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. MAT 1110 fulfills the Quantitative Literacy requirement.

II. MAJOR REQUIREMENTS (not including up to 14 s.h. counted in Area I, above) ........................................................................... 65

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: CS 2440; RC 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)
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)
C S 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 4900 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.

C S 3240  ____ (3) Mobile Device Programming (Pre: CS 2440)
C S 3440  ____ (3) Client-Side Web Programming (Pre: CS 2440 w/min C)
C S 3463  ____ (3) Simulation (Pre: CS 3460; STT 2810)
C S 3500  ____ (1-3) Independent Study in Computer Science
C S 3530-3549  ____ (1-4) Selected Topics courses
C S 3750  ____ (3) Appld Neural Ntwks (Pre: CS 1440 w/min C; MAT 2240)
C S 3760  ____ (3) Sys Admin & Security (Pre: CS 3460 w/min grade C)
C S 3770  ____ (3) Computational Cryptography (Pre: CS 3460)
C S 4435  ____ (3) Server-side Web Programming (Pre: CS 3430, 3440)
C S 4440  ____ (3) Artificial Intelligence (Pre: CS 3460)
C S 4450  ____ (3) Data Comm & Netwking (Pre: CS 3481)
C S 4465  ____ (3) Computer Graphics (Pre: CS 3460; MAT 2240)
C S 4520  ____ (4) Operating Systems (Pre: CS 3482; Sr standing)
C S 4550  ____ (3) Theoretical Comp Sci (Pre: CS 2490; Sr. standing)
C S 4570  ____ (3) Human Computer Interfaces (Pre: Sr. standing)
C S 4620  ____ (4) Real-time Systems (Pre: CS 3482; Sr. standing)
C S 4740  ____ (3) Digital Image Proc (Pre: CS 1440 w/min C; MAT 2240; Sr. st)
C S 4900  ____ (1-6) Internship (Pre: Departmental approval)
MAT 4310  ____ (3) Numerical Methods (Pre: MAT 2310)
MAT 4990  ____ (3) Numerical Linear Algebra (Pre: MAT 4310; Sr. stndg)

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

<table>
<thead>
<tr>
<th>Option A</th>
<th>Option B</th>
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<tbody>
<tr>
<td>PHY 1150  ____ (5) Analytical Physics I (Co: MAT 1110)</td>
<td>PHY 1150  ____ (5) Analytical Physics I (Co: MAT 1110)</td>
</tr>
<tr>
<td>PHY 1151  ____ (5) Analytical Physics II (Co: MAT 1120)</td>
<td>AND one of the following 8 s.h. sequences:</td>
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<td>AND choose one of the following courses:</td>
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<tr>
<td>AST 1001  ____ (4) Intro Astronomy I-The Solar System</td>
<td>AS 1022  ____ (4) Introductory Astronomy II-Stars &amp; Galaxies (Pre: AST 1001)</td>
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<tr>
<td>BIO 1801  ____ (4) Biological Concepts I  (Co: CHE 1101)</td>
<td>BIO 1801  ____ (4) Biological Concepts I (Co: CHE 1101)</td>
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<tr>
<td>CHE 1101 &amp; CHE 1110  ____ (4) Intro Chem I &amp; Lab</td>
<td>BIO 1802  ____ (4) Biological Concepts II (Pre: BIO 1801 w/min grade C)</td>
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<tr>
<td>GLY 1101  ____ (4) Intro to Physical Geology</td>
<td>CHE 1101/1110  ____ (4) Introductory Chemistry I &amp; Lab</td>
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<td>CHE 1102/1120  ____ (4) Introductory Chemistry II &amp; Lab (Pre: CHE 1101 &amp; 1110)</td>
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<td>GLY 1101  ____ (4) Introduction to Physical Geology</td>
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<td>GLY 1102  ____ (4) Intro. to Hist Gly OR GLY 1103  ____ (4) Env Change, Haz, &amp; Res</td>
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III. MINOR (optional)

IV. ELECTIVES (taken to total minimum required for the degree, normally 122 hours) ................................................................................................................................................. 13

2 semester hours of free electives must be outside the major discipline. 122