COMPUTER SCIENCE, COMPREHENSIVE MAJOR

Liberal Arts (Code 170-030)

University Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>GRADUATION REQUIREMENTS FOR BACCALAUREATE DEGREE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Credit Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Minimum total for graduation</td>
<td>120</td>
</tr>
<tr>
<td></td>
<td>Upper division credits (courses numbered 300 and higher)</td>
<td>39</td>
</tr>
<tr>
<td></td>
<td>Liberal Education Core</td>
<td>36</td>
</tr>
<tr>
<td></td>
<td>Academic Concentrations</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Grade Point Requirements</td>
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</tr>
<tr>
<td></td>
<td>Total</td>
<td>2.00 average</td>
</tr>
<tr>
<td></td>
<td>Resident</td>
<td>2.00 average</td>
</tr>
<tr>
<td></td>
<td>Major</td>
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</tr>
<tr>
<td></td>
<td>Minor</td>
<td>2.00 average</td>
</tr>
<tr>
<td></td>
<td>Certificate</td>
<td>2.00 average</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>UNIVERSITY RESIDENCY REQUIREMENTS</td>
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<tr>
<td></td>
<td>Minimum total</td>
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<tr>
<td></td>
<td>Senior year</td>
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</tr>
<tr>
<td></td>
<td>Major, Standard, upper division in residence</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>Major, Comprehensive, upper division in residence</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>Certificate</td>
<td>25 percent of credits</td>
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</tbody>
</table>

Procedures Required for Graduation

Obtain admission to the degree program and/or the College offering it.

Apply for graduation on CampS.

1. Certain programs exceed this minimum.
2. See special requirements in each College.
3. See special requirements for the College of Education and Human Sciences.

Liberal Education Core

The University of Wisconsin-Eau Claire measures learning outcomes to ensure that its graduates have achieved a liberal education and prepared themselves to contribute to a complex society. Upon graduation, each undergraduate will have met the four learning goals of our liberal education core and the 11 learning outcomes they comprise.

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<tr>
<th>Code</th>
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<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>LIBERAL EDUCATION CORE REQUIREMENTS</td>
<td>a minimum of 36 credits</td>
</tr>
</tbody>
</table>

Knowledge Goal

Knowledge Outcome 1 (K1): Natural Sciences

Two (2) learning experiences

One experience in laboratory science must be selected from either K1 or K2.

Knowledge Outcome 2 (K2): Social Sciences

Two (2) learning experiences

Skills Goal

Skills Outcome 1 (S1): Written and Oral Communication

Two (2) learning experiences

One S1 must meet the University Writing Requirement

Skills Outcome 2 (S2): Mathematics

One (1) learning experience

One S2 to meet the University Mathematics Requirement

Skills Outcome 3 (S3): Creativity

One (1) learning experience

Responsibility Goal

Responsibility Outcome 1 (R1): Equity, Diversity, and Inclusivity

Two (2) learning experiences

One R1 must satisfy Design for Diversity

Responsibility Outcome 2 (R2): Global Perspectives

One (1) learning experience

Responsibility Outcome 3 (R3): Civic and Environmental Issues

One (1) learning experience

Integration Goal

Integration Outcome 1 (I1): Integration

Two (2) learning experiences

Service-Learning Goal

Service-Learning | 30 hours

College Degree Requirements

Bachelor of Arts or Bachelor of Science Degree (B.A./B.S.)

University Graduation Requirements. All candidates for degrees must fulfill the requirements for credits, curriculum, GPA, and University residency as specified in the section of this catalog titled University Graduation Requirements.

College Graduation Requirements: Grade Point Averages. All candidates for degrees in the College of Arts and Sciences must earn minimum resident and total GPAs of 2.00 in the major, the minor, and the certificate. The resident and total GPAs for the major are computed using all attempted credits applicable to the major including those offered by departments other than the major department. The resident and total GPAs for the minor and the certificate are computed similarly.

Major-Minor and Major-Certificate Requirements. A standard major (a minimum of 36 credits) must be supplemented by a minor (a minimum of 24 credits) or by a certificate (12 to 18 credits) to meet graduation requirements for completing a first and second degree program. No minor or certificate is required with a Comprehensive Major (60 or more credits) or with two majors of 36 or more credits each.

