senate
14. Provost Final
15. Registrar Final
16. Catalog Editor Final

## Approval Path

1. 09/22/21 2:27 pm  
Kevin Hall (kdhall): Approved for ENGR Dean Initial
2. 09/24/21 8:18 am  
Alice Griffin (agriffin): Approved for Director of Curriculum Review and Program Assessment

## Department Code

Department of Computer Science and Computer Engineering (CSCE)

## Program Code

CSCEBS

## Degree

Bachelor of Science in Computer Science

## CIP Code

3. 09/28/21 5:45 pm  
Lisa Kulczak  
(lkulcza): Approved  
for Registrar Initial
4. 09/28/21 5:57 pm  
Doug Miles  
(dmiles): Approved  
for Institutional  
Research
5. 09/28/21 6:15 pm  
Dale Thompson  
(drt): Approved for  
CSCE Chair
6. 10/07/21 1:48 pm  
Manuel Rossetti  
(rossetti): Approved  
for ENGR  
Curriculum  
Committee
7. 11/05/21 10:06 am  
Kevin Hall (kdhall):  
Approved for ENGR  
Faculty
8. 11/08/21 12:03 pm  
Jeannie Hulen  
(jhulen): Approved  
for ARSC Dean
9. 11/15/21 4:22 pm  
Kevin Hall (kdhall):  
Approved for ENGR  
Dean
10. 11/15/21 4:23 pm  
Suzanne Kenner  
(skenner): Approved  
for Global Campus
11. 11/22/21 8:17 am  
Ketevan  
Mamiseishvili  
(kmamisei):

Approved for  
Provost Review

### History

1. Aug 15, 2014 by  
Leepfrog  
Administrator  
(clhelp)
2. Jan 14, 2015 by  
Susan Huskey (srh)
3. Apr 21, 2015 by  
Susan Huskey (srh)
4. May 9, 2016 by  
Susan Huskey (srh)
5. May 1, 2018 by  
Susan Huskey (srh)
6. Apr 22, 2019 by  
Charlie Alison  
(calison)
7. May 16, 2020 by  
Dale Thompson  
(drt)
8. Dec 10, 2020 by  
Karen Turner  
(kjvestal)

11.0701 - Computer Science.

**Program Title**

Computer Science, Bachelor of Science in Computer Science

**Program Delivery**

**Method**

On Campus

Is this program interdisciplinary?

Yes

**College(s)/School(s)**

<b>College/School Name</b>
Fulbright College of Arts and Sciences (ARSC)

Does this proposal impact any courses from another College/School?

No

What are the total hours needed to complete the program? 122

## Program Requirements and Description

### Requirements

Computer science core courses include the fundamentals of programming concepts, ~~data structures~~, operating systems, algorithms, formal languages, and database management systems.

The Bachelor of Science ~~programs~~ in Computer ~~Engineering and Computer~~ Science ~~program culminates~~ ~~culminate~~ in a capstone project completed in two consecutive semesters. In the first semester, students form teams and develop a project proposal. In the second semester, students develop, implement, and present the final project.

~~Humanities and social science electives are selected from the State Minimum Core Requirements listed in the Catalog of Studies. To satisfy the State Minimum Core, all CSCE students are required to take the following 18 hours of humanities/social science courses: The Undergraduate Handbook has a list of approved basic science, mathematics, and technical electives. Any course not included in these lists requires faculty approval.~~

<del>PHIL 3103</del>	<del>Ethics and the Professions</del>	<del>3</del>
<del>Fine Arts From Category "A"</del>		<del>3</del>
<del>U.S. History</del>		<del>3</del>
<del>Social Science</del>		<del>9</del>

### 8-Semester Plan

## Computer Science B.S.C.S. Eight-Semester Degree Program

The following sections contain the list of courses required for the Bachelor of Science in Computer Science (B.S.C.S.) degree with a suggested sequence below.

Not all courses are offered every semester, so students who deviate from the suggested sequence must pay careful attention to course scheduling and course prerequisites. Students wishing to follow the eight-semester degree plan should see the [Eight-Semester Degree Policy](#) in the Academic Regulations chapter for university requirements of the program.

