Rice Hall
85 Engineers Way
Charlottesville, VA 22904
www.cs.virginia.edu
434.982.2200
cs-office@virginia.edu

Bachelor of Science in Computer Science (BSCS)

The computer science BS degree prepares students for careers that provide both personal and societal rewards. As creators of information technologies our graduates are reaching out to people and the world by supporting and enhancing communication, health care, entertainment, scientific inquiry, transportation, business, and almost any other endeavor you can imagine Computing connects closely with a wide range of disciplines including, but not limited to, the visual arts, music, life sciences, the physical sciences, linguistics, engineering, mathematics, and the social sciences. The computer curriculum focuses on developing methods and tools for describing, implementing, and analyzing information processes and for managing complexity; including abstraction, specification, and recursion. The Bachelor of Science in Computer Science degree offered by the Department of Computer Science is accredited by the Computing Accreditation Commission of ABET.

Requirements for the BSCS Major

Required SEAS Courses:
- APMA 1110 & 2120
- CHEM 1610 & 1611
- ENGR 1620 & 1621
- PHYS 1425, 1429, 2415, & 2419

Required Core CS AND APMA Courses:
- CS 1110, 1111, 1112 or 1113: Introduction to Computer Science (requirement waived with AP or IB credit, or by passing CS placement test)
- CS 2110: Software Development Methods
- CS 2102: Discrete Mathematics I
- CS 2150: Program & Data Representation
- CS/ECE 2330: Digital Logic
- CS 2190: CS Seminar I
- CS 3102: Theory of Computation
- CS 3330: Computer Architecture
- CS 3240: Advanced Software Development Techniques
- CS 4102: Analysis of Algorithms
- CS 4414: Operating Systems
- Capstone course: CS 4971 or CS 4980
- APMA 3100: Probability
- APMA 2130 or 3080 or 3120 or 3150 (select 2, but cannot take both 3120 & 3150).

Computer Science Electives (5 required):
Any CS 3000 level or CS 4000 level courses not otherwise required. See the Undergraduate Handbook for a complete list and for restrictions. Among the choices:

- CS 3205 HCI in Software Development
- CS 4240 Principles of Software Design
- CS 4330 Advanced Computer Architecture
- CS 4444 Parallel Computing
- CS 4457 Computer Networks
- CS 4458 Internet Engineering
- CS 4610 Programming Languages
- CS 4620 Compilers
- CS 4630 Defense Against the Dark Arts
- CS 4710 Artificial Intelligence
- CS 4720 Web and Mobile Systems
- CS 4730 Game Design
- CS 4750 Database Systems
- CS 4753 Electronic Commerce Technology
- CS 4810 Introduction to Computer Graphics

Science Elective (1 required):
One course chosen from an approved list of Biology, Chemistry, Electrical Engineering, Materials Science, and Physics courses.

Science, Technology & Society (STS) (4 required):
STS 1500, 4500, & 4600, or one 2XXX/3XXX

Humanities & Social Sciences (HSS) Electives (5 required) & Unrestricted Electives (5 required):
For a list of acceptable courses, please visit:

https://engineering.virginia.edu/sites/default/files/common/offices/undergraduate-programs-office/Files/uva-engineering-undergraduate%284%29.pdf

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Sample BSCS Curriculum Schedule

First Semester - 15 Credits

APMA 1110	Single Variable Calculus (4)
CHEM 1610	Intro Chemistry I for Engineers (3)
CHEM 1611	Intro Chem. I for Engineers Lab (1)
ENGR 1620	Introduction to Engineering (3)
ENGR 1621	Intro. to Engineering Lab (1)
STS 1500 or HSS elective	Science, Tech. & Contemporary Issues or HSS elective1 (3)

Second Semester - 17 Credits

SCI elective	Science elective[2] (3)
HSS elective1	HSS Elective or Science, Tech. & or STS 1500 & Contemporary Issues (3)
APMA 2120	Multivariate Calculus (4)
PHYS 1425	Physics I: Mechanics, Thermo. (3)
PHYS 1429	Physics I Workshop (1)
CS 111x or CS 1120	Introduction to Programming or Introduction to Computing (3)

Third Semester - 16 Credits

APMA course	APMA elective3 or APMA 3100 (3)
HSS elective	HSS elective[1] (3)
CS 2110	Software Develop. Methods (3)
CS 2102	Discrete Mathematics (3)
PHYS 2415	General Physics II: E&M & Lab (3)
PHYS 2419	General Physics II Workshop (1)

Fourth Semester - 16 Credits

STS 2xxx/3xxx	STS 2xxx/3xxx elective (3)
UE elective	Unrestricted elective[4] (3)
CS 2150	Prog. & Data Representation (3)
CS/ECE 2330	Digital Logic Design (3)
CS 2190	CS Seminar[6] (1)
CS 3102	Theory of Computation (3)

Fifth Semester - 18 Credits

APMA course	APMA elect.[3] or APMA 3100 (3)
HSS elective	HSS elective[1] (3)
UE elective	Unrestricted elective[4] (3)
CS elective	CS elective (3)
CS 3330	Computer Architecture (3)
CS 4102	Algorithms (3)

Sixth Semester - 15 Credits

APMA course	APMA elective[3] or APMA 3100 (3)
UE elective	Unrestricted elective[4] (3)
HSS elective	HSS elective[1] (3)
CS elective	CS elective (3)
CS 3240	Advanced Software Develop. (3)

Seventh Semester - 15 Credits

CS elective	CS elective (3)
CS 4970 or CS elective	Capstone Practicum I5 or CS elective (3)
UE elective	Unrestricted elective[4] (3)
CS 4414	Operating Systems (3)
STS 4500	STS and Engineering Practice (3)

Eighth semester – 15 Credits

CS 4971 or 4980	Capstone Pract. II or Capstone Res. (3)
CS elective	CS elective (3)
UE elective	Unrestricted elective[4] (3)
HSS elective	HSS elective[1]
STS 4600	Engineer, Ethics & Prof. Society (3)

Footnotes

1. Chosen from the approved list available in A122 Thornton Hall.
2. Chosen from: BIOL 2010, 2020; CHEM 1620; ECE 2066; MSE 2090; and PHYS 2620.
3. Chosen from APMA 2130, 3080, 3100, 3120 or 3150 (but cannot take both 3120 and 3150).
4. Unrestricted electives may be chosen from any graded course in the University except mathematics courses be- low MATH 1310 and courses that substantially duplicate any others offered for the degree, including PHYS 2010, 2020; CS 1100, 1200; or any introductory programming course. Students in doubt as to what is acceptable to satisfy a degree requirement should get the approval of their advisor and the dean's office, located in A-122 Thornton Hall. APMA 1090 counts as a three-credit unrestricted elective.
5. The CS capstone experience 4970 and 4971 requires 4th year standing.
6. CS 2190 requires second- or third-year standing