Computer Science Major Requirements
Catalog Year: 2015-16
Degree: Bachelor of Science
Credit Hours: 76+

“PR” indicates a pre-requisite. “CO” indicates a co-requisite.

Courses within this major may also satisfy general education requirements. Please consult http://registrar.cofc.edu/general-edu for more information.

Required Courses

☐ CSCI 220  Computer Programming I (3) PR: CSCI 120 or CSCI 180 or MATH 111 or higher or department permission; CO: CSCI 220L
☐ CSCI 220L  Computer Programming Lab I (1) CO: CSCI 220
☐ CSCI 221  Computer Programming II (3) PR: CSCI 220 with a C- or better, CSCI 220L with a C- or better; CO or PR: MATH 207
☐ CSCI 230  Data Structures and Algorithms (3) PR: CSCI 221 with a C- or better, MATH 207
☐ CSCI 250  Introduction to Computer Organization and Assembly Language Programming (3) PR: CSCI 220 with a C- or better and CSCI 220L with a C- or better; CO or PR: MATH 207
☐ CSCI 320  Programming Language Concepts (3) PR: CSCI 230 with a C- or better, MATH 207
☐ CSCI 340  Operating Systems (3) PR: CSCI 230 with a C- or better, CSCI 250 with a C- or better, MATH 207
☐ CSCI 350  Digital Logic and Computer Organization (3) PR: CSCI 250 with a C- or better; PR or CO: MATH 307
☐ CSCI 360  Software Architecture and Design (3) PR: CSCI 230 with a C- or better; CO or PR: COMM 104
☐ CSCI 362  Software Engineering (3) PR: CSCI 221 with a C- or better, MATH 207; CO or PR: COMM 104
☐ CSCI 392  Seminar on Computing and Society (3) PR: CSCI 221 with a C- or better
☐ CSCI 462  Software Engineering Practicum (3) PR: Senior standing, COMM 104, CSCI 230 with a C- or better, CSCI 360 or CSCI 362

Elective Requirements: 9 credit hours from the following:

☐ __________  ☐ __________  ☐ __________

CSCI 310  Advanced Algorithms (3) PR: CSCI 230 with a C- or better, MATH 207
CSCI 315  Service-Side Web Programming (3) PR: CSCI 215, CSCI 221
CSCI 325  Functional and Logic Programming (3) PR: CSCI 221 with a C- or better, MATH 207
CSCI 332  Database Concepts (3) PR: CSCI 221 with a C- or better, MATH 207
CSCI 334  Data Mining (3) PR: CSCI 221 with a C- or better, MATH 207, MATH 250
CSCI 380  User Interface Development (3) PR: CSCI 221 with a C- or better, MATH 307
CSCI 399  Tutorial (3, Repeatable up to 12) PR: Junior standing, tutor permission, department chair permission
CSCI 410  Automata and Formal Language (3) PR: MATH 207
CSCI 420  Principles of Compiler Design (3) PR: CSCI 320, MATH 307
CSCI 432  Concepts of Database Implementation (3) PR: CSCI 332, MATH 307
CSCI 440  Computer Networks (3) PR: CSCI 340, MATH 250, MATH 307
CSCI 450  Architecture of Advanced Computer Systems (3) PR: CSCI 340 or CSCI 350
CSCI 459  Service-Oriented Programming (3) PR: CSCI 221; CSCI 230 or CSCI 315
CSCI 470  Principles of Artificial Intelligence (3) PR: CSCI 230 with a C- or better
CSCI 480  Principles of Computer Graphics (3) PR: CSCI 230 with a C- or better, MATH 105 or MATH 120
CSCI 490  Special Topics (3) PR: Instructor permission
CSCI 499  Bachelor’s Essay (6) PR: A project proposal must be submitted in writing and approved by the department prior to registration for the course.

Math Requirement

- MATH 120  Introductory Calculus (4) PR: Placement or C- or better in MATH 111
- MATH 207  Discrete Structures I (3) PR: MATH 105, MATH 111, or MATH 120
- MATH 250  Statistical Methods I (3) PR: MATH 105 with a C-grade or better or MATH 111 or MATH 120 or permission of instructor
- MATH 307  Discrete Structures II (3) PR: MATH 207 or MATH 295 or instructor permission

Select one additional math course from the following:

- MATH 203  Linear Algebra (3) PR: MATH 120 or instructor permission
- MATH 220  Calculus II (4) PR: MATH 120 or HONS 115
- MATH 245  Numerical Methods and Mathematical Computation (3) PR: MATH 203, MATH 220, instructor permission; CO: MATH 246
- MATH 350  Statistical Methods II (3) PR: MATH 120, MATH 250
- MATH 440  Statistical Learning I (3) PR: MATH 203, MATH 220, and MATH 350

Communication Requirement

- COMM 104  Public Speaking (3) PR: None

Science Requirement: Fourteen hours of science, eight of which satisfy the general education requirement for science, plus six additional hours, from the list below:

- Biology 111+111L and Biology 112+112L
- Honors Biology 151+151L and Honors Biology 152+152L

- Chemistry 111+111L and Chemistry 112+112L
- Honors Chemistry 153+153L and Honors Chemistry 154+154L

- Geology 103+103L and Geology 105+105L
- Honors Geology 155+155L and Honors Geology 156+156L

- Physics 111+111L and PHYS 112+112L
- Honors Physics 157+157L and Honors Physics 158+158L

Alternatively, students who have already completed BIOL 111/111L and 112/112L may also choose from: BIOL 201, BIOL 202, BIOL 211, BIOL 300, BIOL 301, BIOL 302, BIOL 303, BIOL 304, BIOL 305, BIOL 305L, BIOL 310, BIOL 312, BIOL 312L, BIOL 313,

Or, students who have already completed CHEM 111/111L and 112/112L may also choose from:

Or, students who have already completed 103/103L and GEOL105/105L may also choose from:
GEOL 206, GEOL 213, GEOL 235, GEOL 240, GEOL 250, GEOL 256, GEOL 257, GEOL 260, GEOL 260L, GEOL 272, GEOL 275, GEOL 288, GEOL 291, GEOL 303, GEOL 312, GEOL 314, GEOL 320, GEOL 333, GEOL 352, GEOL 357, GEOL 360, GEOL 385, GEOL 395, GEOL 399, GEOL 411, GEOL 412, GEOL 416, GEOL 430, GEOL 434, GEOL 438, GEOL 440, GEOL 441, GEOL 442, GEOL 444, GEOL 449, GEOL 469, GEOL 491, GEOL 492, GEOL 499

Or, students who have already completed PHYS 111/111L and 112/112L may also choose from:
ASTR 231, ASTR 306, ASTR 311, ASTR 312, ASTR 377, ASTR 410, ASTR 413,
PHYS 203, PHYS 230, PHYS 270, PHYS 298, PHYS 301, PHYS 301, PHYS 302, PHYS 308, PHYS 320, PHYS 331, PHYS 340, PHYS 350, PHYS 370, PHYS 381, PHYS 390, PHYS 394, PHYS 394L, PHYS 396, PHYS 399, PHYS 404, PHYS 405, PHYS 407, PHYS 408, PHYS 409, PHYS 410, PHYS 412, PHYS 415, PHYS 419, PHYS 420, PHYS 456, PHYS 457, PHYS 458, PHYS 499

**NOTE:** Students with previously completed coursework in biology or physics should consult with the computer science department chair prior to beginning the natural science requirement.