Date Submitted: 02/20/26 6:48 am

## Viewing: **BS-CS-2 : Bachelor of Science in Computer Science**

### Last approved: 02/10/26 10:48 am

### Last edit: 02/20/26 6:48 am

Changes proposed by: bauerm

Catalog Pages
Using this Program
   [Bachelor of Science in Computer Science](#)

| | |
|---|---|
| Program Status | Active |
| Requestor    bauerm@iit.edu | Name    Matthew Bauer    E-mail |
| Origination Date | 2026-2-20 ~~2026-1-7~~ |
| Is this an interdisciplinary program? | No |
| Is this stem-eligible? | Yes |
| Available for direct application? | Yes |
| Academic Unit    College | Computer Science    College of Computing |
| Program Title    Bachelor of Science in Computer Science | |
| Effective Academic Year    2026 - 2027 | Effective Term    Summer 2026 |
| Academic Level | Undergraduate |

### In Workflow

1. **CSCI Chair**
2. **Academic Affairs**
3. Undergraduate Academic Affairs
4. CC Dean
5. Undergraduate Studies Committee Chair
6. Faculty Council Chair
7. Academic Affairs

### Approval Path

1. 03/02/26 2:10 pm Mustafa Bilgic (mbilgic): Approved for CSCI Chair

### History

1. Oct 26, 2017 by clmig-jwehrheim
2. Nov 8, 2017 by Sarah Pariseau (sparisea)
3. Feb 28, 2018 by Sarah Pariseau (sparisea)
4. Mar 15, 2018 by Sarah Pariseau (sparisea)
5. Apr 2, 2018 by Sarah Pariseau (sparisea)
6. Apr 2, 2018 by Sarah Pariseau (sparisea)
7. Jun 19, 2018 by Sarah Pariseau (sparisea)

8. Oct 30, 2018 by
   Matthew Bauer
   (bauerm)
9. Mar 11, 2019 by
   Matthew Bauer
   (bauerm)
10. Nov 1, 2023 by Patty
    Johnson Winston
    (winston)
11. Nov 1, 2023 by Patty
    Johnson Winston
    (winston)
12. Feb 10, 2026 by
    Matthew Bauer
    (bauerm)

*If all courses in a subject in your department are required, please enter each subject followed by the number ranges in the "Quick Add" field in the pop up box when you click the green plus button below. For example: ARCH 100-499.*

What courses will
factor the major
GPA?

Program Type            Degree

Degree Type             Bachelor of Science (BS)

CIP Code
   11.0701 - Computer Science.

Is there more than one Academic Unit proposer?

   No

Program Code            BS-CS-2

Program Attribute

Total Program           127
Credit Hours

Please provide a
summary and
rationale for the
requested program
revision.
   BS in CS (total hours reduced from 127 to 121)
   • Reduce the science electives from 6 credit hours to 3 credit hours
   • Reduce the free electives from 12 credit hours to 9 credit hours 1) Add an Artificial

~~Intelligence specialization (available to both BS in CS and BS in CIS).2) Update the wording for what courses can be used for a Computer Science elective for BS in CS and BS in CIS degrees.Removed CS447 from specializations~~

# Program Narrative and Justification

Narrative description of how the institution determined the need for the program. For example, describe what need this program will address and how the institution became aware of that need. If the program is replacing a current program(s), identify the current program(s) that is being replaced by the new program(s) and provide details describing the benefits of the new program(s). If the program will be offered in connection with, or in response to, an initative by a governmental entity, provide details of that initiative.

Narrative description of how the program was designed to meet local market needs, or for an online program, regional or national market needs. For example, indicate if Bureau of Labor Statistics data or State labor data systems information was used, and/or if State, regional, or local workforce agencies were consulted. Include how the course content, program length, academic level, admission requirements, and prerequisites were decided; including information received from potential employers about course content; and information regarding the target students and employers.

Narrative description of any wage analysis the institution may have performed, including any consideration of Bureau of Labor Statistics wage data related to the new program.

