COMPUTER SCIENCE UF ONLINE

This program combines the study of computer science with a liberal arts education. It prepares students for employment as computing professionals while offering significant freedom to choose coursework in other areas. The major is especially popular with students who want the technical education in computer science with the flexibility to take other non-technical courses, sometimes in the form of a minor or certificate.

About this Program

- **College**: Liberal Arts and Sciences (http://catalog.ufl.edu/UGRD/colleges-schools/UGLAS)
- **Degree**: Bachelor of Science
- **Credits for Degree**: 120
- **Contact**: 1.855.99GATOR
- **Additional Information**
- **Related Computer Science Programs**

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

Computer science majors in CLAS take a solid foundation of core computer science courses while fulfilling requirements for a liberal arts education, including courses from the humanities, social and behavioral sciences, and the study of a foreign language. Questions about the major should be directed to a department advisor.

Coursework for the Major

This major requires a minimum of 29 credits in foundation coursework, 35 credits in core coursework and 6 credits of major electives. A student can request to transfer in a maximum of four courses toward required core Computer Science or required Computer Science elective coursework, dependent upon courses being deemed equivalent by the department. Course equivalency requests should begin with the department advising office, followed by the undergraduate coordinator.

Students must earn minimum grades of C in coursework for the major. An exit interview is required in the last semester.

### Required Core Coursework

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>CDA 3101</td>
<td>Introduction to Computer Organization</td>
<td>3</td>
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<tr>
<td>CEN 3031</td>
<td>Introduction to Software Engineering</td>
<td>3</td>
</tr>
<tr>
<td>COP 3502</td>
<td>Programming Fundamentals 1</td>
<td>3</td>
</tr>
<tr>
<td>COP 3503</td>
<td>Programming Fundamentals 2</td>
<td>3</td>
</tr>
<tr>
<td>CIS 4301</td>
<td>Information and Database Systems 1</td>
<td>3</td>
</tr>
<tr>
<td>CIS 4914</td>
<td>Senior Project</td>
<td>3</td>
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<tr>
<td>COP 3530</td>
<td>Data Structures and Algorithm</td>
<td>4</td>
</tr>
<tr>
<td>COP 4600</td>
<td>Operating Systems</td>
<td>3</td>
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<tr>
<td>COT 3100</td>
<td>Applications of Discrete Structures</td>
<td>3</td>
</tr>
<tr>
<td>COT 4501</td>
<td>Numerical Analysis: a Computational Approach</td>
<td>3</td>
</tr>
<tr>
<td>EEL 3701C</td>
<td>Digital Logic and Computer Systems</td>
<td>4</td>
</tr>
</tbody>
</table>

#### Required Major Electives

- Any 4000-level or higher CISE course, beyond the Core Requirements
- CIS 4940 Practical Work (Internship)
- EGN 4912 Engineering Directed Independent Research

Total Credits: 70-72

1. Not expected to be developed for online delivery; substitute EGN 4641 and EGS 4034. Please see department advisor to process the substitution.

2. Students should check prerequisites when planning their major electives. Students should discuss electives with an advisor in the department. Individual study, co-op, internship, research, and special topics credits must be approved by an advisor in the department.

### Placement

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

### Related Computer Science Programs

- Bachelor of Science in Computer Science, CLAS (http://catalog.ufl.edu/UGRD/colleges-schools/UGLAS/CSC_BS)
- Bachelor of Science in Computer Science, College of Engineering (http://catalog.ufl.edu/UGRD/colleges-schools/UGENG/CPS_BSCS)
- Computer and Information Science and Engineering minor (http://catalog.ufl.edu/UGRD/colleges-schools/UGENG/CIE_UMN)

### Critical Tracking

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

For degree requirements outside of the major, refer to CLAS Degree Requirements: Structure of a CLAS Degree.

Equivalent critical-tracking courses as determined by the State of Florida Common Course Prerequisites (http://www.flvc.org/cpp/displayRecord.jsp?cip=110101&track=01) may be used for transfer students.

