COMPUTER SCIENCE - B.A.

College of Arts and Sciences
Department of Computer Science
241 Mathematics and Computer Science Building
Kent Campus
330-672-9980
depsec@cs.kent.edu
www.kent.edu/cs

Description
The Bachelor of Arts degree in Computer Science is designed for students who seek a liberal arts education combined with a solid foundation in computer science. Students may choose electives from any complementary liberal arts program beyond computer science. A double major is an exciting option for the student interested in attaining depth of knowledge across two related areas.

FULLY OFFERED AT:
• Kent Campus

Admission Requirements
The university affirmatively strives to provide educational opportunities and access to students with varied backgrounds, those with special talents and adult students who graduated from high school three or more years ago.

Freshman Students on the Kent Campus: The freshman admission policy on the Kent Campus is selective. Admission decisions are based upon the following: cumulative grade point average, ACT and/or SAT scores, strength of high school college preparatory curriculum and grade trends. The Admissions Office at the Kent Campus may defer the admission of students who do not meet admissions criteria but who demonstrate areas of promise for successful college study. Deferred applicants may begin their college coursework at one of seven Regional Campuses of Kent State University. For more information on admissions, including additional requirements for some academic programs, visit the admissions website for new freshmen.

Freshman Students on the Regional Campuses: Kent State campuses at Ashtabula, East Liverpool, Geauga, Salem, Stark, Trumbull and Tuscarawas, as well as the Regional Academic Center in Twinsburg, have open enrollment admission for students who hold a high school diploma, GED or equivalent.

Transfer, Transitioning and Former Students: For more information about admission criteria for transfer, transitioning and former students, please visit the admissions website.

English Language Proficiency Requirements for International Students: All international students must provide proof of English language proficiency (unless they meet specific exceptions) by earning a minimum 525 TOEFL score (71 on the Internet-based version), minimum 75 MELAB score, minimum 6.0 IELTS score or minimum 48 PTE Academic score, or by completing the ELS level 112 Intensive Program. For more information on international admission, visit the Office of Global Education’s admission website.

Program Learning Outcomes
Graduates of this program will be able to:
1. Understand the essential facts, concepts, principles and theories relating to computer science.
2. Apply computer science concepts to solve computer-related problems.
3. Analyze algorithms, computer science methods and techniques.
4. Analyze and plan the development of a typical professional computer science problem.
5. Make succinct oral presentations and written expositions about technical problems and their solutions.
6. Work effectively as a member of a software development team.

University Requirements
All students in a bachelor’s degree program at Kent State University must complete the following university requirements for graduation.

NOTE: University requirements may be fulfilled in this program by specific course requirements. Please see Program Requirements for details.

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Credits/Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Destination Kent State: First Year Experience</td>
<td>1</td>
</tr>
<tr>
<td>Course is not required for students with 25 transfer credits, excluding College Credit Plus, or age 21+ at time of admission.</td>
<td></td>
</tr>
<tr>
<td>Diversity Domestic/Global (DIV/DIVG)</td>
<td>2 courses</td>
</tr>
<tr>
<td>Students must successfully complete one domestic and one global course, of which one must be from the Kent Core.</td>
<td></td>
</tr>
<tr>
<td>Experiential Learning Requirement (ELR)</td>
<td>varies</td>
</tr>
<tr>
<td>Students must successfully complete one course or approved experience.</td>
<td></td>
</tr>
<tr>
<td>Kent Core (see table below)</td>
<td>36-37</td>
</tr>
<tr>
<td>Writing-Intensive Course (WIC)</td>
<td>1 course</td>
</tr>
<tr>
<td>Students must earn a minimum C grade in the course.</td>
<td></td>
</tr>
<tr>
<td>Upper-Division Requirement</td>
<td>39 (or 42)</td>
</tr>
<tr>
<td>Students must successfully complete 39 upper-division (numbered 30000 to 49999) credit hours to graduate. Students in a B.A. and/or B.S. degree in the College of Arts and Sciences must complete 42 upper-division credit hours.</td>
<td></td>
</tr>
<tr>
<td>Total Credit Hour Requirement</td>
<td>120</td>
</tr>
<tr>
<td>Some bachelor’s degrees require students to complete more than 120 credit hours.</td>
<td></td>
</tr>
</tbody>
</table>

Kent Core Requirements

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Credits/Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kent Core Composition (KCMP)</td>
<td>6</td>
</tr>
<tr>
<td>Kent Core Mathematics and Critical Reasoning (KMCRI)</td>
<td>3</td>
</tr>
<tr>
<td>Kent Core Humanities and Fine Arts (KHUM/KFA) (min one course each)</td>
<td>9</td>
</tr>
<tr>
<td>Kent Core Social Sciences (KSS) (must be from two disciplines)</td>
<td>6</td>
</tr>
<tr>
<td>Kent Core Basic Sciences (KBS/KLAB) (must include one laboratory)</td>
<td>6-7</td>
</tr>
<tr>
<td>Kent Core Additional (KADL)</td>
<td>6</td>
</tr>
<tr>
<td>Total Credit Hours:</td>
<td>36-37</td>
</tr>
</tbody>
</table>

