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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)** | |
| |  |  |  |  | | --- | --- | --- | --- | | A-1 | **ENGL 1101** Composition I | 3 |  | | **ENGL 1102** Composition II | 3 |  | | A-2 | **MATH 1113** Pre**-**Calculus I | 3 |  |  |  |  |  |  | | --- | --- | --- | --- | | B-1 | **ECON 1000** Contemporary Economic Issues | 2 |  | | B-2 | **COM 1100** Human Communication | 3 |  |  |  |  |  |  | | --- | --- | --- | --- | | C-1 | **ENGL 2000-level** Literature | 3 |  | | C-2 | **ART/DANC/MUSI/TPS 1107**  Arts and Culture of the World | 3 |  |  |  |  |  |  | | --- | --- | --- | --- | | 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** |  |  |  |  |  | | --- | --- | --- | --- | | 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 |  | | |  | | --- | | **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**   |  |  |  |  |  | | --- | --- | --- | --- | --- | | 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**   |  |  |  |  |  | | --- | --- | --- | --- | --- | | **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 |  |  | | --- | | *Students must have a C or better in all Upper Division Major Courses.* |  |  | | --- | | **Major Electives**  Choose any 12 credit hours | | **Prerequisites**   |  |  |  |  | | --- | --- | --- | --- | | **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 |  | |   *Students must have a C or higher in all Major Electives.* |