

# COMPUTER SCIENCE, BACHELOR OF SCIENCE

**College:** College of Science and Health

**Department:** Mathematical and Computational Sciences

**Student Type:** Traditional Undergraduate

**Degree:** Bachelor of Science

**Campus:** Both Lisle Campus and Mesa Campus

## Progression in the Computer Science Program

To progress in the Computer Science program students must complete the introductory sequence of CMSC 2200 Computer Programming and CMSC 2205 Data Structures and Algorithms I with a GPA of 2.500 or above and a grade of "C" or better in each of these courses. A transfer student must meet these requirements through equivalent transfer courses. Additionally, a transfer student must earn a GPA of 2.500 or above in all major classes (excluding labs) during the first semester at Benedictine in order to progress in the Computer Science program.

If it is determined at any time that a student cannot progress in the Computer Science program or cannot graduate with a Computer Science degree, the student will be required to change his or her major and seek academic advising outside of that program.

## Requirements - Major

The Computer Science major must complete a minimum of 51 semester credit hours of computer science courses numbered 2000 or above, including 33 semester credit hours at the 3000 level or above. Required courses are:

| Code                           | Title                                       | Hours |
|--------------------------------|---|-------|
| CMSC 2200                      | Computer Programming                        | 3     |
| CMSC 2205                      | Data Structures and Algorithms I            | 3     |
| CMSC 2220                      | Computer Architecture                       | 3     |
| CMSC 2264                      | Introduction to Web Application Development | 3     |
| CMSC 2330                      | Introduction to Database Systems            | 3     |
| CMSC 2365                      | Introduction to Computer Networks           | 3     |
| CMSC 3270                      | Data Structures and Algorithms II           | 3     |
| CMSC 3274                      | Object-Oriented Design and Programming      | 3     |
| CMSC 3301                      | Technical Communications                    | 3     |
| CMSC 3303                      | Computer Science Ethics                     | 1     |
| CMSC 3330                      | Database Management Systems                 | 3     |
| CMSC 3391                      | Current Topics in CS                        | 2     |
| CMSC 4310                      | Operating Systems                           | 3     |
| CMSC 4375                      | Software Engineering                        | 3     |
| CMSC 4398                      | Capstone Project                            | 3     |
| Select three of the following: |   | 9     |
| CMSC 4363                      | Data Mining                                 |       |
| CMSC 4364                      | Mobile Commerce                             |       |
| CMSC 4365                      | Computer Networks and Data Communication    |       |
| CMSC 4370                      | Algorithm Design and Analysis               |       |
| CMSC 4373                      | Big Data                                    |       |
| CMSC 4374                      | Advanced Web Application Development        |       |

|                    |                                 |           |
|--------------------|---------------------------------|-----------|
| CMSC 4380          | Artificial Intelligence         |           |
| CMSC 4383          | Machine Learning                |           |
| CMSC 4384          | Enterprise Architecture         |           |
| CMSC 4385          | Theory of Programming Languages |           |
| CMSC 4391          | Selected Topics                 |           |
| MATH 1150          | Introduction to Statistics      | 3         |
| MATH 1115          | Business Calculus               | 3         |
|                    | or MATH 2210 Calculus I         |           |
| MATH 2240          | Discrete Mathematics            | 4         |
| <b>Total Hours</b> |                                 | <b>61</b> |

- CMSC 3396 ACCA Seminar, CMSC 3397 Undergraduate Project, and CMSC 3399 Internship do not count toward major credit.
- Grades of "C" or better are required to apply computer science or computational courses toward the degree.
- A student cannot major in both Computer Science and Computer Information Systems.

## Objectives

Students in the Computer Science or Computer Information Systems program will achieve the following student learning outcomes (SLO):

Student Learning Outcome 1: Demonstrate a comprehensive understanding of the Java programming language.

- University SLO: 1. Disciplinary Competence and Skills; 5. Analytical Skills

Student Learning Outcome 2: Demonstrate a thorough understanding of unit testing.

- University SLO: 1. Disciplinary Competence and Skills; 5. Analytical Skills

Student Learning Outcome 3: Demonstrate a strong understanding of algorithms.

- University SLO: 1. Disciplinary Competence and Skills; 2. Critical and Creative Thinking Skills; 5. Analytical Skills

Student Learning Outcome 4: Develop oral and written communication skills.

- University SLO: 3. Communication Skills

Student Learning Outcome 5: Obtain practical experience with version control.

- University SLO: 1. Disciplinary Competence and Skills