

COMPUTER SCIENCE, BACHELOR OF SCIENCE

The Bachelor of Science degree in computer science with mathematics emphasis is for those students who want to combine mathematics and computer science. In addition to the general institutional requirements, the major completes 60 semester hours in major courses which include 33 semester hours in computer science, 17 semester hours in mathematics courses, including Calculus II, Calculus III, 6 semester hours in major electives, and 4 semester hours in general electives.

All majors and minors in the department must achieve a grade of "C" or better in all mathematics, science, computer science, and business courses. A cumulative grade point average of at least 2.25 is required for graduation.

Code	Title	Semester Hours
Core Curriculum for STEM Majors (Areas A-E) (http://catalog.asurams.edu/undergraduate/core-curriculum) ¹		43
Area F: Courses Related to Major		
CSCI 1201	Introduction to Computer Science	3
CSCI 1301	Computer Science I	4
CSCI 1302	Computer Science II	4
MATH 2111	Linear Algebra	3
MATH 2411	Introduction to Statistics	3
Area G - Major Requirements		
<i>Computer Science Courses (33 hours)</i>		
CSCI 2211	Visual BASIC Programming	3
CSCI 3111	Discrete Structures	3
CSCI 3122	Data Structures	3
CSCI 3132	Database Management	3
CSCI 3211	Computer Organization and Architecture I	3
CSCI 4113	Operating Systems	3
CSCI 4123	Computer Networks	3
CSCI 4211	Systems Analysis I	3
CSCI 4221	Software Engineering	3
CSCI 4915	Web Design and Development	3
CSCI 4921	Senior Project I	1
CSCI 4922	Senior Project II	2
<i>Mathematics Courses (17 hours)</i>		
MATH 2212	Calculus II	4
MATH 2213	Calculus III	4
MATH 3411	Statistical Methods	3
MATH 3423	Introduction to Operations Research	3
MATH 4215	Numerical Analysis	3
<i>Major Electives (6 hours from below list)</i>		
CSCI 2235	Information System & Web Security	
CSCI 2300	Computational Informatics I	
CSCI 2311	Advanced Visual Basic Programm	
CSCI 2400	Secure Script Programming	
CSCI 3000	Cryptography & Computer Security	
CSCI 3200	Design & Analysis of Algorithm	
CSCI 3300	High Performance Computing	

CSCI 3335	Risk Analysis & Information Infra-Structure Security	
CSCI 4338	Network & Operating Systems Security	
CSCI 4340	Wireless & Mobile Security	
CSCI 4344	Computer Forensics	
CSCI 4911	Special Topics in Computer Science & Computer Information Systems	
<i>General Electives (5 hours)</i>		5
First-Year and Wellness Course Requirements Outside the Core		
ASU 1101	First Year Experience: Pathways to Success	1
HEDP, WELL	Health & Wellness Requirement ²	2
Total Semester Hours		124

- ¹ Students are required to complete MATH 1113 Pre-Calculus in Area A2 and MATH 1211 Calculus I in Area D with a minimum grade of "C". The extra credit hour from MATH 1211 will be counted in Area F.
- ² The health & wellness requirement may be fulfilled by taking one - two (2) credit hour health or wellness course OR two one (1) credit hour health or wellness activity courses.

The Bachelor of Science degree in computer science with business emphasis is for those students who want to combine computer science and business. In addition to the general institutional requirements, the major completes 60 semester hours in major courses, which include 39 semester hours in computer science and mathematics courses, 15 semester hours in business courses, and 6 semester hours in major electives. The Bachelor of Science degree in computer science with business emphasis is a cooperative program between Albany State University and Albany Technical College that allows qualified students to earn 66 semester hours at Albany Technical College and then transfer to Albany State University to complete the requirements for the Bachelor of Science degree with emphasis in business. Upon admission to Albany State University students may transfer up to 60 semester hours of credit to Albany State to satisfy Areas A, B, C, D, and E of the Core Curriculum.

All majors and minors in the department must achieve a grade of "C" or better in all mathematics, science, computer science, and business courses. A cumulative grade point average of at least 2.25 is required for graduation.

