

Associate of Science in Computer Science

This program is designed to meet the needs of students who plan a career in computer science or whose career area requires extensive first-hand knowledge of computer science. Together, the basic curriculum and electives afford students considerable flexibility in planning a degree program to meet their career objectives.

Suggested Curriculum Sequence

First Year

<i>First Semester</i>	<i>Credits</i>
CSCI C201 Introduction to Computer Programming.....	3
ECON E280 Applied Statistics for Business Economics I.....	3
ENG W131 Elementary Composition I.....	3
Social Science Elective.....	3
Elective.....	3
	15

<i>Second Semester</i>	<i>Credits</i>
CSCI C202 Computer Programming.....	4
CSCI C203 COBOL and File Processing.....	3
ECON E281 Applied Statistics for Business Economics II.....	3
SPCH S121 Public Speaking.....	3
Elective.....	3
	16

Second Year

<i>First Semester</i>	<i>Credits</i>
CSCI C320 Advanced COBOL.....	3
CSCI C335 Computer Structures.....	4
Social Science Elective.....	3
Humanities Elective.....	3
Elective.....	3
	16

<i>Second Semester</i>	<i>Credits</i>
CSCI C237 Operating Systems Concepts.....	4
CSCI C390 Individual Programming Laboratory or CSCI Y398 Internships in Professional Practice ¹	3-4
Humanities elective.....	3
Elective.....	3
Research writing requirement.....	0
	13-14

CSCI C201 Introduction to Computer Programming is a required prerequisite to subsequent computer science courses and should be taken during the first semester of the first year. However, students who have not completed two years of high school algebra or who do not score high enough to enter MATH M122 College Algebra on the math placement test must take MATH M007 Elementary Algebra and/or

MATH M117 Intermediate Algebra before taking CSCI C201. Because of prerequisite relationships, the computer science courses must be taken in the sequence illustrated in the suggested curriculum. The social sciences and humanities electives may be satisfied by taking any courses in those areas. In the final semester of the program, the student may, after obtaining the approval of a sponsoring full-time faculty member, undertake a project in CSCI C390 Individual Programming Laboratory or participate as an intern in Y398 Internship in Professional Practices. Selection as an intern is competitive and depends on the number of employers offering positions in the program. Finally, the general requirements for all degrees at IUS include a research writing requirement to be completed during the first 60 credit hours at IUS.

Options The Associate of Science in Computer Science degree program provides for four basic options. In implementing any one of these options, a student will select appropriate electives to complement the basic required curriculum. The options available and examples of possible elective choices are as follows:

- To prepare to begin a career in data processing using the Associate of Science in Computer Science degree as an entry-level credential, the student should gain expertise in one or more additional fields. For example, one can choose from such business courses as W100 Business Administration: Introduction, A201 Introduction to Accounting I, A202 Introduction to Accounting II; Economics E107 Introduction to Macroeconomics, E108 Introduction to Microeconomics; from such humanities courses as Women's Studies W200 Women in Contemporary American Society; English W395 Individual Study of Writing; from such speech courses as S223 Business and Professional Speaking, S229 Discussion and Group Methods, S325 Voice and Diction in Communications; from such natural science courses as L200 Environmental Biology and Conservation, L100 Humans and the Biological World, L260 Infection and Human Progress; from Chemistry C101 Elementary Chemistry I, C121 Elementary Chemistry Laboratory I, C102 Elementary Chemistry II, C122 Elementary Chemistry Laboratory II; and from such mathematics courses as M119 Brief Survey of Calculus, M215 Analytic Geometry and Calculus I, M216 Analytic Geometry and Calculus II, M303 Linear Algebra for Undergraduates.
- To prepare to continue a course of study at the junior level toward a Bachelor of Science in Computer Science degree after completing the A.S. in Computer Science, the student should consult the IUS Bulletin for information about requirements for the B.S. in

¹Or a computer science course at the 300 level or above selected with the approval of the departmental adviser, e.g. C311, C343, C490, etc.

Computer Science.

3. To prepare to continue a course of study at the junior level toward a B.S. in business, the student should take ECON E107 Introduction to Macroeconomics, ECON E108 Introduction to Microeconomics, BUS A201-A202 Introduction to Accounting I-II, and at least one of MATH M119 Brief Survey of Calculus, BUS F301 Financial Management, M301 Introduction to Marketing Management, and should consult the Division of Business and Economics for counseling.
4. To prepare to continue a course of study leading to a bachelor's degree in another discipline, such as biology, chemistry, mathematics, psychology, or sociology, the student should consult the IUS Bulletin for further information concerning the requirements for that major and should contact the appropriate division office for further counseling.

