Bachelor of Arts in Computer Science (BACS)

The goal of the BA degree in Computer Science (BACS) is to educate students so they can develop a deep understanding of computing and critical thinking skills that will allow them to pursue a wide variety of possible careers, including an opportunity to become academic, cultural, and industrial leaders in areas that integrate the arts and sciences with computing.

Requirements for the BACS Major

Prerequisites:

An introductory computer science course, such as: CS 1110, 1111, 1112, 1113 or CS 1120, with a grade of C+ or higher. This requirement is waived with AP or IB credit, or by passing CS placement test.

CS 2110, Software Development Methods, or an equivalent course, with a grade of C+ or higher. Passing the CS 2110 placement test does not offer course credit. Students will be required to take some other CS course at UVA in lieu of CS 2110.

Required Core Courses:

- CS 2102: Discrete Math
- CS 2150: Program and Data Representation
- CS 3330: Computer Architecture
- CS 4102: Algorithms (NOTE: this course has a math pre-requisite of any one of the following: APMA 1090, MATH 1210 or MATH 1310)
- One of the following four courses: CS 3102 (Theory of Computation), CS 3240 (Advanced Software Development), CS 4414 (Operating Systems), or CS 4610 (Programming Languages)

Computer Science Electives (4 required):

Any CS 3000 level or CS 4000 level courses not otherwise required. At most 3 credits of CS 4993 (Directed Independent Study) can be counted towards this requirement. CS 4980 and CS 4998 cannot be counted towards this requirement. Possible choices include, but are not limited to:

- CS 3102 Theory of Computation (if not taken as core)
- CS 3205 HCI in Software Development
- CS 3240 Advanced SW Development (if not taken as core)
- CS 3710 Introduction to Cybersecurity
- CS 4414 Operating Systems (if not taken as core)
- CS 4457 Computer Networks
- CS 4620 Compilers
- CS 4630 Defense Against the Dark Arts
- CS 4640 Programming Languages for Web Applications
- CS 4710 Artificial Intelligence
- CS 4720 Mobile Application Development
- CS 4730 Game Design
- CS 4740 Cloud Computing
- CS 4750 Database Systems
- CS 4753 Electronic Commerce Technology
- CS 4810 Introduction to Computer Graphics

Integration Electives (4 required):

These are non-CS courses that contribute to this program of study by exploring applications of computing to arts and sciences fields in a significant way or by providing fundamental computing depth and background. Integration electives are courses offered by departments in the College of Liberal Arts and Sciences. For a detailed list of some of the currently approved courses visit: https://engineering.virginia.edu/departments/computer-science/academics/ba-computer-science#accordion67813

College Competency and Area Requirements:

The BACS program includes the same general requirements as all other liberal arts and science degrees in the College of Arts and Sciences. For more information, please visit: http://college.as.virginia.edu/area
Distinguished Majors Program:

BACS majors who have completed 18 credit hours toward their major and who have a cumulative GPA of 3.4 or better may apply to the Distinguished Majors Program. For more information visit: https://engineering.virginia.edu/departments/computer-science/academics/ba-computer-science#accordion67814

Sample BACS Curriculum Schedule

Important:

1.) This is only a sample schedule based on the first semester a student starts taking CS courses, not necessarily their first semester at UVA.

2.) In their 8 semesters at UVA, students will also need to fulfill the academic requirements of their school of enrollment and complete the required CS Integration Electives.

First Semester

CS 111X Intro to Programming 3 credits

Second Semester

CS 2110 Software Development Methods 3 credits
CS 2102 Discrete Mathematics 3 credits

Third Semester

CS 2150 Program & Data Representation 3 credits

Fourth, Fifth or Later Semesters

CS 3330 Computer Architecture 3 credits
CS 4102 Algorithms 3 credits
One of these 4 CS courses CS 3102, 3240, 4414, or 4610 3 credits
CS electives See list on reverse side for examples 4 courses

For more specific information regarding the BACS Major, please refer to the Undergraduate Record:

http://records.ureg.virginia.edu/preview_program.php?catoid=47&poid=5915