The Computer Science program combines a strong engineering-oriented technical basis with a flexible interdisciplinary component and an emphasis on communication skills. This flexibility is increasingly important as computers become more important tools in an ever-increasing number of disciplines.

About this Program

- **College**: Herbert Wertheim College of Engineering (http://catalog.ufl.edu/UGRD/colleges-schools/UGENG)
- **Degree**: Bachelor of Science in Computer Science
- **Credits for Degree**: 120
- **More Info**

To graduate with this major, students must complete all university, college, and major requirements.

Department Information

The mission of the Department of Computer & Information Science & Engineering is to educate students, as well as the broader campus community, in the fundamental concepts of the computing discipline; to create and disseminate computing knowledge and technology; and to use expertise in computing to help society solve problems.

**Website** (https://www.cise.ufl.edu)

**CONTACT**

Email (nemo@cise.ufl.edu) | 352.505.1578 (tel) | 352.392.1220 (fax)

P.O. Box 116120
E301 CSE BUILDING
GAINESVILLE FL 32611-6120
Map (http://campusmap.ufl.edu/#/index/0042)

**Curriculum**

- Combination Degrees
- Computer and Information Science and Engineering Minor
- Computer Science UF Online
- Computer Science | CLAS
- Computer Science | Herbert Wertheim College of Engineering
- Digital Arts and Sciences | Bachelor of Science

Students in the engineering computer science (EG-CSE) program will satisfy the same requirements for general education and obtain the same engineering preprofessional background in mathematics and science as other engineering students. The program contains a strong technical component comprising a set of required courses covering essential areas in computing and a set of technical electives enabling students to deepen their knowledge in chosen areas of computer science and engineering.

In addition, the program includes a set of interdisciplinary electives in an area of the student’s choice from anything the university offers. Students may choose an established minor, a predefined track or if nothing meets their needs, they can work with an advisor to develop their own program. Thus, students will not need to wait for an interdisciplinary program to be established; they can create their own.

To answer the demands of industry for employees with both technical competence and the ability to communicate effectively, the program requires communication courses beyond the usual general education requirements for engineering.

**Department Requirements**

Students must complete all critical-tracking courses with minimum grades of C in each course and the critical-tracking GPA must be 2.5 minimum. A minimum grade of C is required in all other courses that are prerequisites to a required course: CDA 3101, COP 3503, COP 3530, COP 4600, COT 3100 and MAS 3114. In addition, CISE requires all computer science students to maintain a cumulative, upper-division and department grade point average minimum of 2.0.

Students who do not meet these requirements will be placed on academic probation and will be required to prepare a probation contract with a CISE advisor. Students are normally given two terms to remove their deficit points; however, students who do not satisfy the conditions of the first term of probation may be dismissed from the department.

**Placement**

Students who have scored at least a 4 or 5 on the AP Computer Science exam are eligible to start the programming fundamentals sequence with COP 3503. Students will need to see an advisor in the major to adjust their degree audit.

**Critical Tracking**

Critical Tracking records each student's progress in courses that are required for progress toward each major. Please note the critical-tracking requirements below on a per-semester basis.

Equivalent critical-tracking courses as determined by the State of Florida Common Course Prerequisites (http://www.flvc.org/cpp/displayRecord.jsp?cip=140901&track=01) may be used for transfer students.

**Semester 1**

- Complete 1 of 7 critical-tracking courses with a minimum grade of C within two attempts: CHM 2045 or CHM 2055, MAC 2311, MAC 2312, MAC 2313, COP 3502, PHY 2048, PHY 2049
- 2.5 GPA required for all critical-tracking courses
- 2.0 UF GPA required

**Semester 2**

- Complete 1 additional critical-tracking course with a minimum grade of C within two attempts
- 2.5 GPA required for all critical-tracking courses
- 2.0 UF GPA required

**Semester 3**

- Complete 2 additional critical-tracking courses with minimum grades of C within two attempts
- 2.5 GPA required for all critical-tracking courses
- 2.0 UF GPA required
Semester 4
- Complete 2 additional critical-tracking courses with minimum grades of C within two attempts
- 2.5 GPA required for all critical-tracking courses
- 2.0 UF GPA required

Semester 5
- Complete all 7 critical-tracking courses with minimum grades of C in each course within two attempts
- 2.5 GPA required for all critical-tracking courses
- 2.0 UF GPA required

Semester 6
- Complete COP 3503 and COT 3100
- 2.0 departmental GPA required
- 2.0 UF GPA required

Semester 7
- Complete COP 3530
- 2.0 departmental GPA required
- 2.0 UF GPA required

Semester 8
- Complete COP 4600
- 2.0 departmental GPA required
- 2.0 UF GPA required

Model Semester Plan
Students are expected to complete the general education international (GE-N) and diversity (GE-D) requirements. This is often done concurrently with another general education requirement (typically, GE-C, H or S).

To remain on track, students must complete the appropriate critical-tracking courses, which appear in bold. These courses must be completed by the terms as listed above in the Critical Tracking criteria.

