# Computer Science

## BS in Computer Science (Fall 2018 & Later)

**Minimum 120 credits required for Bachelor's degree**

| Foundational Core (30-32 Credits) | | Grade |
|---|---|---|
| FYXX 125[1] | First Year Seminar | |
| CTL-125 | Critical Thinking | |
| MA ____ | Foundational Core Math course [3] | |
| Choose 1 course from each area * | | |
| [2]Natural and Physical Science [4] | | |
| Literature | | |
| History | HI-100 or HI-102 | |
| Arts/Design/Comm. | | |
| Philosophy | | |
| Theology/Relig | | |
| Social/Behavioral Science [5] | | |

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

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

**Liberal Arts Explorations (9 Credits Total)**

| Student must complete one course in each area. (see list on Registrar's Website - checksheets) | | |
|---|---|---|
| Humanistic Inquiry (3 credits) | | |
| | | |
| Social and Global Awareness | | |
| | | |
| Scientific Literacy (3 credits) [6] | | |

* See list of courses.

[1](Requires Grade C or higher)

[2]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.

[3] MA106/MA140/MA151 may count in this area

[4] PY151/153 may count in this area

[5] EC101 or EC202 is recommended

[6] MA331 may count in this area

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

58 credits **COMPUTER SCIENCE MAJOR**

| REQUIRED CURRICULUM | | Grade |
|---|---|---|
| CS 110 | Introduction to CS(may be waived) | |
| CS 111 | Introduction to Structured Programming | |
| CS 112 | Data Structures | |
| CS 113 | Discrete Structures | |
| CS 215 | Comp. Systems Organization/Assembler | |
| CS 272 | OOP with C# and Games | |
| CS 311 | Database Design | |
| CS 312 | Software Engineering | |
| CS 313 | Discrete Systems | |
| CS 318 | Project Course | |
| CS 319 | Computer Ethics | |
| CS 339 | Networking and Data Communications | |
| CS 341 | Analysis of Algorithms | |
| CS 349 | Operating Systems | |

| Elective | Select one of the following | Grade |
|---|---|---|
| CS 241 | Advanced Programming Concepts "C" | |
| CS 236 | Advanced Scripting Concepts | |
| CS 348 | Programming in Unix | |
| CS 398 | Mobile Apps | |

| Required Supporting Courses * | | Grade |
|---|---|---|
| MA 151 | Calculus I | |
| MA 152 | Calculus II | |
| MA 253 | Calculus III | |
| MA 261 | Linear Algebra | |
| MA 331 | Probability** | |
| PY151/153 | Principles of Physics I and Lab | |
| PY152/154 | Principles of Physics II and Lab | |
| **MUST HAVE GRADE OF "C" OR BETTER** | | |

| General Electives (number of credits vary) | | Grade |
|---|---|---|
| | | |
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| | | |

**Checksheet Key**

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

** Counts in LAE

NOTE: For Cybersecurity Concentration CS368 (CyberSecurity Principles) replaces the elective and CS367 (Network Security) replaces CS313

# WELCH COLLEGE OF BUSINESS

## BS in Computer Science (Fall 2018 & Later)

The computer science field has experienced dramatic growth and technological development within the last decade. The 21st century is measuring up to be even more dynamic for the computer science field. The Sacred Heart University Computer Science Department addresses the need for qualified professionals with a variety of skills. The Computer Science department has three degree choices: Computer Science, Information Technology and Game Development and Design. Within the Computer Science and Information Technology majors students can select a Cybersecurity option. The information technology major addresses data processing and information management issues. Practical applications toward business related problems, resource management, economic feasibility studies, and analysis of computer systems are a sample of the subjects studied.

The curriculum is designed to provide the Computer Science major with the latest up-to-date information. Courses in C programming, C++, Database design, Networking, Algorithms, Operating Systems, and Software Engineering, are just a few of the subjects offered. Students may also complete a degree program with a BS and MSCIS in five years. Students may opt for the Information Technology or Game Development and Design Major **(see separate sheet).**

The Computer Science major is required to successfully complete 58 credit hours . The remaining credits required for graduation are within the liberal arts core curriculum.

***SUGGESTED FOUR YEAR SEQUENCE OF STUDY: (if CS 110 is waived..otherwise CS 110 is taken semester 1 and CS 111 follows in semester 2)***

***Computer Science***

| **YEAR 1** | **SEMESTER I** | **YEAR 1** | **SEMESTER 2** |
|---|---|---|---|
| FYXX125 OR CTL 125 | First Year Seminar OR Crititcal Thinking | CTL 125 OR FYXX125 | Critical Thinking OR First Year Seminar |
| MA 151 | Calculus I | MA 152 | Calculus II |
| CS 111 | Intro to Structured Programming | CS 112 | Data Structures |
| HI 100 OR 102 | Western Civ I or II | CS 113 | Discrete Structures |
| | Foundational Core | | Foundational Core |
| **YEAR 2** | **SEMESTER 3** | **YEAR 2** | **SEMESTER 4** |
| CIT 201 | Human Hourney Seminar | CIT 202 | Human Hourney Seminar |
| CS | CS Elective | CS 215 | Computer Systems Organization |
| MA 253 | Calculus III | CS 272 | OOP with C# and Games |
| PY 151/153 | Principles of Physics I | MA 261 | Linear Algebra |
| | Foundational Core | | Foundational Core |
| **YEAR 3** | **SEMESTER 5** | **YEAR 3** | **SEMESTER 6** |
| CS 311 | Database Design | CS 312 | Software Engineering |
| MA 331 | Probability (LAE Literacy) | CS 341 | Analysis of Algorithms |
| | Foundational Core | PY 152/154 | Principles of Physics II |
| | LA Exploration Inquiry | | Free Elective |
| | Free Elective | | Free Elective |
| **YEAR 4** | **SEMESTER 7** | **YEAR 4** | **SEMESTER 8** |
| CS 318 | Project Course | CS 319 | Computer Ethics (LAE Awareness) |
| CS 313 | Discrete Systems | CS 339 | Networking and Data Communications |
| | Free Elective | CS 349 | Operating Systems |
| | Free Elective | | Free Elective |
| | Free Elective | | Free Elective |