Code	Title	Semester Hours
Core Curriculum for STEM Majors (Areas A-E) (http://catalog.asurams.edu/undergraduate/core-curriculum) ¹		43
Area F: Courses Related to Major		
CSCI 1201	Introduction to Computer Science	3
CSCI 1301	Computer Science I	4
CSCI 1302	Computer Science II	4
MATH 1211	Calculus I	4
MATH 2411	Introduction to Statistics	3
Area G - Major Requirements		
<i>Computer Science Courses (33 hours)</i>		
CSCI 2211	Visual BASIC Programming	3
CSCI 3111	Discrete Structures	3
CSCI 3122	Data Structures	3
CSCI 3132	Database Management	3
CSCI 3211	Computer Organization and Architecture I	3
CSCI 4113	Operating Systems	3

CSCI 4123	Computer Networks	3
CSCI 4211	Systems Analysis I	3
CSCI 4221	Software Engineering	3
CSCI 4915	Web Design and Development	3
CSCI 4921	Senior Project I	1
CSCI 4922	Senior Project II	2
<i>Mathematics Courses (6 hours)</i>		
MATH 2111	Linear Algebra	3
MATH 3423	Introduction to Operations Research	3
<i>Management/Economic Courses (15 hours)</i>		
ECON 2106	Principles of Microeconomics	3
ACCT 2101	Accounting Principles I	3
ACCT 2102	Accounting Principles II	3
MGMT 3105	Legal Environment of Business	3
MKTG 3120	Principles of Marketing	3
<i>Major Electives (6 hours from below list with 3 hours being in the 3000-4000 level)</i>		
CSCI 2235	Information System & Web Security	
CSCI 2300	Computational Informatics I	
CSCI 2311	Advanced Visual Basic Programm	
CSCI 2400	Secure Script Programming	
CSCI 3000	Cryptography & Computer Security	
CSCI 3200	Design & Analysis of Algorithm	
CSCI 3300	High Performance Computing	
CSCI 3335	Risk Analysis & Information Infra-Structure Security	
CSCI 4338	Network & Operating Systems Security	
CSCI 4340	Wireless & Mobile Security	
CSCI 4344	Computer Forensics	
CSCI 4911	Special Topics in Computer Science & Computer Information Systems	
First-Year and Wellness Course Requirements Outside the Core		
ASU 1101	First Year Experience: Pathways to Success	1
HEDP, WELL	Health & Wellness Requirement ²	2
Total Semester Hours		124

¹ Students are required to complete MATH 1113 Pre-Calculus in Area A2 or Area D with a minimum grade of "C".

² The health & wellness requirement may be fulfilled by taking one - two (2) credit hour health or wellness course OR two one (1) credit hour health or wellness activity courses.

The Bachelor of Science degree in computer science with information assurance emphasis is for those students who want to combine focus on computer security. In addition to the general institutional requirements, the major completes 60 semester hours in major courses which include 48 semester hours in computer science with 15 of those semester hours covering information assurance topics, 6 semester hours in mathematics courses, and 6 semester hours in major electives.

All majors and minors in the department must achieve a grade of "C" or better in all mathematics, science, computer science, and business courses. A cumulative grade point average of at least 2.25 is required for graduation.

Code	Title	Semester Hours
Core Curriculum for STEM Majors (Areas A-E) (http://catalog.asurams.edu/undergraduate/core-curriculum) ¹		
Area F: Courses Related to Major		
CSCI 1201	Introduction to Computer Science	3
CSCI 1301	Computer Science I	4
CSCI 1302	Computer Science II	4
MATH 2111	Linear Algebra	3
MATH 2411	Introduction to Statistics	3
Area G - Major Requirements		
<i>Computer Science Courses (33 hours)</i>		
CSCI 2211	Visual BASIC Programming	3
CSCI 3111	Discrete Structures	3
CSCI 3122	Data Structures	3
CSCI 3132	Database Management	3
CSCI 3211	Computer Organization and Architecture I	3
CSCI 4113	Operating Systems	3
CSCI 4123	Computer Networks	3
CSCI 4211	Systems Analysis I	3
CSCI 4221	Software Engineering	3
CSCI 4915	Web Design and Development	3
CSCI 4921	Senior Project I	1
CSCI 4922	Senior Project II	2
<i>Mathematics Courses (6 hours)</i>		
MATH 3411	Statistical Methods	3
MATH 3423	Introduction to Operations Research	3
<i>Information Assurance Courses (15 hours)</i>		
CSCI 2235	Information System & Web Security	3
CSCI 3000	Cryptography & Computer Security	3
CSCI 4338	Network & Operating Systems Security	3
CSCI 4340	Wireless & Mobile Security	3
CSCI 4344	Computer Forensics	3
<i>Major Electives (6 hours from below list with 3 being in the 3000-4000 level)</i>		
CSCI 2300	Computational Informatics I	
CSCI 2311	Advanced Visual Basic Programm	
CSCI 2400	Secure Script Programming	
CSCI 3200	Design & Analysis of Algorithm	
CSCI 3300	High Performance Computing	
CSCI 3335	Risk Analysis & Information Infra-Structure Security	
CSCI 4911	Special Topics in Computer Science & Computer Information Systems	
General elective		1
First-Year and Wellness Course Requirements Outside the Core		
ASU 1101	First Year Experience: Pathways to Success	1
HEDP, WELL	Health & Wellness Requirement ²	2
Total Semester Hours		124

