Placement Test is Required or fulfill Prerequisites: MATH 105, 107, 108, or 109 or placement into MATH 200.

**Key:**
- Major Requirement
- GER
- Upper Division CSCE Elective

**UAA Bachelor of Science in Computer Science**

**Recommended Course Sequence & Prerequisites Flowchart**

**2013/2014**

**High School or Equivalent**
- Math Placement Test or MATH 107+108, OR MATH 109
- English Placement Test is Required or fulfill Prerequisites
- MATH 105, 107, 108, or 109 or placement into MATH 200

**Freshman**
- **Fall**
  - 17 credits
  - 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.
  - CS 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
  - MATH 201 (4) Calculus II
  - ENGL 212 (3) Technical Writing
  - CSCE 241 (4) Comp HW Concepts
  - CSCE 211 (4) Programming II
  - CSCE 202 (3) Obj Oriented Prog.

**Sophomore**
- **Fall**
  - 13-14 credits
  - Language/Humanities (3-4)
  - PHYS 123/L (4) Basic Physics I
  - PHYS 211/L (4) General Physics I
  - CSCE 311 (3) Data Structures & Algorithms
  - CSCE 351 (3) Automata, Algorithms, & Complexity
  - Phys 123/L (4) Basic Physics I
- **Spring**
  - 13-14 credits
  - Language/Humanities (3-4)
  - PHYS 124/L (4) Basic Physics II
  - PHYS 212/L (4) General Physics II
  - CSCE 351 (3) Automata, Algorithms, & Complexity
  - CSCE 360 (3) Database Systems

**Junior**
- **Fall**
  - 14 credits
  - Nat Sci & Lab (4)
  - CSCE 365 (3) Networking
  - STAT 307 (4) Probability
  - or
  - CSCE 211 (4) Programming II
  - CSCE 248 (3) Computer Org. & Assembly
- **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
  - See your advisor for selection of Upper Division CS Electives and Prerequisites

**Senior**
- **Fall**
  - 15 credits
  - Fine Arts (3)
  - Social Science (3)
  - CSCE 401 (3) Software Engineering
  - PHIL A305 (3) Prof. Ethics
  - CSCE 211 (4) Programming II
- **Spring**
  - 12 credits
  - Social Science (3)
  - Upper Division CSCE Elective (3)
  - CSCE 470 (3) CS&E Capstone

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

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

V. 3-6-2013
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 A202  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 A248  Computer Org. & Assembly  3
CSCE A311  Data Structures & Algorithms  3
PHYS A123/L  Basic Physics I with Laboratory (or PHYS A211/L with Lab)  4
Humanities/Foreign Language  3-4

Spring Year 2 (13-14 credits)
CSCE A351  Automata, Algorithms, & Complexity  3
CSCE A360  Database Systems  3
PHYS A124/L  Basic Physics II with Laboratory (or PHYS A212/L with Lab)  4
Humanities/Foreign Language  3-4

Fall Year 3 (14 credits)
STAT A307  Probability & Statistics  4
CSCE A320  Operating Systems  3
*Natural Science 1  4
**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  4
CSCE A365  Computer Networks  3

Fall Year 4 (15 credits)
CSCE A401  Software Engineering  3
PHIL A305  Professional Ethics  3
**Upper Division CSCE Elective  3
Fine Arts GER  3
Social Sciences 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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<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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<td>CSCE</td>
<td>A411</td>
<td>Artificial Intelligence</td>
<td>CSCE</td>
<td>A462</td>
<td>Data Mining</td>
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<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>
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<tr>
<td>CSCE</td>
<td>A431</td>
<td>Compilers</td>
<td>CSCE</td>
<td>A498</td>
<td>Individual Research</td>
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