Computer Science - B.A.
Program Requirements

Major Requirements

[AS-BA-CS]

Major Requirements (courses count in major GPA)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 13011 &amp; CS 13012</td>
<td>COMPUTER SCIENCE IA: PROCEDURAL PROGRAMMING and COMPUTER SCIENCE IB: OBJECT ORIENTED PROGRAMMING</td>
<td>4</td>
</tr>
<tr>
<td>or CS 13001</td>
<td>COMPUTER SCIENCE IA: PROGRAMMING AND PROBLEM SOLVING</td>
<td>3</td>
</tr>
<tr>
<td>CS 23001</td>
<td>COMPUTER SCIENCE II: DATA STRUCTURES AND ABSTRACTION (min. C grade)</td>
<td>4</td>
</tr>
<tr>
<td>CS 23022</td>
<td>DISCRETE STRUCTURES FOR COMPUTER SCIENCE</td>
<td>3</td>
</tr>
<tr>
<td>CS 33101</td>
<td>STRUCTURE OF PROGRAMMING LANGUAGES</td>
<td>3</td>
</tr>
<tr>
<td>CS 33211</td>
<td>OPERATING SYSTEMS</td>
<td>3</td>
</tr>
<tr>
<td>CS 35101</td>
<td>COMPUTER ARCHITECTURE</td>
<td>3</td>
</tr>
<tr>
<td>CS 44901</td>
<td>SOFTWARE DEVELOPMENT PROJECT (ELR) (WIC)</td>
<td>4</td>
</tr>
</tbody>
</table>

Computer Science Upper-Division Electives (CS 30000 or 40000 level) 9

Computer Science Upper-Division Electives (CS 40000 level only) 9

Additional Requirements (courses do not count in major GPA)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>UC 10097</td>
<td>DESTINATION KENT STATE: FIRST YEAR EXPERIENCE</td>
<td>1</td>
</tr>
<tr>
<td>Foreign Language (see Foreign Language College Requirement below)</td>
<td></td>
<td>14-16</td>
</tr>
<tr>
<td>Kent Core Composition</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>Kent Core Mathematics and Critical Reasoning</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Kent Core Humanities and Fine Arts (minimum one course from each)</td>
<td></td>
<td>9</td>
</tr>
<tr>
<td>Kent Core Social Sciences (must be from two disciplines)</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>Kent Core Basic Sciences (must include one laboratory)</td>
<td></td>
<td>6-7</td>
</tr>
<tr>
<td>Kent Core Additional</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>College General Requirement (must be from Kent Core Basic Sciences)</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>College General Requirement (must be from Kent Core Social Sciences)</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>General Electives (total credit hours depends on earning 120 credit hours, including 42 upper-division credit hours)</td>
<td></td>
<td>21</td>
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</table>

Minimum Total Credit Hours: 120

Graduation Requirements

<table>
<thead>
<tr>
<th>Minimum Major GPA</th>
<th>Minimum Overall GPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.000</td>
<td>2.000</td>
</tr>
</tbody>
</table>

- A minimum C grade may be required in some courses

Foreign Language College Requirement

Students pursuing the Bachelor of Arts degree in the College of Arts and Sciences must complete 14-16 credit hours of foreign language.

To complete the requirement, students have the equivalent of Elementary I and II in any language, plus one of the following options:

1. Intermediate I and II of the same language
2. Elementary I and II of a second language
3. Any combination of two courses from the following list:

- MCLS 10001 INTRODUCTION TO STRUCTURAL CONCEPTS FOR LANGUAGE STUDENTS
- MCLS 20000 GLOBAL LITERACY AND CULTURAL AWARENESS
- MCLS 20091 VARIABLE CONTENT SEMINAR IN GLOBAL LITERACY: CASE STUDIES
- MCLS 21417 MULTICULTURALISM IN TODAY'S GERMANY (DIVG)
- MCLS 22217 DIVERSITY IN TODAY'S RUSSIA (DIVG)
- MCLS 23217 THE FRANCOPHONE EXPERIENCE (DIVG)
- MCLS 28404 THE LATIN AMERICAN EXPERIENCE (DIVG)
- MCLS 28405 THE SPANISH EXPERIENCE (DIVG)