¹ Students are required to complete MATH 1113 Pre-Calculus in Area A2 or Area D with a minimum grade of "C".

- ² The health & wellness requirement may be fulfilled by taking one - two (2) credit hour health or wellness course OR two one (1) credit hour health or wellness activity courses.

The Bachelor of Science degree in computer science with a minor is for those students who want to add a minor in another area to their degree in computer science. In addition to the general institutional requirements, the major completes 60 semester hours in major courses which include 33 semester hours in computer science, 6 semester hours in mathematics courses, 3 semester hours in major electives, and 18 semester hours in a minor.

All majors and minors in the department must achieve a grade of "C" or better in all mathematics, science, computer science, and business courses. A cumulative grade point average of at least 2.25 is required for graduation.

Code	Title	Semester Hours
Core Curriculum for STEM Majors (Areas A-E) (http://catalog.asurams.edu/undergraduate/core-curriculum) ¹		43
Area F: Courses Related to Major		
CSCI 1201	Introduction to Computer Science	3
CSCI 1301	Computer Science I	4
CSCI 1302	Computer Science II	4
MATH 2111	Linear Algebra	3
MATH 2411	Introduction to Statistics	3
Area G - Major Requirements		
<i>Computer Science Courses (33 hours)</i>		
CSCI 2211	Visual BASIC Programming	3
CSCI 3111	Discrete Structures	3
CSCI 3122	Data Structures	3
CSCI 3132	Database Management	3
CSCI 3211	Computer Organization and Architecture I	3
CSCI 4113	Operating Systems	3
CSCI 4123	Computer Networks	3
CSCI 4211	Systems Analysis I	3
CSCI 4221	Software Engineering	3
CSCI 4915	Web Design and Development	3
CSCI 4921	Senior Project I	1
CSCI 4922	Senior Project II	2
<i>Mathematics Courses (6 hours)</i>		
MATH 3411	Statistical Methods	3
MATH 3423	Introduction to Operations Research	3
<i>Minor and electives chosen by student (19 hours)</i>		19
<i>Major Electives (3 hours from below list)</i>		3
CSCI 3000	Cryptography & Computer Security	
CSCI 3200	Design & Analysis of Algorithm	
CSCI 3300	High Performance Computing	
CSCI 3335	Risk Analysis & Information Infra-Structure Security	
CSCI 4338	Network & Operating Systems Security	
CSCI 4340	Wireless & Mobile Security	
CSCI 4344	Computer Forensics	
CSCI 4911	Special Topics in Computer Science & Computer Information Systems	

First-Year and Wellness Course Requirements Outside the Core

ASU 1101	First Year Experience: Pathways to Success	1
HEDP, WELL	Health & Wellness Requirement ²	2
Total Semester Hours		124

- ¹ Students are required to complete MATH 1113 Pre-Calculus in Area A2 or Area D with a minimum grade of "C".

- ² The health & wellness requirement may be fulfilled by taking one - two (2) credit hour health or wellness course OR two one (1) credit hour health or wellness activity courses.

The Bachelor of Science degree in Computer Science with a Nexus Option is for those students who want to add a Nexus Option to their degree in computer science. In addition to the general institutional requirements, the major completes 60 semester hours in major courses which include 33 semester hours in computer science, 6 semester hours in mathematics courses, 3 semester hours in major electives, and 18 semester hours of a Nexus Option.

Albany State University has been approved by the Board of Regents of the University System of Georgia to offer two Nexus Options: Blockchain with Machine Learning and Blockchain with Data Analytics. The Nexus Program is available to Undergraduate students and those who have completed a bachelor's degree and wish to acquire Blockchain, Data Analytics and Machine Learning certified training.

