



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

Course Subject and Title	Credit Hours	Upper Div.	Min. Grade	Major GPA	Important Notes
<b>Semester One: [16 Credit Hours]</b>					
CS 13001 Computer Science I: Programming and Problem Solving	4		C	■	See note 1 on page 2
MATH 12002 Analytic Geometry and Calculus I	5			■	Fulfills Kent Core Mathematics and Critical Reasoning; see note 2 on page 2
US 10097 Destination Kent State: First Year Experience	1				Not required of transfer students with 25 credits
Kent Core Requirement	3				See Kent Core Summary on page 2
General Elective	3				Recommended: MATH 11022-see note 2 on page 2
<b>Semester Two: [15 Credit Hours]</b>					
<b>CS 23001 Computer Science II: Data Structures and Abstraction</b>	4		C	■	
<b>CS 23022 Discrete Structures for Computer Science</b>	3			■	
<b>MATH 12003 Analytic Geometry and Calculus II</b>	5			■	
Kent Core Requirement	3				See Kent Core Summary on page 2
<b>Semester Three: [13-15 Credit Hours]</b>					
<b>CS 33211 Operating Systems</b>	3	■		■	
<b>CS 35101 Computer Architecture</b>	3	■		■	
<b>MATH 21001 Linear Algebra with Applications (3) or MATH 22005 Analytic Geometry and Calculus III (4)</b>	3-4				
Foreign Language (Elementary I)	4-5				Fulfills College General Requirement
<b>Semester Four: [16-17 Credit Hours]</b>					
<b>CS 33007 Database Systems Design</b>	3	■		■	
<b>CS 35201 Computer Communication Networks</b>	3	■		■	
Foreign Language (Elementary II)	4-5				Fulfills College General Requirement
Kent Core Requirement	3				See Kent Core Summary on page 2
Kent Core Requirement	3				
<b>Semester Five: [15 Credit Hours]</b>					
<b>CS 33901 Software Engineering</b>	3	■		■	
<b>CS 46101 Design and Analysis of Algorithms</b>	3	■		■	
<b>CS 47205 Information Security</b>	3	■		■	
Kent Core Requirement	3				See Kent Core Summary on page 2
General Elective	3				
<b>Semester Six: [15 Credit Hours]</b>					
<b>CS 33101 Structure of Programming Languages</b>	3	■		■	
<b>CS 43401 Secure Programming</b>	3	■		■	
CS Elective (upper division)	3	■		■	See note 3 on page 2
Kent Core Requirement	3				See Kent Core Summary on page 2
Kent Core Requirement	3				
<b>Semester Seven: [16 Credit Hours]</b>					
<b>CS 49901 Capstone Project</b>	4	■	C	■	<b>Fulfills experiential learning and writing-intensive course requirements</b>
<b>CS 45203 Network Security or CS 47221 Introduction to Cryptography</b>	3	■		■	
CS Elective (upper division)	3	■		■	See note 3 on page 2
Kent Core Requirement	3				See Kent Core Summary on page 2
Kent Core Requirement	3				



Course Subject and Title	Credit Hours	Upper Div.	Min. Grade	Major GPA	Important Notes
<b>Semester Eight: [15 Credit Hours]</b>					
CS Electives (upper-division)	6	■		■	See note 3 below
Kent Core Requirement	3				See Kent Core Summary on page 2
Kent Core Requirement	3				
General Elective	3				Number of credits required depends on meeting minimum 121 credit hours and 42 upper-division hours

### Graduation Requirements Summary

Minimum Total Hours	Minimum Upper-Division Hours	Minimum Kent Core Hours	Global / Domestic Diversity Course	Writing-Intensive	Experiential Learning	Minimum GPA	
						Major GPA	Overall GPA
121	42	36	Kent Core or General Electives	CS 49901	CS 49901	2.000	2.000

### Kent Core Summary

Kent Core Categories	Important Notes	Remaining Credit Hours
<b>Composition (6-8 credit hours)</b> <i>ENG 11002, 11011, 21011; HONR 10197, 10297</i>	Enrollment based on placement test	6-8
<b>Mathematics and Critical Reasoning (3-5 credit hours)</b>	Fulfilled in the major with MATH 12002	0
<b>Humanities and Fine Arts (9 credit hours)</b> <i>Minimum one course from humanities in Arts and Sciences and minimum one course from fine arts</i>	May fulfill diversity requirement	9
<b>Social Sciences (6 credit hours)</b> <i>Must be selected from two curricular areas</i>	May fulfill diversity requirement	6
<b>Basic Sciences (6-7 credit hours)</b> <i>Must include one laboratory</i>		6-7
<b>Additional (6 credit hours)</b>	May fulfill diversity requirement	6

**Note 1:** Students not prepared to take CS 13001 in the first semester will benefit from taking CS 10051.

**Note 2:** Enrollment based on placement tests; prerequisites: MATH 11010 and 11022 may be bypassed with sufficient background. Otherwise, MATH 11022 Trigonometry is recommended as it is a prerequisite for MATH 12002.

**Note 3:** Any CS 3/40000-level elective course, along with one or more of the following courses, can be taken to satisfy this requirement: MATH 22005 *Analytic Geometry and Calculus II*, MATH 40011 *Introduction to Probability Theory and Application* and PHY 12411 *Introduction to Computer Hardware*. Additionally, with the CS undergraduate advisor's prior permission, other select courses from outside the department may be counted. These courses must be computer science-related and/or integrate into the student's program of study.

**Note:** All courses taken from the list of major program requirements are used in the calculation of the major GPA.

#### Kent Core

Students must complete a minimum 36 credit hours of the Kent Core. Certain courses required in programs and in student's major field may also fulfill the Kent Core. Honors equivalents shall satisfy the Kent Core. None of the courses on the Kent Core list may be taken with a pass/fail grade. Visit [www.kent.edu/catalog/kent-core](http://www.kent.edu/catalog/kent-core) for course list.

#### Diversity Course Requirement

Students must complete a two-course diversity requirement, consisting of one with a domestic (U.S.) focus and one with a global focus. One course must come from the Kent Core. The second course may be taken as a second Kent Core, within a major or minor, or as a general elective; or, with dean's approval, by completing one semester of study in another country. Visit [www.kent.edu/catalog/diversity](http://www.kent.edu/catalog/diversity) for course list.

#### Writing-Intensive Course Requirement

Students must complete a one-course writing-intensive requirement in their major and earn minimum C (2.000) grade. Visit [www.kent.edu/catalog/wic](http://www.kent.edu/catalog/wic) for course list.

#### Experiential Learning Requirement (ELR)

To provide students with direct engagement in learning experiences that promote academic relevance, meaning and an understanding of real-world issues, students must complete this requirement at Kent State, either as a for-credit course or as a non-credit, non-course experience approved by the appropriate faculty member. Visit [www.kent.edu/catalog/elr](http://www.kent.edu/catalog/elr) for course list.

#### Upper-Division Requirement

Students must complete a minimum 39 upper-division (numbered 30000 to 49999) credit hours of coursework. Programs in the College of Arts and Sciences require a minimum of 42 hours of upper-division coursework.

#### Foreign Language

Visit [www.kent.edu/catalog/foreign-languages](http://www.kent.edu/catalog/foreign-languages) for course list.