Bachelor of Science in Computer Science

Note: These specific requirements may change so as to affect individuals who begin programs during the 1997 fall semester and thereafter. Candidates for the Bachelor of Science degree should first review "General Requirements for All Degrees at IUS" in this bulletin.

Requirements To be admitted to the B.S. degree program in computer science a student must satisfy the IUS admission requirements. In addition, admission into the B.S. degree program requires that a student complete the following courses with a grade point average of at least 2.5 and have an overall grade point average of at least 2.5 in these computer science courses: C201 Introduction to Computer Programming, C202 Computer Programming, C237 Operating Systems Concepts, and C335 Computer Structures. These requirements must be met before attaining junior status (56 credit hours) in order to maintain a normal four-year schedule.

While completing the required basic computer science course work, the student is also required to fulfill the basic mathematics requirement (M119-M120 or M215-M216). This is necessary to maintain a normal four-year schedule and to meet the mathematics prerequisite requirements of the upper-level computer science courses.

Each student will select one of two major option areas in which to pursue advanced courses: (1) information systems and (2) science/mathematics. Within each option area there are required advanced sequences in computer science and related disciplines that enable students to tailor their advanced course work to meet any one of several career objectives.

Information Systems Option

The information systems option is for students who seek employment in business or industry after graduation, or who may pursue a graduate degree in information systems. Within this option the students may select courses that prepare them for careers in areas such as applications programming, business systems design and implementation, and information systems management.

The Bachelor of Science in Computer Science—Information Systems Option requires at least 123 credit hours:

I. General-Education Core	
a. Communication.....6	
English W131	
Speech S121	
b. Mathematics.....12	
Economics E280-E281	
Mathematics M119 (or M215)	
Mathematics M120 (or M216)	
c. Behavioral sciences6	
Psychology P101	
Sociology S161	
d. Foreign language.....8	
One year of a single language	
e. Arts and humanities9	
f. Social sciences6	
g. Natural sciences5-10	
Physics P100 or P201-P202	
h. Research writing requirement.....0	
	52-57

II. Business and Economics Requirements24	
Business A201, A202	
Economics E107, E108	
Business F301, L201, M301, P301	
III. Computer Science Requirements	
a. Computer science core38	
C201 Introduction to Computer Programming3	
C202 Computer Programming4	
C237 Operating Systems Concepts.....4	
C251 Foundations of Digital Computing3	
C311 Programming Languages4	
C335 Computer Structures4	
C343 Data Structures.....4	
C421 Computer Organization3	
C445 Information Systems I.....3	
C446 Information Systems II3	
C4XX3	
b. Computer science electives	
A student may choose additional electives from:	
C203 COBOL and File Processing	
C320 Advanced COBOL	
C390 Individual Programming Laboratory	
C422 Advanced Computer Organization	
C431 Assemblers and Compilers I	

C432 Assemblers and Compilers II	
C435 Operating Systems I	
C436 Operating Systems II	
C463 Artificial Intelligence I	
C464 Artificial Intelligence II	
C490 Seminar in Computer Science	

Suggested First-Year Program

<i>First Semester</i>	<i>Credits</i>
Computer Science C201	3
English W131	3
German G100	4
Psychology P101	3
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	13

Second Semester

Computer Science C202	4
Economics E280	3
German G150	4
Mathematics M119	3
Speech S121	3
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	17

Suggested Second-Year Program

<i>First Semester</i>	<i>Credits</i>
Business A201	3
Computer Science C335	4
Economics E107	3
Mathematics M120	3
Sociology S161	3
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	16

Second Semester

Business A202	3
Business L201	3
Computer Science C237	4
Computer Science C251	3
Economics E108	3
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	16

Suggested Third-Year Program

<i>First Semester</i>	<i>Credits</i>
Business F301	3
Computer Science C203	3
Computer Science C343	4
Arts and humanities elective	3
Social sciences elective	3
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	16

Second Semester

Business M301	3
Computer Science C311	4
Computer Science C320	3
Economics E281	3
Social sciences elective	3
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	16

Suggested Fourth-Year Program

<i>First Semester</i>	<i>Credits</i>
Business P301	3
Computer Science C445	3
Physics P100	5
Arts and humanities elective	3
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	14

Second Semester

Business W301	3
Computer Science C422	3
Computer Science C446	3
Computer Science C490	3
Arts and humanities elective	3
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	15

Science/Mathematics Option

The science/mathematics option is designed for students who intend to work in the more technical areas of computer applications or who intend to pursue a graduate degree in computer science. Within this option students may select courses to prepare themselves for careers in areas such as systems software design and implementation and scientific computing applications.

