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| Bachelor of Science in Computer Science Catalog Year: 2016-2017 Total Degree Credit hours: 120 |
| **General Education Requirements (See DegreeWorks for prerequisites)** |
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| A-1 | **ENGL 1101** Composition I | 3 |  |
| **ENGL 1102** Composition II | 3 |  |
| A-2 | **MATH 1113** Pre**-**Calculus I | 3 |  |

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| B-1 | **ECON 1000** Contemporary Economic Issues | 2 |  |
| B-2 | **COM 1100** Human Communication | 3 |  |

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| C-1 | **ENGL 2000-level** Literature  | 3 |  |
| C-2 | **ART/DANC/MUSI/TPS 1107**Arts and Culture of the World | 3 |  |

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| D-1 | **MATH 1190** Calculus I | 4 |  |
| D-2 | **BIOL 1107/L, CHEM 1211/L or PHYS 2211/L**  | 8 |  |
| **BIOL 1108/L, CHEM 1212/L or PHYS 2212/L**  |

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| E-1 | **POLS 1101** American Government | 3 |  |
| E-2 | **HIST 2111/2112** US History | 3 |  |
| E-3 | **HIST 1100/1111/1112** World History | 3 |  |
| E-4 | **CRJU/GEOG/PSYC/SOCI/STS 1101, ANTH 1102 or ECON 2100** | 3 |  |

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| **Area A: Essential Skills (9 credit hours)** |
| Must complete this area within first 30 credit hours.Students must have C or better on all classes in this area. |
| **Area B: Institutional Options (5 credit hours)** |
| COMM 1100 is essential for computer science majors. |
| **Area C: Humanities/Arts (6 credit hours)** |
| Choose one course from both groups. |
| **Area D: Science, Math & Technology (12 credit hours)** |
| Must complete a science sequence. Either General Chemistry or Principles of Physics. “L” denotes accompanying lab course. |
| **Area E: Social Sciences (12 credit hours)** |
| Choose one course from each group for each requirement in E-2 to E-4. |

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| **KSU 1101/1111/1121/1200** First Year Seminar  | 3 |  |

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| **Free Electives (KSU first year seminar counts as a free elective)** | Total = 5 hrs |

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| **Area F Lower Division Major Requirements** |
|  **Prerequisites**

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| F-1 | **CS 1301** Programming Principles I | Co-req w/ MATH 1112 or 1113 | 4 |  |
| F-2 | **CS 1302** Programming Principles II | CS 1301 & MATH 1112 or 1113 | 4 |  |
| F-3 | **MATH 2202** Calculus II | MATH 1190 | 4 |  |
| F-4 | **BIOL 1107/L, CHEM 1211/L, or PHYS 2211/L**  | Varies | 4 |  |

*Students must have a C or better in all courses included in Area F.* |  Students should begin CS 1301 within their first or second semester in the major.  Students should complete a third lab science course that is not part of their Area D sequence. BIOL 2107 has prerequisites of CHEM 1211/L minimum grade of C. |

Notes:

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| **Upper Division Major Courses** |
|  **Prerequisites**

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| **CSE 3801** Professional Practices and Ethics | CS 1302 | 2 |  |
| **CS 3304** Data Structures | MATH 2345 & CS 1302 | 4 |  |
| **CS 3410** Database | CS 1302 | 3 |  |
| **CS 3501** Computer Organization & Architecture | CS 1302 & MATH 1190 | 4 |  |
| **CS 3502** Operating Systems | CS 3501 & CS 3304 | 3 |  |
| **CS 4305** Software Engineering  | CS 3410 & CSE 3801 & COM 1100 | 3 |  |
| **CS 4306** Algorithm Analysis | CS 3304 | 3 |  |
| **CS 4504** Distributed Computing or **CS 4720** Internet Programming | CS 3502 or CS 3304 (respectively) | 3 |  |
| **CS 4308** Programming Languages | CS 3304 & CS 3501 | 3 |  |
| **CS 4850** Senior Project | CS 3502 & CS 4305 | 3 |  |
| **MATH 2345** Discrete Math | MATH 1112/1113/1190 | 3 |  |
| **MATH 3332** Probability and Statistics | MATH 2202 | 3 |  |
| **TCOM 2010** Technical Writing | ENGL 1102 | 3 |  |
| **Upper Division Math Elective** | 3 |  |
| Choose 1 | **MATH 3322** Graph Theory | MATH 2345 or MATH 2390 |
| **MATH 3260** Linear Algebra I  | MATH 1190 |
| **MATH 3161** Numerical Methods I | MATH 3260 & CS 1301 |
| **MATH 3272** Intro to Linear Programming | MATH 3260 |

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| *Students must have a C or better in all Upper Division Major Courses.* |

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| **Major Electives**Choose any 12 credit hours |
|  **Prerequisites**

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| **CS 4242** Artificial Intelligence | CS 3304 | 3 |  |
| **CS 4322** Mobile Software Development | CS 1302 & CS 4305 | 3 |  |
| **CS 4412** Data Mining | CS 3410 & CS 3304 | 3 |  |
| **CS 4490** Special Topics in Computer Science |  | 1-3 |  |
| **CS 4512** Systems Programming | CS 3304 & CS 3502 | 3 |  |
| **CS 4514** Real-Time Systems | CS 3502 | 3 |  |
| **CS 4522** HPC/Parallel Programming | CS 3304 & CS 3502 | 3 |  |
| **CS 4523** Programming Massively Parallel Processors | CS 3304 & CS 3502 | 3 |  |
| **CS 4524** Cloud Computing | CS 3304 & CS 3502 | 3 |  |
| **CS 4612** Secure Software Development | CS 3501 | 3 |  |
| **CS 4622** Computer Networks | CS 3501 | 3 |  |
| **CS 4632** Modeling & Simulation | CS 3304 | 3 |  |
| **CS 4712** HCI, User Interface Engineering | CS 1302 | 3 |  |
| **CS 4722** Computer Graphics & Multimedia | CS 3304 | 3 |  |
| **CS 4732** Digital Image Processing | CS 3304 | 3 |  |
| **CGDD 4203** Mobile & Casual Game Development | CGDD 4003 or CSE 3203 | 3 |  |
| **SWE 3633** Software Architecture & Design | SWE 3313 | 3 |  |
| **SWE 3643** Software Testing & Quality Assurance | SWE 3313 | 3 |  |
| **SWE 3683** Embedded Systems Analysis & Design | CS 3304 | 3 |  |
| **SWE 3843** Embedded Systems Construction & Testing | CS 3502 | 3 |  |
| **SWE 4633** Component-Based Software Development | CS 3304 | 3 |  |

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*Students must have a C or higher in all Major Electives.* |