Narrative description of how the program was reviewed or approved by, or developed in conjunction with, one or more of the following: a) business advisory committees; b) program integrity boards; c) public or private oversight or regulatory agencies (not including the state licensing/authorization agency and accrediting agency); and d) businesses that would likely employ graduates of the program. For example, describe the steps taken to develop the program, identify when and with whom discussions were held, provide relevant details of any proposals or correspondence generated, and/or describe any process used to evaluate the program.

## Admission Entry Details

What are the enrollment estimates?

| Year 1 | Year 2 | Year 3 |
|--------|--------|--------|

Attach Additional          [Email- RE_ Computer Science CIM proposal.pdf](Email- RE_ Computer Science CIM proposal.pdf)
Program

Justification
Document(s)

# Academic Information

## Advising

Since quality advising is a key component of good retention, graduation, and career placement, how will students be mentored? What student professional organizations will be formed? How will the department work with the Career Services office to develop industry connections?

## Program Resources

Which program resources are necessary to offer this program?

## Proposed Catalog Entry

Admission Requirements

Course Requirements

# Required Courses

| Computer Science Requirements | | (36) |
|---|---|---|
| CS 100 | Introduction to the Profession | 2 |
| CS 115 | Object-Oriented Programming I | 2 |
| CS 116 | Object-Oriented Programming II [1] | 2 |
| CS 330 | Discrete Structures | 3 |
| CS 331 | Data Structures and Algorithms | 3 |
| CS 350 | Computer Organization and Assembly Language Programming | 3 |
| CS 351 | Systems Programming | 3 |
| CS 425 | Database Organization | 3 |
| CS 430 | Introduction to Algorithms | 3 |

| | | |
|---|---|---|
| CS 440 | Programming Languages and Translators | 3 |
| CS 450 | Operating Systems | 3 |
| CS 485 | Computers and Society | 3 |
| CS 487 | Software Engineering I | 3 |
| **Computer Science Electives** | | **(12)** |
| Select 12 credit hours [2] | | 12 |
| **Mathematics Requirements** | | **(20)** |
| MATH 151 | Calculus I | 5 |
| MATH 152 | Calculus II | 5 |
| MATH 251 | Multivariate and Vector Calculus | 4 |
| MATH 332 | Elementary Linear Algebra | 3 |
| or MATH 333 | Matrix Algebra and Complex Variables | |
| MATH 474 | Probability and Statistics | 3 |
| or MATH 475 | Probability | |
| **Mathematics Elective** | | **(3)** |
| Select one of the following: | | 3 |
| MATH 252 | Introduction to Differential Equations | 4 |
| MATH 350 | Introduction to Computational Mathematics | 3 |
| MATH 380 | Mathematical Modeling with Data | 3 |
| MATH 410 | Number Theory | 3 |
| MATH 435 | Linear Optimization | 3 |
| MATH 453 | Combinatorics | 3 |
| MATH 454 | Graph Theory and Applications | 3 |
| MATH 476 | Statistics | 3 |
| MATH 481 | Introduction to Stochastic Processes | 3 |
| **Science Requirements** | | **(8)** |
| PHYS 123 | General Physics I: Mechanics | 4 |
| PHYS 221 | General Physics II: Electricity and Magnetism | 4 |
| **Science Elective** | | **(3)** |
| ~~Select six credit hours [3]~~ | | ~~6~~ |
| Select three credit hours [3] | | 3 |
| **Communication Elective** | | **(3)** |

| Select one of the following: | | 3 |
|---|---|---|
| COM 421 | Technical Communication | 3 |
| COM 424 | Document Design | 3 |
| COM 425 | Editing | 3 |
| COM 428 | Verbal and Visual Communication | 3 |
| COM 435 | Intercultural Communication | 3 |
| Interprofessional Projects (IPRO) | | (6) |
| See Illinois Tech Core Curriculum, section E | | 6 |
| Humanities and Social Sciences Requirements | | (21) |
| See Illinois Tech Core Curriculum, sections B and C | | 21 |
| Free Electives | | (9) |
| ~~Select 12 credit hours~~ | | ~~12~~ |
| Select 9 credit hours | | 9 |
| Total Credit Hours | | 121 |

[1]
CS 201 is a one-semester, accelerated course equivalent to the two-semester CS 115/CS 116 sequence.