All students with prior foreign language experience should take the foreign language placement test to determine the appropriate level at which to start. Some students may begin beyond the Elementary I level and will complete the requirement with fewer credit hours and fewer courses. This may be accomplished by (1) passing a course beyond Elementary I through Intermediate II level; (2) receiving credit through Credit by Exam (CBE), Advanced Placement (AP), International Baccalaureate (IB) or College Level Examination Program (CLEP); or (3) being designated a "native speaker" of a non-English language (consult with the College of Arts and Sciences Advising Office for additional information). When students complete the requirement with fewer than 14 credit hours and four courses, they will complete remaining credit hours with general electives. Certain majors, concentrations and minors may require specific languages, limit the languages from which a student may choose or require coursework through Intermediate II. Students who plan to pursue graduate study may need particular language coursework.
Roadmap

This roadmap is a recommended semester-by-semester plan of study for this major. However, courses designated as critical (!) must be completed in the semester listed to ensure a timely graduation.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td><strong>Semester One</strong></td>
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</tr>
<tr>
<td>CS 13011 &amp; CS 13012 or CS 13001</td>
<td>COMPUTER SCIENCE I: PROCEDURAL PROGRAMMING and COMPUTER SCIENCE II: OBJECT ORIENTED PROGRAMMING or COMPUTER SCIENCE I: PROGRAMMING AND PROBLEM SOLVING</td>
<td>4</td>
</tr>
<tr>
<td>UC 10097</td>
<td>DESTINATION KENT STATE: FIRST YEAR EXPERIENCE</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Kent Core Requirement</td>
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<td></td>
<td>Kent Core Requirement</td>
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<tr>
<td></td>
<td>Kent Core Requirement</td>
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<tr>
<td><strong>Credit Hours</strong></td>
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<td>14</td>
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<tr>
<td><strong>Semester Two</strong></td>
<td></td>
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</tr>
<tr>
<td>! CS 23022</td>
<td>DISCRETE STRUCTURES FOR COMPUTER SCIENCE</td>
<td>3</td>
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<td></td>
<td>College General Requirement</td>
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<td></td>
<td>Kent Core Requirement</td>
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<tr>
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<td><strong>Credit Hours</strong></td>
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<tr>
<td><strong>Semester Three</strong></td>
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<tr>
<td>! CS 23001</td>
<td>COMPUTER SCIENCE II: DATA STRUCTURES AND ABSTRACTION</td>
<td>4</td>
</tr>
<tr>
<td>! CS 35101</td>
<td>COMPUTER ARCHITECTURE</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Foreign Language</td>
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<td></td>
<td>College General Requirement</td>
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<td>Kent Core Requirement</td>
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<td><strong>Credit Hours</strong></td>
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<tr>
<td><strong>Semester Four</strong></td>
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<tr>
<td>! CS 33101</td>
<td>STRUCTURE OF PROGRAMMING LANGUAGES</td>
<td>3</td>
</tr>
<tr>
<td>! CS 33211</td>
<td>OPERATING SYSTEMS</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Computer Science Upper-Division Elective (CS 30000 or 40000 level)</td>
<td>3</td>
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<td></td>
<td>Foreign Language</td>
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<td>Kent Core Requirement</td>
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<tr>
<td><strong>Credit Hours</strong></td>
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<td><strong>Semester Five</strong></td>
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<td>Computer Science Upper-Division Electives (CS 30000 or 40000 level)</td>
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<td></td>
<td>Kent Core Requirement</td>
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<td></td>
<td>Kent Core Requirement</td>
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<tr>
<td><strong>Credit Hours</strong></td>
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<td>15</td>
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<tr>
<td><strong>Semester Six</strong></td>
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<td>Computer Science Upper-Division Electives (CS 30000 or 40000 level)</td>
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<td>Foreign Language</td>
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<td>Kent Core Requirement</td>
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<td></td>
<td>Kent Core Requirement</td>
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<tr>
<td></td>
<td>General Elective</td>
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<tr>
<td><strong>Credit Hours</strong></td>
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<tr>
<td><strong>Semester Seven</strong></td>
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<td></td>
<td>Computer Science Upper-Division Elective (CS 40000 level)</td>
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<tr>
<td></td>
<td>General Electives</td>
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<tr>
<td><strong>Credit Hours</strong></td>
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<tr>
<td><strong>Semester Eight</strong></td>
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<tr>
<td>! CS 44901</td>
<td>SOFTWARE DEVELOPMENT PROJECT (ELR (WIC)</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Computer Science Upper-Division Elective (CS 40000 level)</td>
<td>3</td>
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<tr>
<td></td>
<td>General Electives</td>
<td>6</td>
</tr>
<tr>
<td><strong>Credit Hours</strong></td>
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<td>13</td>
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</tbody>
</table>

Minimum Total Credit Hours: 120