

Bachelor of Science in Computer Science

Catalog Year: 2016-2017

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 | |

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.

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

Area B: Institutional Options (5 credit hours)

COMM 1100 is essential for computer science majors.

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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 | |

Area C: Humanities/Arts (6 credit hours)

Choose one course from both groups.

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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 | | |

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.

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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 | |

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 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.

Students must have a C or better in all courses included in Area F.

Notes:

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 or CSE 3153 | CS 1302 | 3 |
| CS 3501 | Computer Organization & Architecture | CS 1302 | 4 |
| CS 3502 | Operating Systems | CS 3501 & CS 3304 | 3 |
| CS 4305 | Software Engineering or SWE 3313** | CS 3410 & CSE 3801 & COM 1100 | 3 |
| CS 4306 | Algorithm Analysis | CS 3304 | 3 |
| CS 4504 | Distributed Computing or CS 4720 * | CS 3502 | 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 | | | |
| Choose 1 | MATH 3322 Graph Theory | MATH 2345 or MATH 2390 | 3 |
| | 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.

** CS 4720 Internet Programming has CS 3304 and (CS 3410 or CSE 3153) as prereqs*

*** SWE 3313 has CS 1302 as the prereq*

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 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.