[2]
Computer science electives: Any CS course at the 300-level or higher, including graduate CS courses, may be used as a Computer Science elective, except CS 401 and CS 402. Up to 6 credit hours of CS 491 or CS 497 may be used as Computer Science electives. Up to two Computer Science electives can be chosen from CSP 400-level or CSP 500-level courses, or from courses in other departments with significant computation content with Computer Science department's prior approval.

[3]
Science elective (no lab required): Chosen from Biology, Chemistry, Food Science, Material Science, or courses marked with an (N) (natural science attribute) in the Undergraduate Catalog. A Physics course cannot be chosen for the science elective.

Sample Curriculum/Program Requirements

# Bachelor of Science in Computer Science Curriculum

| Semester 1 | Credit Hours | Semester 2 | Year 1 Credit Hours |
|---|---|---|---|
| CS 100 | 2 | CS 116[1] | 2 |
| CS 115[1] | 2 | MATH 152 | 5 |
| MATH 151 | 5 | PHYS 123 | 4 |
| Humanities 200-level Course | 3 | Humanities Elective (300+) | 3 |
| Social Sciences Elective | 3 | Social Sciences Elective (300+) | 3 |
| | 15 | | 17 |

| Semester 1 | Credit Hours | Semester 2 | Year 2 Credit Hours |
|---|---|---|---|
| CS 330 | 3 | CS 350 | 3 |
| CS 331 | 3 | CS 425 | 3 |
| MATH 251 | 4 | MATH 332 or 333 | 3 |
| PHYS 221 | 4 | Humanities Elective (300+) | 3 |
| Social Sciences Elective (300+) | 3 | Science Elective[2] | 3 |
| | 17 | | 15 |

| Semester 1 | Credit Hours | Semester 2 | Year 3 Credit Hours |
|---|---|---|---|
| CS 351 | 3 | CS 430 | 3 |
| CS 440 | 3 | CS 450 | 3 |
| MATH 474 or 475 | 3 | IPRO Elective I | 3 |
| Communication Elective[3] | 3 | Mathematics Elective | 3 |
| Computer Science Elective[4] | 3 | Free Elective | 3 |
| | 15 | | 15 |

| Semester 1 | Credit Hours | Semester 2 | Year 4 Credit Hours |
|---|---|---|---|
| CS 487 | 3 | CS 485 | 3 |
| IPRO Elective II | 3 | Computer Science Elective[4] | 3 |
| Computer Science Elective[4] | 3 | Computer Science Elective[4] | 3 |
| ~~Science Elective[2]~~ | ~~3~~ | Free Elective | 3 |
| Humanities or Social Sciences Elective | 3 | ~~Free Elective~~ | ~~3~~ |
| Free Elective | 3 | | |
| | 15 | | 12 |

Total Credit Hours: 121

[1] CS 201 is a one-semester, accelerated course equivalent to the two-semester CS 115/CS 116 sequence.

[2] Science elective (no lab required): Chosen from Biology, Chemistry, Food Science, Material Science, or courses marked with an (N) (natural science attribute) in the Undergraduate Catalog. A Physics course cannot be chosen for the science elective.

[3] Communication elective must be COM 421, COM 424, COM 425, COM 428, or COM 435.

[4] Computer science electives: Any CS course at the 300-level or higher, including graduate CS courses, may be used as a Computer Science elective, except CS 401 and CS 402. Up to 6 credit hours of CS 491 or CS 497 may be used as Computer Science electives. Up to two Computer Science electives can be chosen from CSP 400-level or CSP 500-level courses, or from courses in other departments with significant computation content with Computer Science department's prior approval.

