

Any arts and letters course satisfies this elective requirement, but the following is recommended:

Philosophy P 250

e. University general education requirements (see [www.ius.edu/computerscience/ GenEd.htm](http://www.ius.edu/computerscience/GenEd.htm).)

f. Computer competency 3
CSCI-C 106

II. Computer Science Requirements:

a. Core 23-24

CSCI-C 201

CSCI-C 202

CSCI-C 237

CSCI-C 335

CSCI-C 251

CSCI-B/C/P 3XX/4XX (1 course)

b. Concentration area (one area required)... 6-7

1) Computer Media Option

CSCI-A 346

CSCI-A 348

2) Computer Networking Option

CSCI-A 247

CSCI-B 438

3) Database Systems Option

CSCI-B 461

CSCI-C 343

4) Client Server Option

CSCI-A 348

CSCI-N 211

Bachelor of Science in Computer Science

Students must petition the department coordinator for acceptance of any computer science-related coursework more than seven years old.

Note: These specific requirements may change so as to affect individuals who begin programs during the 2005 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 GPA of at least 2.5 and have an overall GPA of at least 2.5: C 201 Computer Programming II, C 202 Computer Programming, C 237 Operating Systems Concepts, and C 335 Computer Structures. These requirements must be met before attaining junior status (56 credit hours) in order to maintain a normal four-year schedule. Admission to this program will be limited to the number of students that can be effectively accommodated given the available resources. While completing the required basic computer science course work, the student is also required to fulfill the basic mathematics requirement (C 251, and M 119-M 120 or M 215-M 216). 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 or (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. Please note that taking the course requirements for both options on this degree may add up to a number less than the required 120 credit hours. The student should fulfill the remaining hours with electives.

Student Learning Goals

1. B.S. graduates will have clear understanding of the theoretical foundations of computing science, hardware structure and programming algorithms and languages
2. Graduates will be able to apply theory to the solution of practical business problems and to the analysis of existing algorithms and techniques, and to recommend techniques and algorithms appropriate to specific circumstances in the areas of automated systems
3. Graduates will also be able to develop and evaluate new solutions in information technology areas
4. Math/Science option graduates will seek employment in networking, hardware, and some systems-level programming or transfer to graduate schools for higher studies. Information systems graduates will be prepared for the business world, understanding business problems and creating computer-based solutions through programming, systems analysis, and design or may also decide to transfer to graduate schools for higher studies in business-based computing.

Information Systems Option

The information systems option prepares students seeking employment in business or industry 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.

I. General Education. (Students must take the following courses if not taken as part of the university general-education requirements. Note that most of these courses apply toward those requirements.)

- a. Arts and Letters 3
Philosophy P 250
- b. Written Communication..... 3
English W 234
- c. Mathematics 9-16
Mathematics M 215-M 216 or
Mathematics M 119-M 120
Mathematics K 300 or
Economics E 280-E 281
- d. Natural Sciences 5-10
Physics P 100
Physics P 221-P 222 or
Physics P 201-P 202
- e. Social Sciences 6
Psychology P 101
Sociology S 163

II. Business Requirements 24

A business minor is within easy reach after taking these courses; ask a computer science advisor for help.

Accounting A 201-A 202
 Business F 301, L 201, M 301, P 301
 Economics E 100-E 200

III. Computer Science Requirements 46-47

- CSCI-B 461
- CSCI-B 490
- CSCI-C 201
- CSCI-C 202
- CSCI-C 237
- CSCI-C 251
- CSCI-C 311
- CSCI-C 335
- CSCI-C 343
- CSCI-C 445
- CSCI-C 455
- CSCI-B/C/P 4XX (1 course)

Science/Mathematics Option

The science/mathematics option prepares students seeking employment in the technical areas of computer applications or who may pursue a graduate degree in computer science. Within this option, students may select courses that prepare them for careers in areas such as systems software design and implementation and scientific computing applications.

