UAA Bachelor of Science in Computer Science
Recommended Course Sequence & Prerequisites Flowchart
2014/2015

High School or Equivalent

Fall
17 credits

Oral Comm. (3)

English Placement Test is Required or fulfill Prerequisites

Math Placement Test or MATH 107+108, OR MATH 109

MATH 200 (4)
Calculus I

MATH 231 (3)
Discrete Math

ENGL 111 (3)
Written Comm.

CSCE 201 (4)
Programming I

MATH 105,107, 108, or 109 or placement into MATH 200

Spring
18 credits

See your advisor for selection of GER courses

Freshman

Fall
13-14 credits

Language/ Humanities (3-4)

PHYS 123/L (4)
Basic Physics I

PHYS 211/L (4)
General Physics I

CSCE 241 (4)
Comp HW Concepts

CSCE 248 (3)
Computer Org. & Assembly

CSCE 211 (3)
Programming II

MATH Placement Test or MATH 107+108, OR MATH 109

Spring
16-17 credits

Language/ Humanities (3-4)

PHYS 124/L (4)
Basic Physics II

PHYS 212/L (4)
General Physics II

CSCE 222 (3)
Obj Oriented Prog.

Sophomore

Fall
14 credits

Nat Sci & Lab (4)

Upper Division CSCE Elective (3)

STAT 307 (4)
Probability

See your advisor for list of Upper Division CS Electives and Prerequisites

Spring
13 credits

Nat Sci & Lab (4)

CSCE 365 (3)
Networking

ENGL 312 (3)
Adv. Technical Writing

ENGL 414 (3)
Research Writing

CSCE 331 (3)
Programming Languages

Junior

Fall
12 credits

Fine Arts (3)

Upper Division CSCE Elective (3)

PHIL A305 (3)
Prof. Ethics

CSCE 401 (3)
Software Engineering

Spring
12 credits

Social Science (3)

Upper Division CSCE Elective (3)

Upper Division CSCE Elective (3)

CSCE 470 (3)
CS&E Capstone

Senior

120 Total Credits Required for the degree, of which 42 must be upper division.

Key:

Major Requirement

GER

Upper Division CSCE Elective

Find more information on the web at http://www.uaa.alaska.edu/schoolofengineering

V. 7-7-2014
Bachelor of Science in Computer Science

Fall Year 1 (17 credits)
- CSCE A201: Computer Programming I (Java) 4
- ENGL A111: Methods of Written Comm. 3
- MATH A200: Calculus I 4
- MATH A231: Intro to Discrete Math. 3
- COMM A111, 235, 237 or 241 3

Spring Year 1 (18 credits)
- CSCE A222: Object Oriented Programming 3
- CSCE A211: Computer Programming II 4
- ENGL A212: Technical Writing 3
- CSCE A241: Computer Hardware Concepts 4
- MATH A201: Calculus II 4

Fall Year 2 (13-14 credits)
- CSCE A311: Data Structures & Algorithms 3
- Social Sciences GER
- PHYS A123/L: Basic Physics I with Laboratory 4
- (or PHYS A211/L: Basic Physics I with Lab)
- Humanities/Foreign Language 3-4

Spring Year 2 (16-17 credits)
- CSCE A248: Computer Org. & Assembly 3
- CSCE A351: Automata, Algorithms, & Complexity 3
- PHYS A124/L: Basic Physics II with Laboratory 4
- (or PHYS A212/L: (or General Physics II with Lab)
- CSCE A360: Database Systems 3
- Humanities/Foreign Language 3-4

Fall Year 3 (14 credits)
- STAT A307: Probability & Statistics 4
- CSCE A320: Operating Systems 3
- *Natural Science 1
- **Upper Division CSCE Elective 3

Spring Year 3 (13 credits)
- CSCE A331: Programming Language Concepts 3
- ENGL A312: Advanced Technical Writing 3
- *Natural Science 2
- CSCE A365: Computer Networks 3

Fall Year 4 (12 credits)
- CSCE A401: Software Engineering 3
- PHIL A305: Professional Ethics 3
- **Upper Division CSCE Elective 3
- Fine Arts GER 3

Spring Year 4 (12 credits)
- CSCE A470: CS&E Capstone Project 3
- **Upper Division CSCE Elective 3
- **Upper Division CSCE Elective 3
- Social Sciences GER 3

A total of 120 credits is required for this degree, 42 of which must be upper division. Any additional credits to reach 120 total must be earned at the 100 level or higher.

*The total natural science requirement of each student includes 16 credits (7 credits from the General Education natural science requirement and 9 credits from the list of natural science courses from the Major Program Requirements). These two requirements may be met by any combination of applicable courses that combine to 16 credits. The total must include two laboratory courses and at least 6 credits in each of two disciplines.

**Students completing the Bachelor of Science need an additional 12 upper division credits in CSCE, Mathematics (excluding MATH A420 and MATH A495), or Statistics. Nine of these credits must be in courses with a CSCE prefix. A maximum of 3 credits of CSCE A395, a maximum of 3 credits of CSCE A495, and a maximum of 6 credits of CSCE A498 may be applied to degree requirements.

Upper Division Computer Science Electives

<table>
<thead>
<tr>
<th>Course</th>
<th>Number</th>
<th>Title</th>
<th>Course</th>
<th>Number</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>CSCE</td>
<td>A302</td>
<td>Design Patterns</td>
<td>CSCE</td>
<td>A446</td>
<td>Digital Media &amp; Interactive Systems</td>
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<tr>
<td>CSCE</td>
<td>A305</td>
<td>Android Programming</td>
<td>CSCE</td>
<td>A448</td>
<td>Computer Architecture</td>
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<tr>
<td>CSCE</td>
<td>A385</td>
<td>Computer Graphics</td>
<td>CSCE</td>
<td>A450</td>
<td>Robotics</td>
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<tr>
<td>CSCE</td>
<td>A395</td>
<td>Internship in Computing</td>
<td>CSCE</td>
<td>A460</td>
<td>Advanced Database Systems</td>
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<tr>
<td>CSCE</td>
<td>A411</td>
<td>Artificial Intelligence</td>
<td>CSCE</td>
<td>A462</td>
<td>Data Mining</td>
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<tr>
<td>CSCE</td>
<td>A412</td>
<td>Evolutionary Computing</td>
<td>CSCE</td>
<td>A485</td>
<td>Computer &amp; Machine Vision</td>
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<tr>
<td>CSCE</td>
<td>A415</td>
<td>Machine Learning</td>
<td>CSCE</td>
<td>A490</td>
<td>Topics in Computer Science</td>
</tr>
<tr>
<td>CSCE</td>
<td>A431</td>
<td>Compilers</td>
<td>CSCE</td>
<td>A498</td>
<td>Individual Research</td>
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