

# Computer Science

## BS in Computer Science (Fall 2024 & Later)

Minimum 120 credits required for Bachelor's degree

89 credits COMPUTER SCIENCE MAJOR

### Foundational Core (27-29 Credits) Grade

|                                       |                               |   |
|---------------------------------------|-------------------------------|---|
| FYWS-125 <sup>1</sup>                 | First Year Seminar            | 3 |
| Choose 1 course from each area *      |                               |   |
| MA _____                              | Foundational Core Math course |   |
| <sup>2</sup> Natural/Physical Science |                               |   |
| Literature                            |                               | 3 |
| History                               | HI-100, HI-102 or HI-110      | 3 |
| Arts/Design/Comm.                     |                               | 3 |
| Philosophy                            |                               | 3 |
| Theology/Relig                        |                               | 3 |
| Social/Behavioral Science             |                               | 3 |

### Human Journey Seminars: Great Books in CIT (6 Credits)

|         |                |   |
|---------|----------------|---|
| CIT 201 | CIT Seminar I  | 3 |
| CIT 202 | CIT Seminar II | 3 |

### Liberal Arts Explorations (LAE) (12 Credits Total)

|  |  |   |
|--|--|---|
| <b>Student must complete 4 courses from at least 2 different subjects and one course in each area. (see list on Registrar's Website - checksheets)</b> |  |   |
| Humanistic Inquiry (3 credits)   |  | 3 |
|  |  |   |
| Social and Global Awareness (3 credits)  |  |   |
|  |  |   |
| Scientific Literacy (3 credits)  |  |   |
|  |  |   |
| LAE in any area (3 credits)  |  |   |
|  |  |   |

\* See list of courses.

<sup>1</sup>(Requires Grade C or higher)

<sup>2</sup>Science/Natural Science courses includes

approved Math and Computer Science courses. Students are required to take at least one course in Biology, Chemistry, or Physics in the Foundational or Liberal Arts Exploration Core. CS and MA courses may be used as a Science/Natural Science in either the Foundational Core **or** as a requirement in the LAE Core but not in both categories.

Note: MA 006 and ESL courses **will not** count towards the 120 credit graduation requirement.

Approved Study Abroad courses may be used to satisfy requirements for the foundational core or a Liberal Arts Exploration

A maximum of 8 Applied Music credits may be applied towards graduation

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| REQUIRED CURRICULUM |  | CR | Grade |
|---------------------|--|----|-------|
| CSE 125             | CSE Explorations                       | 1  |       |
| CS 125              | CS Explorations                        | 1  |       |
| CS 111              | Introduction to Structured Programming | 3  |       |
| CS 112              | Data Structures                        | 3  |       |
| CS 113              | Discrete Structures                    | 3  |       |
| CS 215              | Computer Systems Organization          | 3  |       |
| CY 221              | Foundations of Cybersecurity           | 3  |       |
| CS 241              | C programming                          | 3  |       |
| CS 262              | Programming Paradigms                  | 3  |       |
| CS 311              | Database Design                        | 3  |       |
| CS 312              | Software Engineering                   | 3  |       |
| CS 321              | Research Methods Seminar               | 2  |       |
| CS 339              | Networking and Data Communication      | 3  |       |
| CS 341              | Analysis of Algorithms                 | 3  |       |
| CS 349              | Operating Systems                      | 3  |       |
| CS 390              | Internship                             | 3  |       |
| CS 417              | Senior Project Design                  | 2  |       |
| CS 418              | Senior Project Implementation          | 3  |       |

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| CS ELECTIVES - TAKE TWO OF THE FOLLOWING |   | CR | Grade |
|--|---|----|-------|
| CS 421                                   | Theory of Computation                   | 3  |       |
| CS 432                                   | Cloud Computing Fundamentals            | 3  |       |
| CS 481                                   | Introduction to Artificial Intelligence | 3  |       |
| CS 482                                   | Applied Machine Learning                | 3  |       |