### Semester 1

- Complete MAC 1147 or MAC 2311
- 2.0 UF GPA required
Semester 2
- Complete MAC 2311
- 2.0 UF GPA required

Semester 3
- Complete MAC 2312
- 2.0 UF GPA required

Semester 4
- Complete MAC 2313; and PHY 2053/PHY 2053L or PHY 2048/PHY 2048L
- 2.5 GPA required for all critical-tracking courses
- 2.0 UF GPA required

Semester 5
- Complete COP 3502; and PHY 2054/PHY 2054L or PHY 2049/PHY 2049L
- 2.5 GPA required for all critical-tracking courses
- 2.0 UF GPA required

Model Semester Plan

Students are expected to complete the writing requirement while in the process of taking the courses below. Students are also expected to complete the general education international (GE-N) and diversity (GE-D) requirements concurrently with another general education requirement (typically, GE-C, H, or S).

Enc 3246, MAC 2312, MAC 2313, PHY 2049, PHY 2049L, PHY 2054, PHY 2054L, STA 3032, MAS 3114, and MAS 4105 may count towards 3000 level or above electives outside of the major.

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>
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<tbody>
<tr>
<td>COP 3502</td>
<td>Programming Fundamentals 1 (Critical Tracking)</td>
<td>3</td>
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<tr>
<td>MAC 2312</td>
<td>Analytic Geometry and Calculus 2 (Critical Tracking; Gen Ed Mathematics)</td>
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<tr>
<td>Select one:</td>
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<td>3-4</td>
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<tr>
<td>PHY 2053</td>
<td>Physics 1 (Critical Tracking; State Core Gen Ed Physical Sciences)</td>
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<td>Phy 2048</td>
<td>Physics with Calculus 1 (Critical Tracking; State Core Gen Ed Physical Sciences)</td>
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<td>Laboratory for Physics 1 (Critical Tracking; Gen Ed Physical Sciences)</td>
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<td>Gen Ed Social and Behavioral Sciences</td>
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Semester Three

COP 3503 | Programming Fundamentals 2 | 3       |
COT 3100 | Applications of Discrete Structures (Gen Ed Mathematics) | 3       |
MAC 2313 | Analytic Geometry and Calculus 3 (Critical Tracking; Gen Ed Mathematics) | 4       |

Select one:

PHY 2054 | Physics 2 (Critical Tracking; Gen Ed Physical Sciences) | 1       |
PHY 2049 | Physics with Calculus 2 (Critical Tracking; Gen Ed Physical Sciences) | 1       |

Semester Four

CDA 3101 | Introduction to Computer Organization | 3       |
COP 3530 | Data Structures and Algorithm | 4       |
Elective | | 3       |
State Core Gen Ed Humanities (http://catalog.ufl.edu/UGRD/academic-programs/general-education/#genedcoursestext) | 3       |
Gen Ed Social and Behavioral Sciences | | 3       |
Gen Ed Biological Sciences | | 3       |
Foreign language | | 4-5     |
Elective | | 3       |

Semester Six

EEL 3701C | Digital Logic and Computer Systems | 4       |
MAS 3114 | Computational Linear Algebra | 3       |
Gen Ed Biological Sciences | | 3       |
Gen Ed Humanities | | 3       |
Foreign language | | 3-5     |

Semester Seven

CIS 4301 | Information and Database Systems | 3       |
CISE elective | | 3       |
COT 4501 | Numerical Analysis: a Computational Approach | 3       |
Foreign language course (or elective if 4-3-3 option) | | 3       |
Elective | | 3       |

Semester Eight

CIS 4914 | Senior Project | 3       |
CISE elective | | 3       |
COP 4600 | Operating Systems | 3       |
Academic Learning Compact
The College of Liberal Arts and Sciences’ computer science program exposes students to a broad range of disciplines, including programming languages, theory of computer science, physical science, mathematics and software engineering. Students will graduate with the ability to apply knowledge of science and mathematics to computer science problems, to design computer systems or components to satisfy users’ needs and to communicate technical information regarding computer systems to other computer scientists. This program emphasizes the broader aspects of computer science and is less technical in depth than the computer science program in the Herbert Wertheim College of Engineering.

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 or 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 a computing system, component or process, analyzing and interpreting the data.
3. Use the techniques, skills and tools necessary for computer science practice.

Critical Thinking
4. Design a computing system, component or process to meet desired needs within realistic economic, environmental, social, political, ethical, and health and safety constraints.
5. Identify, formulate and solve computer science problems.

Communication
6. Communicate technical data and design information effectively in writing, in speech and in multidisciplinary teams to other computer scientists.

Curriculum Map

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<tr>
<th>Courses</th>
<th>SLO 1</th>
<th>SLO 2</th>
<th>SLO 3</th>
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Assessment Types
• Written assignments
• Exams
• Oral reports/presentations
• Exit survey