

**Bachelor of Science (BS)  
Degree Code 219A**

**Program of Study for Computer Science Majors**

**I. GENERAL EDUCATION CURRICULUM..... 44**

The science taken in AREA II-D fulfills part or all of the Science Inquiry Perspective. MAT 1110 fulfills the Quantitative Literacy requirement.

**II. MAJOR REQUIREMENTS (not including 9-12 s.h. counted in Area I, above) ..... 67-70**

**2.0 major GPA is required for graduation. Major GPA calculation will include all courses taken in the major department, plus any other courses under II. Minimum of 18 semester hours of courses taken to fulfill major requirements must be courses offered by Appalachian.**

**A. Computer Science (39 hours):**

- C S 1440 \_\_\_\_\_ (4) Computer Science I (Pre: MAT 1020/1025 w/minimum grade C-)
- C S 2440 \_\_\_\_\_ (4) Computer Science II (Pre: CS 1440 or 1445 w/minimum grade C; Co: 1100)
- C S 2450 \_\_\_\_\_ (3) Introduction to Computer Systems (Pre: CS 2440 w/min grade of C)
- C S 2490 \_\_\_\_\_ (3) Introduction to Theoretical Computer Science (Pre: CS 2440 w/min grade of C)
- C S 3100 \_\_\_\_\_ (2) Junior Seminar [WID] (Pre: ENG 2001)
- C S 3430 \_\_\_\_\_ (3) Database (Pre: CS 2440 w/ min grade of C)
- C S 3460 \_\_\_\_\_ (3) Data Structures (Pre: CS 2440 w/min grade of C)
- C S 3481 \_\_\_\_\_ (3) Computer Systems I (Pre: CS 2450, 2490; Co: 3460)
- C S 3482 \_\_\_\_\_ (3) Computer Systems II (Pre: CS 3481, 3460; Co: 3490)
- C S 3490 \_\_\_\_\_ (3) Programming Languages (Pre: CS 2490, 3460)
- C S 3667 \_\_\_\_\_ (3) Software Engineering (Pre: CS 2440 w/min grade of C)
- C S 4100 \_\_\_\_\_ (2) Senior Seminar (Pre: Sr. standing; CS 3100)

**Choose one Capstone: (Must complete 3 hours minimum)**

- C S 4800 \_\_\_\_\_ (3) Capstone Project [CAP] (Pre: Sr. standing; CS 3667)
- CS 4510 \_\_\_\_\_ (1-3) Senior Honors Thesis [CAP] (Pre: 6 sh CS honors courses at 2000 or above w/min grade "B" )

**B. Mathematics (18 hours):**

- C S 1100 \_\_\_\_\_ (3) Discrete Mathematics (Pre: MAT 1020 or 1025 w/minimum grade C-)
- MAT 1110 \_\_\_\_\_ (4) Calculus with Analytic Geometry I (Pre: MAT 1025 w/min grade C-)
- MAT 1120 \_\_\_\_\_ (4) Calculus with Analytic Geometry II (Pre: MAT 1110 w/min grade C-)
- MAT 2240 \_\_\_\_\_ (3) Introduction to Linear Algebra (Pre: MAT 1120)
- STT 3850 \_\_\_\_\_ (4) Statistical Data Analysis I (Pre: MAT 1110)

**C. Computer Science electives (Select 9 hours)** No more than three hours of CS 3470 may be included in the nine hours. Some graduate level classes may be chosen as electives with permission of the graduate school and the CS department.

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| C S 3440 _____ (3) Client-Side Web Programming (Pre: CS 2440 w/min C)  | C S 4450 _____ (3) Data Comm & Netwking (Pre: CS 3481)                 |
| C S 3463 _____ (3) Simulation (Pre: CS 3460; STT 2810 or 4250)         | C S 4465 _____ (3) Comp Graphics (Pre: CS 3460; MAT 2240)              |
| C S 3470 _____ (1-6) Current Computer Use                              | C S 4520 _____ (4) Operating Systems (Pre: CS 3482)                    |
| C S 3500 _____ (1-3) Independent Study in Computer Science             | C S 4550 _____ (3) Theoretical Comp Sci (Pre: CS 2490)                 |
| C S 3530-3549 _____ (1-4) Selected Topics courses                      | C S 4570 _____ (3) Human Comp Interfaces                               |
| C S 3750 _____ (3) Appld Neural Ntwks (Pre: CS 1440 w/min C; MAT 2240) | C S 4620 _____ (4) Real-time Systems (Pre: CS 3482)                    |
| C S 3760 _____ (3) Sys Admin & Security (Pre: CS 3460 w/min grade C)   | C S 4740 _____ (3) Digital Image Proc (Pre: CS 1440 w/min C; MAT 2240) |
| C S 3770 _____ (3) Computational Crypt (Pre: CS 3460)                  | MAT 4310 _____ (3) Numerical Methods (Pre: MAT 2310)                   |
| C S 4435 _____ (3) Server-side Web Programming (Pre: CS 3430, 3440)    | MAT 4990 _____ (3) Numerical Linear Algebra (Pre: MAT 4310)            |
| C S 4440 _____ (3) Artificial Intelligence (Pre: CS 3460)              |  |

**D. Science Requirement: Complete a minimum of 13 semester hours from one of the following options:**

**Option A**

- PHY 1150 \_\_\_\_\_ (5) Analytical Physics I (Co: MAT 1110)
- PHY 1151 \_\_\_\_\_ (5) Analytical Physics II (Co: MAT 1120)

**Option B**

- PHY 1150 \_\_\_\_\_ (5) Analytical Physics I (Co: Mat 1110)

**AND** choose one of the following courses:

- AST 1001 \_\_\_\_\_ (4) Intro Astronomy I-Solar Systems
- BIO 1801 \_\_\_\_\_ (4) Biological Concepts I (Co: CHE 1101)
- CHE 1101/CHE 1110 \_\_\_\_\_ (4) Intro Chem I & Lab
- GLY 1101 \_\_\_\_\_ (4) Intro to Physical Geology

**AND** one of the following 8 s.h. sequences:

- AST 1001 \_\_\_\_\_ (4) Introductory Astronomy I-Solar Systems
- AST 1002 \_\_\_\_\_ (4) Introductory Astronomy II-Stars & Galaxies (Pre: AST 1001)
- CHE 1101/1110 \_\_\_\_\_ (4) Introductory Chemistry I & Lab
- CHE 1102/1120 \_\_\_\_\_ (4) Introductory Chemistry II & Lab (Pre: CHE 1101/1110)
- BIO 1801 \_\_\_\_\_ (4) Biological Concepts I (Co: CHE 1101)
- BIO 1802 \_\_\_\_\_ (4) Biological Concepts II (Pre: BIO 1801)
- GLY 1101 \_\_\_\_\_ (4) Introduction to Physical Geology
- GLY 1102 \_\_\_\_\_ (4) Intro. to Hist Gly **OR** GLY 1103 \_\_\_\_\_ (4) Int Env & App Gly

**III. MINOR (optional)**

**IV. ELECTIVES (taken to total minimum required for the degree, normally 122 hours)..... 8-11**

**2 semester hours of free electives must be outside the major discipline.**

**122**