

# Computer Science & Cybersecurity Programs

## OVERVIEW OF THE PROGRAMS:

Computer science is the study of the theoretical foundations of computing and their applications in computer systems. It involves the study and implementation of the algorithmic processes that describe and transform information. Computer science is intended for students with career objectives in a wide range of computing and computer-related professions, e.g., computer programmers, systems analysts, software developers, database administrators, information security analysts, etc. In addition to receiving the necessary skills in computer science, the students also receive a well-balanced mathematics and general studies curriculum.

Students interested in computer science also have the option of choosing a Cybersecurity concentration. Cybersecurity students develop theoretical knowledge and hands-on experience with the tools and protocols needed to understand, implement, and manage security technologies as well as gain insight into the legal, social, and political dynamics of the cyber universe.

## EMPLOYMENT OPPORTUNITIES:

Computer science is a broad discipline that encompasses many areas of specialization, with an ever-growing array of opportunities. The computer science degree programs at Fairmont State University have been designed to provide students with an understanding of the field that is broad enough for them to find employment in a wide spectrum of private companies or government agencies and make them competitive for graduate school and advanced study. According to Bureau of Labor Statistics, it is expected that the employment opportunities in computing and cybersecurity fields will continue to increase much faster than the average for all occupations over the next ten years.

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**FAIRMONT STATE  
UNIVERSITY™**

**College of Science and  
Technology**



## CONTACT INFORMATION

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**BACHELOR OF SCIENCE IN COMPUTER SCIENCE:  
MODEL SCHEDULE**

**FRESHMAN FIRST SEMESTER**

COMP 1100	INTRODUCTION TO COMPUTING.....	3
COMP 1120	PRINCIPLES OF PROGRAMMING I.....	3
MATH 1561	INTRODUCTION TO MATHEMATICAL REASONING.....	3
ENGL 1101	WRITTEN ENGLISH I.....	3
GENERAL STUDIES	.....	3
		15

**FRESHMAN SECOND SEMESTER**

COMP 1130	PRINCIPLES OF PROGRAMMING II.....	4
MATH 2562	INTRODUCTION TO DISCRETE MATHEMATICS.....	3
ENGL 1102	WRITTEN ENGLISH II.....	3
GENERAL STUDIES	.....	6
		16

**SOPHOMORE FIRST SEMESTER**

COMP 2200	OBJECT-ORIENTED PROGRAMMING.....	3
COMP 2270	DATA STRUCTURES.....	3
MATH 2501	CALCULUS I.....	4
GENERAL STUDIES	.....	6
		16

**SOPHOMORE SECOND SEMESTER**

COMP 2201	MACHINE ORGANIZATION.....	3
COMP 2230	NETWORK PROGRAMMING.....	3
MATH 2502	CALCULUS II.....	4
GENERAL STUDIES	.....	6
		16

**JUNIOR FIRST SEMESTER**

COMP 3330	ANALYSIS OF ALGORITHMS.....	3
COMP 3340	OPERATING SYSTEMS.....	3
SCIENCE ELECTIVE	.....	4
GENERAL STUDIES	.....	3
		13

**JUNIOR SECOND SEMESTER**

COMP 3395	ETHICAL ISSUES IN COMPUTING.....	3
MAJOR ELECTIVE	.....	3
SCIENCE ELECTIVE	.....	4
GENERAL STUDIES	.....	6
		16

**SENIOR FIRST SEMESTER**

COMP 4400	AUTOMATA THEORY.....	3
COMP 4410	DATABASE MANAGEMENT.....	3
MAJOR ELECTIVE	.....	3
FREE ELECTIVES	.....	6
		15

**SENIOR SECOND SEMESTER**

COMP 4440	SOFTWARE ENGINEERING.....	4
MAJOR ELECTIVE	.....	3
FREE ELECTIVES	.....	7
		14

**BACHELOR OF SCIENCE IN COMPUTER  
SCIENCE (CYBERSECURITY CONCENTRATION)  
MODEL SCHEDULE**

**FRESHMAN FIRST SEMESTER**

COMP 1100	INTRODUCTION TO COMPUTING.....	3
COMP 1120	PRINCIPLES OF PROGRAMMING I.....	3
MATH 1561	INTRODUCTION TO MATHEMATICAL REASONING.....	3
ENGL 1101	WRITTEN ENGLISH I.....	3
GENERAL STUDIES	.....	3
		15

**FRESHMAN SECOND SEMESTER**

COMP 1130	PRINCIPLES OF PROGRAMMING II.....	4
MATH 2562	INTRODUCTION TO DISCRETE MATHEMATICS.....	3
ENGL 1102	WRITTEN ENGLISH II.....	3
CRIM 2250	CYBERCRIME.....	3
GENERAL STUDIES	.....	3
		16

**SOPHOMORE FIRST SEMESTER**

COMP 2200	OBJECT-ORIENTED PROGRAMMING.....	3
COMP 2220	FUNDAMENTALS OF COMPUTER SECURITY.....	3
COMP 2270	DATA STRUCTURES.....	3
MATH 2501	CALCULUS I.....	4
		13

**SOPHOMORE SECOND SEMESTER**

COMP 2201	MACHINE ORGANIZATION.....	3
COMP 2230	NETWORK PROGRAMMING.....	3
BISM 2600	INTRODUCTION TO NETWORK ADMINISTRATION.....	3
GENERAL STUDIES	.....	6
		15

**JUNIOR FIRST SEMESTER**

COMP 3340	OPERATING SYSTEMS.....	3
COMP 3380	INTRODUCTION TO CRYPTOGRAPHY.....	3
SCIENCE ELECTIVE	.....	4
GENERAL STUDIES	.....	6
		16

**JUNIOR SECOND SEMESTER**

COMP 3390	NETWORK SECURITY.....	4
COMP 3395	ETHICAL ISSUES IN COMPUTING.....	3
MAJOR ELECTIVES	.....	3
GENERAL STUDIES	.....	3
FREE ELECTIVES	.....	3
		16

**SENIOR FIRST SEMESTER**

COMP 4410	DATABASE MANAGEMENT.....	3
COMP 4415	VULNERABILITY ASSESSMENT.....	4
GENERAL STUDIES	.....	3
FREE ELECTIVES	.....	6
		16

**SENIOR SECOND SEMESTER**

COMP 4440	SOFTWARE ENGINEERING.....	4
COMP 4495	CYBERSECURITY SENIOR PROJECT.....	3
GENERAL STUDIES	.....	3
FREE ELECTIVES	.....	4
		14