I. General Education. Students must take the following courses if not taken as part of the university general-education requirements. Note that most of these courses apply toward those requirements.

- a. Arts and Letters 3
 Philosophy P 250
- b. Communication 3
 English W 234
- d. Social Sciences 3
 One course in addition to the two required in the IUS general education program.

II. Mathematics and Science Requirements:

- a. Mathematics 19
 Mathematics M 215-M 216, M 303, M 360
 An approved Mathematics 300- or
 400-level course

A math minor is within easy reach after taking these courses; ask a mathematics advisor for help.

- b. Biological and Physical Sciences 15
 Including Chemistry C 105-C 106 or
 Physics P 221-P 222

III. Computer Science Requirements 45-48

- CSCI-B 490
- CSCI-C 201
- CSCI-C 202
- CSCI-C 237

- CSCI-C 251
- CSCI-C 311
- CSCI-C 335
- CSCI-C 343
- CSCI-C 455
- CSCI-B/C/P 4XX (3 courses)

Certificate in Information Technology

The information technology certificate is a 29 credit hour program that can be completed in one year. Requirements of the program can be used to continue toward the Associate of Science or Bachelor of Science degrees.

On completing the certificate, students will be capable of understanding, troubleshooting, and managing computing resources as well as software design logistics and programming in one or more computer languages.

I. General Education Core:

- a. Communication 6
 - English W 131
 - Speech S 121
- b. General electives..... 3

It is recommended that you select general electives that satisfy specific computer science A.S. or B.S. degree requirements.
- c. Computer competency 3
 - CSCI-C 106
- d. University general education requirements (See www.ius.edu/computerscience/GenEd.htm.)

II. Computer Science Requirements 17

- CSCI-C 201
- CSCI-C 202
- CSCI-A 290 or CSCI elective
- CSCI-N 207 or BUS-K 201
- CSCI elective

Requirements for a Minor in Computer Science

- a. Core..... 12
 - CSCI-C 201
 - CSCI-C 202
 - CSCI-C 251
- b. Concentration area (one area required). 7-14
 - 1) Computer Networking Option
 - CSCI-A 247
 - CSCI-B 438
 - CSCI-C 237
 - CSCI-C 335
 - 2) Database Systems Option
 - CSCI-B 461
 - CSCI-C 343

- 3) Client Server Option
 - BUS-K 321
 - CSCI-A 348
 - CSCI-N 211
- 4) Information Technology Option
 - CSCI-A 247
 - CSCI-A 346
 - CSCI-A 348

Understanding Course Prerequisites

Below is a chart of the order for completing computer science courses.

For example, complete C 201 before C 202, and complete C 202 before C 335. **Computer Science**

Electives

- A 247 Network Technologies and Administration
- A 346 User-Interface Programming
- A 348 Mastering the World Wide Web
- B 438 Fundamentals of Computer Networks
- B 461 Database Concepts
- B 481 Interactive Graphics
- C 390 Individual Programming Lab
- C 421 Computer Organization
- C 422 Advanced Computer Organization
- C 431 Assemblers and Compilers I
- C 432 Assemblers and Compilers II
- C 435 Operating Systems I
- C 436 Operating Systems II
- C 463 Artificial Intelligence I
- C 464 Artificial Intelligence II
- N 211 Introduction to Databases
- P 423 Compilers
- P 436 Introduction to Operating Systems
- P 465-P 466 Software Engineering for Information Systems I-II

Associate of Arts in Geography

See also “Technical Requirements for Undergraduate Degrees” and “General Requirements for the Associate of Arts Degree” in this bulletin.

Major Courses G 107 Physical Systems of the Environment (3 cr.), G 110 Introduction to Human Geography (3 cr.), G 201 World Regional Geography (c cr.), G 333 Introductory Cartography (3 cr.), and at least one additional 300–400-level geography course or GEOL-415 Geomorphology or GEOL-451 Hydrogeology.

Electives to bring to total of 60 credit hours.