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| SCSE ELECTIVES - TAKE TWO OF THE FOLLOWING |                             | CR | Grade |
|--|-----------------------------|----|-------|
| ITI 350                                    | Data Analytics              | 3  |       |
| ITI 338                                    | Systems Analysis and Design | 3  |       |
| CY 367                                     | Network Security            | 3  |       |
| GDD 271                                    | Game Development with Unity | 3  |       |
| ENGR 212                                   | Digital Design with lab     | 4  |       |

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| Required Supporting Courses *** |                                    | CR | Grade |
|---------------------------------|------------------------------------|----|-------|
| CS 319                          | Computer Ethics                    | 3  |       |
| MA 151                          | Calculus I                         | 4  |       |
| MA 152                          | Calculus II                        | 4  |       |
| MA 261                          | Linear Algebra                     | 4  |       |
| MA 331                          | Probability                        | 3  |       |
| MA 332                          | Statistics                         | 3  |       |
| PY151/153                       | Physics I and Lab                  | 4  |       |
|                                 |                                    |    |       |
|                                 |                                    |    |       |
|                                 | *** Must have grade of C or better |    |       |

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| Free elective |  | CR | Grade |
|---------------|--|----|-------|
|               |  | 1  |       |

### Checksheet Key

|    |  |
|----|--|
| T  | Course transferred and Requirement satisfied |
| W  | Requirement waived                           |
| TW | Course transferred and Requirement waived    |

**WELCH COLLEGE OF BUSINESS AND TECHNOLOGY**  
**SCHOOL OF COMPUTER SCIENCE & ENGINEERING**  
**BS in Computer Science (Fall 2024 & Later)**

| <b>YEAR 1</b> | <b>SEMESTER 1</b>               | <b>YEAR 1</b> | <b>SEMESTER 2</b>   |
|---------------|---------------------------------|---------------|---------------------|
| FYWS 125      | First Year Seminar              | CORE          | Foundational Core   |
| MA 151        | Calculus I                      | MA 152        | Calculus II         |
| CSE 125       | CSE Explorations                | CS 125        | CS Explorations     |
| CS 111        | Intro to Structured Programming | CS 112        | Data Structures     |
| CORE          | Foundational Core               | CS 113        | Discrete Structures |

| <b>YEAR 2</b> | <b>SEMESTER 3</b>          | <b>YEAR 2</b> | <b>SEMESTER 4</b>             |
|---------------|----------------------------|---------------|-------------------------------|
| CIT 201       | Human Journey Seminar I    | CIT 202       | Human Journey Seminar II      |
| MA 331        | Probability (LAE literacy) | CS 215        | Computer Systems Organization |
| CS 262        | Programming Paradigms      | CS 241        | C Programming                 |
| PY111/113     | General Physics I and Lab  | MA 261        | Linear Algebra                |
| CORE          | Foundational Core          | PY 112/114    | General Physics II and Lab    |

| <b>YEAR 3</b> | <b>SEMESTER 5</b>                  | <b>YEAR 3</b> | <b>SEMESTER 6</b>        |
|---------------|------------------------------------|---------------|--------------------------|
| CS 319        | Computer Ethics (LAE Awareness)    | CS 321        | Research Methods Seminar |
| CS 339        | Networking and Data Communications | CS 461        | Software Engineering     |
| CS 311        | Database Design                    | CS 341        | Analysis of Algorithms   |
| MA 332        | Statistics (LAE other)             | CS 349        | Operating Systems        |
| CS 390        | <i>Internship (Summer or Fall)</i> | CORE          | Foundational Core        |

| <b>YEAR 4</b> | <b>SEMESTER 7</b>       | <b>YEAR 4</b> | <b>SEMESTER 8</b>             |
|---------------|-------------------------|---------------|-------------------------------|
| CS 417        | Senior Project Design   | CS 418        | Senior Project Implementation |
| CS Elec       | CS Elective             | CS Elec       | CS Elective                   |
| CS Elec       | CS Elective             | CS Elec       | CS Elective                   |
| CORE          | Foundational Core       | CY 221        | Foundations of Cybersecurity  |
| LAE Inquiry   | LAE Exploration Inquiry | CORE          | Foundational Core             |

effective Fall 2024