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Bachelor of Arts in Computer Science (BACS)

The BA Computer Science major concentrates on developing the deep understanding of computing and critical thinking skills that will enable graduates to pursue a wide variety of possible fields and to become academic, cultural, and industrial leaders in areas that integrate the arts and sciences with computing. Computing connects closely with a wide range of disciplines including, but not limited to, the visual arts, music, life sciences, the physical sciences, linguistics, mathematics, and the social sciences.

The computer science curriculum focuses on developing methods and tools for describing, implementing, and analyzing information processes and for managing complexity; including abstraction, specification, and recursion.

Requirements for the BACS Major

Prerequisite

- CS 1110, 1111, 1112 or 1113: Introduction to Computer Science (requirement waived with AP or IB credit, or by passing CS placement test).

Required Core Courses

- CS 2110: Software Development Methods
- 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*).

Computer Science Electives (4 required)

Any CS 3000 level or CS 4000 level courses not otherwise required. See the Undergraduate Record for a complete list and for restrictions. Among the choices:

- CS 3102 *Theory of Computation*
- CS 3205 *HCI in Software Development*
- CS 4414 *Operating Systems*
- CS 4444 *Parallel Computing*
- 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)

The integration electives come from a list of courses approved by the BACS committee, and are offered by departments other than Computer Science. Integration electives provide fundamental computing depth and background or explore applications of computing to arts and sciences fields. For a detailed list of many of the currently approved courses visit:

<http://www.cs.virginia.edu/acad/ba/integration.html>

Courses on the above list come from, but are not limited to the following departments:

- Architecture
- Biology
- Drama
- Economics
- Linguistics
- Math
- Music
- Psychology

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:

<http://www.cs.virginia.edu/acad/ba/distinguished-major.html>