First Year	Units		
		Fall	Spring
<a href="#">GNEG 1111</a> Introduction to Engineering I	1		
<a href="#">ENGL 1013</a> Composition I (ACTS Equivalency = ENGL 1013) (Satisfies General Education Outcome 1.1)	3		

<b>CHEM 1103</b> University Chemistry I (ACTS Equivalency = CHEM 1414 Lecture)	3
<b>MATH 2554</b> Calculus I (ACTS Equivalency = MATH 2405) (Satisfies General Education Outcome 2.1)	4
<del>PHYS 2054 University Physics I (ACTS Equivalency = PHYS 2034) (Satisfies General Education Outcome 3.4)</del>	<del>4 -</del>
<b>History Elective (Satisfies General Education Outcomes 3.2 and 4.2). Choose from one of the following courses:</b>	<b>3</b>
<b>HIST 2003</b> History of the American People to 1877 (ACTS Equivalency = HIST 2113)	
<b>HIST 2013</b> History of the American People, 1877 to Present (ACTS Equivalency = HIST 2123)	
<b>GNEG 1121</b> Introduction to Engineering II	1
<b>MATH 2564</b> Calculus II (ACTS Equivalency = MATH 2505)	4
<b>PHYS 2054</b> University Physics I (ACTS Equivalency = PHYS 2034)	<b>4</b>
Freshman Science Elective (Satisfies General Education Outcome 3.4) Choose one of the following science and corresponding lab options:	4
<b>BIOL 1543</b> Principles of Biology (ACTS Equivalency = BIOL 1014 Lecture)	
<b>BIOL 1541L</b> Principles of Biology Laboratory (ACTS Equivalency = BIOL 1014 Lab)	
<b>CHEM 1123</b> University Chemistry II (ACTS Equivalency = CHEM 1424 Lecture)	
<b>CHEM 1121L</b> University Chemistry II Laboratory (ACTS Equivalency = CHEM 1424 Lab)	
<b>GEOS 1113</b> Physical Geology (ACTS Equivalency = GEOL 1114 Lecture)	
<b>GEOS 1111L</b> Physical Geology Laboratory (ACTS Equivalency = GEOL 1114 Lab)	
<b>PHYS 2074</b> University Physics II (ACTS Equivalency = PHYS 2044 Lecture) (For students who already have credit for PHYS 2054, they may wish to select PHYS 2074 for their Freshman Science Elective.)	
<del>ENGL 1023</del> Composition II (ACTS Equivalency = ENGL 1023) (Satisfies General Education Outcome 1.1)	<del>- 3</del>
<del>or ENGL 1033</del> Technical Composition II (ACTS Equivalency = ENGL 1023)	
<del>U.S. History Elective (Satisfies General Education Outcomes 3.2 and 4.2) Choose from one of the following courses:</del>	<del>- 3</del>
<del>HIST 2003</del> History of the American People to 1877 (ACTS Equivalency = HIST 2113)	
<del>HIST 2013</del> History of the American People, 1877 to Present (ACTS Equivalency = HIST 2123)	
<b>ENGL 1033</b> Technical Composition II (ACTS Equivalency = ENGL 1023) (Satisfies General Education Outcome 1.2)	<b>3</b>
Year Total:	14 16
Second Year	Units
	FallSpring
<b>CSCE 2004</b> Programming Foundations I	4
<b>CSCE 2114</b> Digital Design	4
<b>MATH 2603</b> Discrete Mathematics	3
Fine Arts Elective (Satisfies General Education Outcome 3.1)	3
Social Sciences Elective (Satisfies General Education Outcomes 3.3 and 4.1)	3
<del>CSCE 2014</del> Programming Foundations II	<del>4</del>

<a href="#">CSCE 2017</a> Programming Fundamentals II	4
<a href="#">CSCE 2214</a> Computer Organization	4
<a href="#">MATH 3083</a> Linear Algebra	3
Social Sciences Elective (Satisfies General Education Outcome 3.3)4	3
Year Total:	17 14
Third Year	Units
	FallSpring
<a href="#">CSCE 3193</a> Programming Paradigms	3
<a href="#">CSCE 3613</a> Operating Systems	3
<a href="#">INEG 3313</a> Engineering Probability and Statistics5	3
<a href="#">PHIL 3103</a> Ethics and the Professions (Satisfies General Education Outcome 5.1)	3
General Elective	3
<a href="#">CSCE 3513</a> Software Engineering (Satisfies General Education Outcome 6.1)	3
<a href="#">CSCE 4523</a> Database Management Systems	3
CSCE Elective (4000 level)	3
<a href="#">MATH 3103</a> Combinatorics	3
<a href="#">COMM 1313</a> Public Speaking (ACTS Equivalency = SPCH 1003) (Satisfies General Education Outcome 1.2)	3
Year Total:	15 15
Fourth Year	Units
	FallSpring
<a href="#">CSCE 4561</a> Capstone I	1
<a href="#">CSCE 4133</a> Algorithms	3
<a href="#">CSCE 4753</a> Computer Networks	3
CSCE Elective (4000 level)	3
General Elective	3
General Elective	3
<a href="#">CSCE 4963</a> Capstone II	3
<a href="#">CSCE 4323</a> Formal Languages and Computability	3
CSCE Elective (4000 level)	3
General Elective	3
Social Sciences Elective (Satisfies General Education Outcome 3.3)4	3
Year Total:	16 15

Total Units in Sequence: 122

1Students have demonstrated successful completion of the learning indicators identified for learning outcome 2.1, by meeting the prerequisites for [MATH 2554](#).