This semester plan represents an example progression through the major. Actual courses and course order may be different depending on the student's academic record and scheduling availability of courses. Prerequisites still apply.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Semester One</td>
<td>Select one:</td>
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<tr>
<td>CHM 2045</td>
<td>General Chemistry 1 (Critical Tracking; Gen Ed Physical Sciences)</td>
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<tr>
<td>CHM 2095</td>
<td>Chemistry for Engineers 1 (Critical Tracking; Gen Ed Physical Sciences)</td>
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<td>CHM 2045L</td>
<td>General Chemistry 1 Laboratory (Gen Ed Physical Sciences)</td>
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<tr>
<td>COP 3502</td>
<td>Programming Fundamentals 1 (Critical Tracking)</td>
<td>3</td>
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<tr>
<td>ENC 1101</td>
<td>Expository and Argumentative Writing (State Core Gen Ed Composition (<a href="http://catalog.ufl.edu/UGRD/academic-programs/general-education/#genedcoursestext">http://catalog.ufl.edu/UGRD/academic-programs/general-education/#genedcoursestext</a>); Writing Requirement: 6,000 words)</td>
<td>3</td>
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<tr>
<td>MAC 2311</td>
<td>Analytic Geometry and Calculus 1 (Critical Tracking; State Core Gen Ed Mathematics)</td>
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</tr>
<tr>
<td>Quest 1</td>
<td>(Gen Ed Humanities)</td>
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Semester Two
- COP 3503 Programming Fundamentals 2                           | 3       |
- COT 3100 Applications of Discrete Structures                 | 3       |
- MAC 2312 Analytic Geometry and Calculus 2 (Critical Tracking; Gen Ed Mathematics) | 4       |
- PHY 2048 Physics with Calculus 1 (Critical Tracking; State Core Gen Ed Physical Sciences) | 3       |
- PHY 2048L Laboratory for Physics with Calculus 1 (Gen Ed Physical Sciences) | 1       |

Semester Three
- COP 3530 Data Structures and Algorithm                        | 4       |
- MAC 2313 Analytic Geometry and Calculus 3 (Critical Tracking; Gen Ed Mathematics) | 4       |
- PHY 2049 Physics with Calculus 2 (Critical Tracking; Gen Ed Physical Sciences) | 3       |
- PHY 2049L Laboratory for Physics with Calculus 2 (Gen Ed Physical Sciences) | 1       |
- State Core Gen Ed Social and Behavioral Sciences (http://catalog.ufl.edu/UGRD/academic-programs/general-education/#genedcoursestext) | 3       |

Semester Four
- CEN 3031 Introduction to Software Engineering                 | 3       |
- ENC 3246 Professional Communication for Engineers (Gen Ed Composition; Writing Requirement: 6,000 words) | 3       |
- MAS 3114 Computational Linear Algebra                           | 3-4     |
- or MAS 4105 or Linear Algebra 1                                | 3       |
- Gen Ed Social and Behavioral Sciences with Diversity or International |     |

Semester Five
- CDA 3101 Introduction to Computer Organization                | 3       |
- CIS 4301 Information and Database Systems 1                   | 3       |
- COT 4501 Numerical Analysis: a Computational Approach          | 3       |
- State Core Gen Ed Humanities with Diversity or International (http://catalog.ufl.edu/UGRD/academic-programs/general-education/#genedcoursestext) | 3       |
- Interdisciplinary elective                                       | 3       |

Semester Six
- COP 4600 Operating Systems                                    | 3       |
- EEL 3701C Digital Logic and Computer Systems                   | 4       |
- ENC 1102 Argument and Persuasion (Gen Ed Composition; Writing Requirement: 6,000 words) | 3       |
- EGN 4034                                                        | 1       |
- Technical electives                                            | 6       |

Summer After Semester Six
- Internship / Co-op (if desired)                                | 0       |

Semester Seven
- CNT 4007C Computer Network Fundamentals                        | 4       |
- Technical electives                                            | 6       |
### Academic Learning Compact

The Herbert Wertheim College of Engineering’s computer science program combines a strong engineering technical basis with a flexible interdisciplinary component and strong communication skills. This program emphasizes the technical aspects of computer science and is less flexible than the computer science program in the College of Liberal Arts and Sciences.

### Before Graduating Students Must

- Pass assessment according to department rubric of student performance on a major design experience.
- Pass assessment in one or more core courses of individual assignments targeted to each SLO.
- Complete requirements for the baccalaureate degree, as determined by faculty.

### Students in the Major Will Learn to

#### Student Learning Outcomes (SLOs)

**Content**

1. Apply knowledge of mathematics and science to computer science problems.
2. Design and conduct computer-science experiments, analyzing and interpreting the data.

**Critical Thinking**

3. Design a computer science system, component or process to meet desired needs within realistic economic, environmental, social, political, ethical, health and safety, manufacturability and sustainability constraints.

**Communication**

4. Communicate technical data and design information effectively in writing and in speech to other computer scientists and engineers.

### Curriculum Map

*I = Introduced; R = Reinforced; A = Assessed*

<table>
<thead>
<tr>
<th>Courses</th>
<th>SLO 1</th>
<th>SLO 2</th>
<th>SLO 3</th>
<th>SLO 4</th>
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<tr>
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