COMPUTER SCIENCE | HERBERT WERTHEIM COLLEGE OF ENGINEERING

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

About this Program

- **College**: Herbert Wertheim College of Engineering
- **Degree**: Bachelor of Science in Computer Science
- **Credits for Degree**: 120
- **Additional Information**
- **Related Computer Science Programs**

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

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.

Equivalent critical-tracking courses as determined by the State of Florida Common Course Prerequisites 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 2095, 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

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>
</tr>
</thead>
<tbody>
<tr>
<td>CHM 2045</td>
<td>General Chemistry 1 (Critical Tracking; Gen Ed Physical Sciences)</td>
<td>3</td>
</tr>
<tr>
<td>CHM 2095</td>
<td>Chemistry for Engineers 1 (Critical Tracking; Gen Ed Physical Sciences)</td>
<td>3</td>
</tr>
<tr>
<td>CHM 2045L</td>
<td>General Chemistry 1 Laboratory (Gen Ed Physical Sciences)</td>
<td>1</td>
</tr>
<tr>
<td>COP 3502</td>
<td>Programming Fundamentals 1 (Critical Tracking)</td>
<td>3</td>
</tr>
<tr>
<td>ENC 1101</td>
<td>Expository and Argumentative Writing (State Core Gen Ed Composition; Writing Requirement: 6,000 words)</td>
<td>3</td>
</tr>
<tr>
<td>IUF 1000</td>
<td>What is the Good Life (Gen Ed Humanities)</td>
<td>3</td>
</tr>
<tr>
<td>MAC 2311</td>
<td>Analytic Geometry and Calculus 1 (Critical Tracking; State Core Gen Ed Mathematics)</td>
<td>4</td>
</tr>
</tbody>
</table>

**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 | | 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 or MAS 4105  
Computational Linear Algebra  or Linear Algebra 1  
Gen Ed Social and Behavioral Sciences with Diversity or International  
Semester Five  
CDA 3101  
Introduction to Computer Organization  
CIS 4301  
Information and Database Systems 1  
COT 4501  
Numerical Analysis: a Computational Approach  
State Core Gen Ed Humanities with Diversity or International  
Interdisciplinary elective  
Credits  
Semester Six  
COP 4600  
Operating Systems  
EEL 3701C  
Digital Logic and Computer Systems  
ENC 1102  
Argument and Persuasion (Gen Ed Composition; Writing Requirement: 6,000 words)  
EGN 4034  
Technical electives  
Credits  
Summer After Semester Six  
Internship / Co-op (if desired)  
Credits  
Semester Seven  
CNT 4007C  
Computer Network Fundamentals  
Technical electives  
Interdisciplinary electives  
Credits  
Semester Eight  
CIS 4913C or CIS 4914  
Integrated Product and Process Design 2 (4EG) or Senior Project  
STA 3032  
Engineering Statistics  
Technical elective  
Interdisciplinary electives  
Credits  
Total Credits  

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.

Assessment Types

- Assignments
- Exams
- Reports
- Exit survey