2The Fine Arts Elective courses which satisfy General Education Outcome 3.1 include: [ARCH 1003](#), [ARHS 1003](#), [COMM 1003](#), [DANC 1003](#), [LARC 1003](#), [MLIT 1003](#), [MLIT 1003H](#), [MLIT 1013](#), [MLIT 1013H](#),

[MLIT 1223](#), [TUTR 1003](#), [TUTR 1013](#), or [TUTR 1013H](#)

[MLIT 1333](#), [IHTR 1003](#), [IHTR 1013](#), or [IHTR 1013H](#).

3The Social Sciences Elective courses which satisfy General Education Outcomes 3.3 and 4.1 include:

[ANTH 1023](#), [COMM 1023](#), [HDFS 1403](#), [HDFS 2413](#), [HIST 1113](#), [HIST 1113H](#), [HIST 1123](#), [HIST 1123H](#), [HIST 2093](#), [HUMN 1114H](#), [HUMN 2114H](#), [INST 2013](#), [INST 2813](#), [INST 2813H](#), [PLSC 2013](#), [PLSC 2813](#), [PLSC 2813H](#), [RESM 2853](#), [SOCI 2013](#), [SOCI 2013H](#), or [SOCI 2033](#).

4The Social Sciences Elective courses which satisfy General Education Outcome 3.3 include: [AGEC 1103](#),

[AGEC 2103](#), [ANTH 1023](#), [COMM 1023](#), [ECON 2013](#), [ECON 2023](#), [ECON 2143](#), [EDST 2003](#), [HDFS 1403](#), [HDFS 2413](#), [HDFS 2603](#), [HIST 1113](#), [HIST 1113H](#), [HIST 1123](#), [HIST 1123H](#), [HIST 2003](#), [HIST 2013](#), [HIST 2093](#), [HUMN 1114H](#), [HUMN 2114H](#), [INST 2013](#), [INST 2813](#), [INST 2813H](#), [PLSC 2003](#), [PLSC 2013](#), [PLSC 2203](#), [PLSC 2813](#), [PLSC 2813H](#), [PSYC 2003](#), [RESM 2853](#), [SOCI 2013](#), [SOCI 2013H](#), [SOCI 2033](#). Note, courses cannot be counted twice in degree requirements.

5Student may petition to take the two-course sequence, STAT 3013 and STAT 3113, instead of INEG 3313.

~~Scholarship students may need to take 1-hour General Elective in Second Year, Spring Semester for 15 semesterhours.~~

Are Similar Programs available in the area?

No

Estimated Student      na

Demand for Program

Scheduled Program      **2026-2027** ~~2020-~~

Review Date              ~~2021~~

Program Goals and  
Objectives

**Program Goals and Objectives**

### Program Goals and Objectives

#### Program Educational Objectives

For the B.S. degree program in computer science, the following set of program educational objectives describe what graduates are expected to attain within a few years after graduation.

Computer Science graduates will:

1. Enhance Arkansas' and the nation's information technology industry.
2. Engage in advanced study of Computer Science and other fields, including engineering, law, medicine, and business.
3. Possess a sufficiently broad education to be inquisitive, well-informed reasoning members of their profession and society.
4. Understand human, social and ethical issues so that they will be good employees or employers, citizens and neighbors.

#### Learning Outcomes

### Learning Outcomes

#### Student Learning Outcomes

CS1. An ability to analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.

CS2. An ability to design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.

CS3. An ability to communicate effectively in a variety of professional contexts.

CS4. An ability to recognize professional responsibilities and make informed judgements in computing practice based on legal and ethical principles.

CS5. An ability to function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.

CS6. An ability to apply computer science theory and software development fundamentals to produce computing-based solutions.

#### Description and justification of the request

Description of specific change	Justification for this change



Description of specific change	Justification for this change
<p>Moved PHYS 2054 University Physics I to second semester of Freshman year. Expanded list of Freshman Science Electives to match proposed FEP changes. This caused us to rebalance courses.</p>	<p>FEP proposed moving PHYS 2054 to second semester of Freshman Year so that students would be better prepared with Calculus 1 instead of taking Calculus 1 and Physics 1 during the same semester.</p>

Upload attachments

Reviewer Comments

**Alice Griffin (agriffin) (09/23/21 9:49 am):** Changed Gen Ed Outcome from 2.1 to 1.2 with ENGL 1033. It appears numbers were transposed. College is encouraged to review for accuracy.

**Alice Griffin (agriffin) (09/23/21 10:21 am):** Added to comment to PHYS 2074 with permission from the submitter.

**Alice Griffin (agriffin) (09/24/21 8:18 am):** ATTENTION: Due to this request including courses from another college, it will require campus approval.

Key: 478