Under the Nexus Program, 18 hours of elective Area G courses (6 nexus degree courses) can be taken to earn a Nexus Option. A Nexus Option does not increase the number of hours you need to graduate. It is comprised of a group of 6 courses in Area G pertaining to the chosen Nexus Option and includes apprenticeships and internships to earn the Nexus Option alongside the bachelor's degree Program the student is already undertaking. Further information can be obtained by calling 229-500-2280 or sending email to robert.owor@asurams.edu.

These courses are designed to engage the student academically while collaborating with industry partners for internship, apprenticeship and job placements with such companies as IBM, Microsoft, Google, Amazon, Geico, P&G, Miller-Coors and others. Students gain industry expertise, earn badges as proof of certain skills and become highly marketable upon graduation.

All majors and minors in the department must achieve a grade of "C" or better in all mathematics, science, computer science, and business courses. A cumulative grade point average of at least 2.25 is required for graduation.

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CSCI 1302	Computer Science II	4
MATH 2111	Linear Algebra	3
MATH 2411	Introduction to Statistics	3
Area G - Major Requirements		
<i>Computer Science Courses (33 hours)</i>		
CSCI 2211	Visual BASIC Programming	3

CSCI 3111	Discrete Structures	3
CSCI 3122	Data Structures	3
CSCI 3132	Database Management	3
CSCI 3211	Computer Organization and Architecture I	3
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CSCI 4221	Software Engineering	3
CSCI 4915	Web Design and Development	3
CSCI 4921	Senior Project I	1
CSCI 4922	Senior Project II	2
<i>Mathematics Courses (6 hours)</i>		
MATH 3411	Statistical Methods	3
MATH 3423	Introduction to Operations Research	3
<i>Blockchain with Machine Learning Required Courses (18 hours)</i>		
CSCI 4392	Introduction to Blockchain Technology	3
CSCI 4397	Blockchain Design Thinking ³	3
CSCI 4389	Blockchain Coding and Implementation ³	3
CSCI 4319	Introduction to Machine Learning	3
CSCI 4611	Apprenticeship I ³	3
CSCI 4612	Apprenticeship II ³	3
<i>Major Electives (3 hours from below list)</i>		
CSCI 3000	Cryptography & Computer Security	3
CSCI 3200	Design & Analysis of Algorithm	3
CSCI 3300	High Performance Computing	3
CSCI 3335	Risk Analysis & Information Infra-Structure Security	3
CSCI 4338	Network & Operating Systems Security	3
CSCI 4340	Wireless & Mobile Security	3
CSCI 4344	Computer Forensics	3
CSCI 4911	Special Topics in Computer Science & Computer Information Systems	3
General Elective		1
First-Year and Wellness Course Requirements Outside the Core		
ASU 1101	First Year Experience: Pathways to Success	1
HEDP, WELL	Health & Wellness Requirement ²	2
Total Semester Hours		124

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CSCI 4221	Software Engineering	3
CSCI 4915	Web Design and Development	3
CSCI 4921	Senior Project I	1
CSCI 4922	Senior Project II	2
<i>Mathematics Courses (6 hours)</i>		
MATH 3411	Statistical Methods	3
MATH 3423	Introduction to Operations Research	3
<i>Blockchain with Data Analytics Required Courses (18 hours)</i>		
CSCI 3350	Introduction to Data Science with R and Watson	3
CSCI 4319	Introduction to Machine Learning	3

CSCI 1321	Introduction to Programming in R and Python	3
CSCI 4391	Data Mining ³	3
CSCI 4611	Apprenticeship I ³	3
CSCI 4612	Apprenticeship II ³	3
<i>Major Electives (3 hours from below list)</i>		<i>3</i>
CSCI 3000	Cryptography & Computer Security	
CSCI 3200	Design & Analysis of Algorithm	
CSCI 3300	High Performance Computing	
CSCI 3335	Risk Analysis & Information Infra-Structure Security	
CSCI 4338	Network & Operating Systems Security	
CSCI 4340	Wireless & Mobile Security	
CSCI 4344	Computer Forensics	
CSCI 4911	Special Topics in Computer Science & Computer Information Systems	
General Elective		1
First-Year and Wellness Course Requirements Outside the Core		
ASU 1101	First Year Experience: Pathways to Success	1
HEDP, WELL	Health & Wellness Requirement ²	2
Total Semester Hours		124

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