Specialization Requirements

# Artificial Intelligence

A minimum of four courses are required for this specialization.

| CS 480 | Introduction to Artificial Intelligence | 3 |
|---|---|---|
| Select a minimum of three courses from the following: | | 9 |
| CS 422 | Data Mining | 3 |
| CS 429 | Information Retrieval | 3 |
| CS 481 | Artificial Intelligence Language Understanding | 3 |
| CS 484 | Introduction to Machine Learning | 3 |
| CS 512 | Computer Vision | 3 |
| CS 577 | Deep Learning | 3 |
| CS 579 | Online Social Network Analysis | 3 |
| CS 581 | Advanced Artificial Intelligence | 3 |
| CS 584 | Machine Learning | 3 |
| CS 585 | Natural Language Processing | 3 |
| CSP 571 | Data Preparation and Analysis | 3 |

## ~~Computer Science Honors Research~~<span style="color:green">Computer Science Honors Research</span>

A minimum of 13 credit hours are required for this specialization.

| CS 492 | Introduction to Computer Science Research [1] | 1 |
|---|---|---|
| CS 491 | Undergraduate Research [2] | 6 |
| or CS 497 | Special Projects | |
| Graduate Computer Science Electives [3] | | 6 |

[1]
Students will be required to take CS 492 in their first or second year.
[2]
Students must complete an ambitious research project and associated honors thesis, advised by a computer science faculty member. The thesis/project culminates in a presentation to a committee for approval in their last semester (six credit hours of CS 491 or CS 497).
[3]
Students must take at least two adviser approved 500-level computer science courses.

## Data Science

A minimum of four courses are required for this specialization. Only two courses may be applied as computer science electives.

| BUS 371 | Marketing Fundamentals | 3 |
|---|---|---|

| CS 422 | Data Mining | 3 |
| or CS 584 | Machine Learning | |
| CS 451 | Introduction to Parallel and Distributed Computing | 3 |
| MATH 481 | Introduction to Stochastic Processes | 3 |
| or MATH 483 | Design and Analysis of Experiments | |

Note: MATH 481 has prerequisites of MATH 332 or MATH 333 and MATH 475; MATH 483 has a prerequisite of MATH 476.

# Distributed and Cloud Computing

A minimum of four courses are required for this specialization.

| CS 442 | Mobile Applications Development | 3 |
| CS 451 | Introduction to Parallel and Distributed Computing | 3 |
| CS 455 | Data Communications | 3 |
| CS 553 | Cloud Computing | 3 |

# Information and Knowledge Management Systems

A minimum of four courses are required for this specialization.

| CS 480 | Introduction to Artificial Intelligence | 3 |
| Select a minimum of three courses from the following: | | 9 |
| CS 422 | Data Mining | 3 |
| CS 429 | Information Retrieval | 3 |
| CS 481 | Artificial Intelligence Language Understanding | 3 |
| CS 484 | Introduction to Machine Learning | 3 |
| CS 512 | Computer Vision | 3 |
| CS 577 | Deep Learning | 3 |
| CS 579 | Online Social Network Analysis | 3 |
| CS 581 | Advanced Artificial Intelligence | 3 |
| CS 584 | Machine Learning | 3 |
| CS 585 | Natural Language Processing | 3 |
| CSP 571 | Data Preparation and Analysis | 3 |

# Information Security

A minimum of four courses are required for this specialization.

| CS 425 | Database Organization | 3 |
|---|---|---|
| CS 458 | Introduction to Information Security | 3 |
| CS 455 | Data Communications | 3 |
| CS 549 | Cryptography and Network Security | 3 |
| or CS 558 | Advanced Computer Security | |

## Program Outcomes and Assessment Process

What are your learning objectives in this program? Please list each learning objective in the boxes below:

*Note: These should be the same as described in your assessment plan at the bottom of this form.*

Upload your
assessment plan
here:

# Undergraduate Program Requirements

What courses will
factor the major
GPA?

## Undergraduate Degree Requirements

| Minimum credit hours | 127 |
|---|---|

Specialization required?
  Optional

Notes about specialization requirement

Minor required?
  No

## Proposed General Curriculum

| Degree credit hours required | 127 |
|---|---|

| Specialization credit hour requirement | 12 |
|---|---|

List Major Course Requirements

List Mathematics Requirements

List Science Requirements

List Computer Science Requirements

List Humanities and Social Sciences Requirements

List Interprofessional Project (IPRO) Requirements

List Technical Elective Course Options

| List Free Elective Credit Hours (if applicable) | 12 |
| Semester-by-semester plan of study for the degree program | |

## Specialization

Reviewer
Comments

Key: 43