The Bachelor of Science in Computer Science—Science/Mathematics Option requires at least 123 credit hours.

Area I. English Composition:
W131 or equivalent.....3
Research writing requirement.....0

Area II. Foreign Language:
One year of a single language.....8

Area III. Divisional Distribution:
a. Arts and humanities12
Four courses, including S121
b. Social and behavioral sciences12
Four courses
c. Natural sciences and mathematics:
Major fulfills the requirements

Area IV. Concentration Requirements:
a. Computer science core26
C201 Introduction to Computer
Programming3
C202 Computer Programming4
C237 Operating Systems Concepts4
C251 Foundations of Digital
Computing.....3
C311 Programming Languages4
C335 Computer Structures4
C343 Data Structures4
b. Computer science electives15
Fifteen credits from the following
courses, to include at least one 400-level
computer science sequence (C421-C422,
C431-C432, C435-C436, C445-C446,
C463-C464):
C421 Computer Organization
C422 Advanced Computer Organization
C431 Assemblers and Compilers I
C432 Assemblers and Compilers II
C435 Operating Systems I
C436 Operating Systems II
C445 Information Systems I
C446 Information Systems II
C451 Automata and Format Grammars
C463 Artificial Intelligence I
C464 Artificial Intelligence II

C490 Seminar in Computer Science A student may choose additional computer science electives from: C390 Individual Programming Laboratory Y398 Internships in Professional Practice	
c. Mathematics.....	19
M215, M216, M303, M360, and one other approved course at the 300 level or above.	
d. Biological and physical sciences.....	16
Sixteen credit hours to include Chemistry C105-C106 or Physics P221-P222.	

Suggested First-Year Program

<i>First Semester</i>	<i>Credits</i>
Computer Science C201	3
English W131	3
Mathematics M215.....	5
German G100.....	4
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<i>Second Semester</i>	
Computer Science C202	4
Mathematics M216.....	5
Speech S121.....	3
German G150.....	4
	<hr/> 16

Suggested Second-Year Program

<i>First Semester</i>	<i>Credits</i>
Mathematics M303.....	3
Computer Science C335	4
Physics P221.....	5
Social science elective.....	3
	<hr/> 15
<i>Second Semester</i>	
Computer Science C251	3
Computer Science C237	4
Physics P222.....	5
Philosophy P150.....	3
	<hr/> 15

Suggested Third-Year Program

<i>First Semester</i>	<i>Credits</i>
Mathematics M360.....	3
Computer Science C421	3
Computer Science C343	4
Arts and humanities elective	3
Social science elective.....	3
	<hr/> 16
<i>Second Semester</i>	
Computer Science C311.....	4
Computer Science C422	3
Mathematics M366.....	3
Social science elective.....	3
Arts and humanities elective	3
	<hr/> 16

Suggested Fourth-Year Program

<i>First Semester</i>	<i>Credits</i>
Computer Science C445	3
Computer Science C463	3
Social science elective.....	3
Natural science elective.....	5

Elective.....	3
	<hr/> 17

Second Semester

Computer Science C446	3
Computer Science C464	3
Electives.....	9
	<hr/> 15

Requirements for a Minor in Computer

Science 16 credit hours, including the following computer science courses:

C201 Introduction to Computer Programming (3 cr.)	
C202 Computer Programming (4 cr.)	
Additional courses selected from:	
C203 COBOL and File Processing (3 cr.)	
C237 Operating Systems Concepts (4 cr.)	
C251 Foundations of Digital Computing (3 cr.)	
C311 Programming Languages (4 cr.)	
C320 Advanced COBOL (3 cr.)	
C335 Computer Structures (4 cr.)	
C343 Data Structures (4 cr.)	
C390 Individual Programming Laboratory (1-3 cr.)	
C405 A Survey of Computer Science (3 cr.)	
C490 Seminar in Computer Science (1-3 cr.)	
Y398 Internships in Professional Practice (1-3 cr.)	