

Fontbonne University

Undergraduate & Graduate Catalog Addendum 2017-2018

**A Catholic University founded by the
Sisters of St. Joseph of Carondelet, St. Louis Province**

**The information contained in this addendum is meant to update information
initially published in the 2017-2018 catalog.**

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Department of Mathematics and Computer Sciences

The section below updates information held on page 131 of the 2017-2018 catalog.

MAJOR IN COMPUTER SCIENCE

This major includes both theory and application and prepares students for a variety of challenging careers in the field of computer science.

The Program Educational Objectives for the BS in Computer Science Degree are the following four:

1. Hold professional positions in industry and/or academia, be committed to their employer's mission and demonstrate flexibility, accountability and responsibility.
2. Conduct themselves with integrity and make responsible, ethical decisions, always aware of the local and global impact that advances in technology produce.
3. Demonstrate well-rounded professional traits in terms of working effectively with diverse groups of people and communicating effectively to both technical and non-technical professionals.
4. Successfully adapt to new technologies, tools and methodologies to remain current in their occupation.

The student outcomes for the BS in Computer Science degree program are the following:

- a) an ability to apply knowledge of computing and mathematics appropriate to the discipline
- b) an ability to analyze a problem, and identify and define the computing requirements appropriate to its solution
- c) an ability to design, implement and evaluate a computer-based system, process, component or program to meet desired needs
- d) an ability to function effectively on teams to accomplish a common goal
- e) an understanding of professional, ethical, legal, security and social issues and responsibilities
- f) an ability to communicate effectively with a range of audiences
- g) an ability to analyze the local and global impact of computing on individuals, organizations and society
- h) recognition of the need for and an ability to engage in continuing professional development
- i) an ability to use current techniques, skills and tools necessary for computing practice
- j) an ability to apply mathematical foundations, algorithmic principles and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices
- k) an ability to apply design and development principles in the construction of software systems for varying complexity

Academic Year	Total Number of Undergraduates	Number of B.S. Degrees Awarded
<u>2016</u>	29	6
<u>2015</u>	30	6
<u>2014</u>	26	3
<u>2013</u>	27	2
<u>2012</u>	16	4

Baccalaureate Degree and Residency Requirements

All requirements for an undergraduate degree are listed under academic policies and regulations in the undergraduate introductory section of this catalog. These requirements include a graduation requirement of at least one course in religion or theology.

General Education Requirements

The 42 credit hours of general education requirements are presented in the undergraduate academic information section of this catalog. A course that meets a general education requirement may also meet a course requirement in the major or a course requirement in another discipline.

Courses Required for the Major:

- CIS 120 Overview of Computer and Information Science
(3 credits)
- CIS 160 Computer Science I (4 credits)
- CIS 161 Computer Science II (4 credits)
- CIS 210 Object-Oriented Programming (4 credits)
- CIS 250 Algorithms and Data Structures (4 credits)
- CIS 310 Computer Architecture and Assembly Language
(3 credits)
- CIS 330 Database Management Systems (3 credits)
- CIS 340 Concepts of Telecommunications and Networking
(3 credits)
- CIS 355 Principles of Operating Systems (3 credits)
- CIS 375 Software Engineering I (3 credits)
- CIS 421 Compiling Theory and Programming Languages
(3 credits)
- CIS 498 Senior Portfolio (1 credit)
- CIS 499 Senior Synthesis (3 credits)

Two electives chosen from the following (6 credits):

- CIS 345 Network Security and Management
- CIS 356 Operating System Security and Administration
- CIS 465 Robotics
- CIS 394 Topics in Computer Science*
- CIS 460 Artificial Intelligence
- CIS 472 Android Programming or CIS 473 iOS Programming
- CIS 475 Software Engineering II
- CIS 480 Research in Computer Science*
- CIS 484 Internship in Computer Science*
- CIS 490 Independent Study in Computer Science*

CIS 494 Advanced Topics in Computer Science*

*At most one of the two electives may be chosen from among these courses.

Courses Required in Other Disciplines:

MTH 115 Introduction to Statistics (3 credits)

MTH 120 Discrete Mathematics (3 credits)

MTH 150 Calculus with Analytic Geometry I (4 credits)

MTH 151 Calculus with Analytic Geometry II (4 credits)

MTH 200 Linear Algebra (3 credits)

MTH 300 Modeling and Numerical Approximation (3 cr)

MTH 430 Algebraic Structures (3 credits)

Two of the following courses (7-8 credits):

BIO 108 Introduction to Life Science with Lab

BIO 112 General Biology I with Lab

BIO 114 General Biology II with Lab

CHM 106 General Chemistry I with Lab

CHM 108 General Chemistry II with Lab

PHY 208 College Physics with Lab

PHY 210 College Physics II with Lab

MTH 250 Calculus with Analytic Geometry III

MTH 315 Advanced Statistics

MTH 385 Cryptography