Certain degree programs which include Comprehensive Majors may require more than the minimum of 120 credits for graduation.

Acceptable academic program combinations are determined at the college level. A major and a minor or a major and certificate or two majors (if available)
may not be elected in the same department or program, except in the approved combinations listed here.

**College Credits.** Earn at least 90 credits in courses offered by the College of Arts and Sciences.

**Bachelor of Arts Degree in the College of Arts and Sciences (B.A.)**

Fulfillment of all University Graduation Requirements (which includes the Liberal Education Core); all College-level degree requirements (major and minor/certificate emphases, GPAs, earning at least 90 credits in Arts and Sciences course work); foreign language competency at the 102 level. Foreign language competency may be met in one of two ways: (1) Achieve a score on the foreign language placement test that qualifies the student to enter the 201-level course in a foreign language. (2) Earn a grade of at least C (not C-) or a mark of S in a 102-level foreign language course (or AIS 112 or AIS 122 / LANG 122 or CSD 103).

**Bachelor of Science Degree in the College of Arts and Sciences (B.S.)**

Fulfillment of all University Graduation Requirements (which includes the Liberal Education Core); all College-level degree requirements (major and minor/certificate emphases, GPAs, earning at least 90 credits in Arts and Sciences course work); mathematics competency at the MATH 111, MATH 112 or MATH 113 level. Mathematics competency can be met in one of three ways: (1) Achieve a score on the mathematics placement test that qualifies the student to enter MATH 114. (2) Earn a grade of at least C (not C-) or a mark of S in MATH 111, MATH 112, or MATH 113. (3) Achieve a satisfactory score on the MATH 112 competency test. This test may be attempted no more than two times.

**Major Requirements**

This major is recommended for students who desire a strong foundation in software design and development, computer systems and networking, and mathematics.

A minimum of sixty semester credits, including:

**Computer Science core (39 crs)**

- CS 145 Programming for New Programmers 4
- or CS 148 Programming for Experienced Programmers
- CS 146 The Big Picture in Computer Science 1
- CS 245 Advanced Programming and Data Structures 4
- CS 252 Computer Systems 4
- CS 260 Database Systems 4
- CS 268 Web Systems 3
- CS 330 Programming Languages 3
- CS 335 Algorithms 3
- CS 352 Computer Architecture 3
- CS 355 Software Engineering I 3
- CS 396 Junior Seminar 1
- CS 452 Operating Systems 3
- CS 462 Computer Networks (capstone course) 3

**Mathematics Core (15 crs)**

- MATH 114 Calculus I 4
- MATH 215 Calculus II 4
- MATH 314 Discrete Mathematics 3

**Required courses not counted toward credits in major:**

- Complete one of the following: 3
  - CJ 202 Fundamentals of Speech
  - ENGL 312 Topics in Rhetoric and Science
  - ENGL 313 Topics in Rhetoric and Technology

**Required:**

- PHIL 308 Ethics in Computing and Engineering 3

**Complete one lab science sequence chosen from:** 9-10

- PHYS 211 General Physics
- & PHYS 212 and General Physics
- OR
- PHYS 231 University Physics I
- & PHYS 232 and University Physics II

**A Computer Science elective, selected from one of the following:**

Option 1

Select a minimum of six credits of electives chosen from the following and not already included in the Computer Science core:

- CS 278 Digital System Design
- CS 291 Special Topics
- CS 321 Web Design and Development
- CS 322 Animation Programming
- CS 370 Computer Security
- CS 376 Cryptography and Network Security
- CS 388 UNIX Systems Programming
- CS 399 Independent Study - Juniors
- CS 420 Artificial Intelligence
- CS 436 Mobile Software Development
- CS 450 Theory of Computation
- CS 455 Computer Graphics
- CS 485 Software Engineering II
- CS 491 Special Topics
- CS 498 Computer Science Internship
- Or other courses designated by the department (six-seven credits; recommended for students considering industry employment)

Option 2

Select six credits from the following: 1

- CS 482 Research in Computer Science I
- CS 492 Research in Computer Science II

1 additional capstone and research experience; recommended for students considering graduate school

For a degree in Computer Science, a student must: