Computer Science - Cyber/Information Security Option Transferring to OSU-IT and Colleges With Similar Patterns (AS)

Associate in Science
Minimum of 62 credit hours

Keeping national secrets safe as well as protecting individuals and companies from criminals who seek to steal identities and destroy documents is becoming more important every day. You could enter the in-demand profession of cyber security specialist with an associate degree in Cyber Information Security from Oklahoma City Community College. The curriculum in this program is specifically designed to give you an introduction to the cyber/information security area and provide the foundational skills you need to transfer to a four-year college or university. Because of the increasing threats to computerized data and information, the need for cyber information security specialists is at an all-time high. These cyber information security specialists protect computer users from hackers and electronic fraud, viruses and worms and more. Oklahoma City Community College has been recognized as a National Center of Academic Excellence in Information Assurance (CAE2Y) by the Department of Homeland Security and the National Security Agency.

Course Sequence

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Course Grouping

Major Courses: (24 credit hours) Computer Science: CS 1103, CS 1143, CS 1413, CS 2163, CS 2303, CS 2713, CS 2743, CS 1333 or CS 2173 or CS 2443
General Education Courses: (37 credit hours)
Biological Science: BIO 1114
English: ENGL 1113, ENGL 1213
History: HIST 1483 or HIST 1493
Mathematics: MATH 1513, MATH 2013
Philosophy: PHIL 1213, PHIL 1603
Physical Science: PHYS 1014
Political Science: POLSC 1113
Two credit hours of General Education Electives
Life Skills Courses: (1 credit hour) Life Skills: SCL 1001
Support Courses: None

Program Notes

Notes: This program is designed for students planning to continue their education at a four-year college or university. See the front general section for information and requirements about University Parallel/Transfer Programs.
Must have a grade of "C" or higher in all Computer Science courses.
Degree Program Course Descriptions

**BIO 1114 - GENERAL BIOLOGY (Non Majors)**
Prerequisites: ENGL 0203 or adequate placement score or by meeting determined placement measures; MATH 0103 or adequate math placement test score.
4 Credits  An introductory lab-based course that is designed to provide non-biological science major with the necessary background needed to effectively understand scientific information. Students investigate the properties of life to include: organization, energy use, evolution, maintenance of homeostasis, reproduction, growth, and development. Ecological concepts are discussed which enables students to have a better understanding regarding the impact that humans have on the natural world. Laboratory work is an integral and required part of this course.

**CS 1103 - INTRODUCTION TO COMPUTERS AND APPLICATIONS**
Prerequisites: Math 0103 or adequate math placement test score; ENGL 0203, adequate placement score, or by meeting determined placement measures
3 Credits  This hands-on course affords students a basic understanding of computers and their application. Upon completion of this course, the student will be able to demonstrate the ability to use a computer operating system, an office suite, productivity tools, as well as the Internet at an introductory level. Advanced Standing is available.

**CS 1143 - BEGINNING PROGRAMMING**
Prerequisites: ENGL 0203, adequate placement score, or by meeting determined placement measures; Math 0203 or adequate math placement test score or by evaluation. § Criteria for evaluation is in division office.
3 Credits  Designed for Computer Science majors, this course affords students a basic understanding of computer programming. Students will utilize accepted programming concepts and perform number system conversions and arithmetic. In addition, they will design and code structured modular programs using design tools such as hierarchy charts, flowcharts, and pseudocode.

**CS 1333 - DATABASE MANAGEMENT APPLICATIONS**
Prerequisites: ENGL 0203, adequate placement score, or by meeting determined placement measures; Math 0203 or adequate math placement test score.
3 Credits  The student will use a selected database management program to create and edit database files. The student will also search, organize, and build reports, forms, and templates with the database files.

**CS 1413 - COMPUTER HARDWARE**
Prerequisites: ENGL 0203, adequate placement score, or by meeting determined placement measures; Math 0203 or adequate math placement test score, prerequisite or co-requisite CS 1103
3 Credits  Students will learn the following through class lectures and hands-on projects: identification, configuration, maintenance, troubleshooting, and repair of PC hardware including mainboards, BIOS, processors, memory, storage devices, peripherals, and printers. Other IT-related issues such as networks, safety and environmental concerns, customer relations, and professionalism are also presented. A+ Certification Preparation Course.

**CS 2163 - JAVA**
Prerequisites: Math 0303 or adequate math placement test score, CS 1143 or by evaluation. § Criteria for evaluation is in division office.
3 Credits  Students will develop object-oriented Java applications and applets, which demonstrate comprehension of fundamental programming structures, object-oriented programming, graphics, event handling, interface components, programming for the Internet, data structures, and exception handling.

**CS 2173 - ORACLE**
Prerequisites: Math 0303 or adequate math placement test score, CS 1143.
3 Credits  Using Oracle as a platform, students will learn relational database concepts, sound database design and development techniques, and SQL commands. Topics include how to create and modify database tables; retrieve data from database tables; use subqueries to retrieve data; use table constraints, sequences, indexes, synonyms, views and functions; create users and assign privileges to users; create printable reports through SQL*Plus commands; practice SQL statement tuning.

**CS 2303 - NETWORKING TECHNOLOGIES**
Prerequisites: Math 0203 or adequate math placement test score, co-requisite CS 1103 or by evaluation.
3 Credits  Students will learn how to install, configure, and troubleshoot basic networking hardware, protocols, and services and to describe the features and functions of networking components. A foundational knowledge in the important areas of media and topologies, protocols and standards, network implementation, and network support will be developed using a combination of lectures and interactive assignments. Network + Certification Preparation Course.

**CS 2443 - SQL SERVER**
Prerequisites: Math 0303 or adequate math placement test score, CS 1143 or by evaluation. § Criteria for evaluation is in division office.
3 Credits  Students will learn terms, concepts and features needed to work with most relational databases. Using SQL Server databases and tools, they will learn concepts on how to design a database, retrieve data from and manipulate data in a database. They will also learn SQL programming and will be able to work with database features that will include views, stored procedures, functions, triggers and others.

**CS 2713 - PRINCIPLES OF INFORMATION SECURITY**
Prerequisites: ENGL 0203, adequate placement score, or by meeting determined placement measures; Math 0203 or adequate math placement test score.
3 Credits  Students will complete a comprehensive overview of network security, with an introduction to a variety of security problems faced by the computing industry. This course is mapped to the CompTIA Security+ Certification Exam. The course covers topics in general security concepts, communication security, infrastructure security, cryptography basics, and operational/organizational security.

**CS 2743 - ENTERPRISE SECURITY MANAGEMENT**
Prerequisites: ENGL 0203, adequate placement score, or by meeting determined placement measures; Math 0203 or adequate math placement test score.
3 Credits  Students will learn the managerial aspects of computer security and risk management for enterprises. Topics include accreditation, procurement, extension and operation principles for secure enterprise information systems. Additional topics are security policy and plan development, contingency, continuity and disaster recovery planning, and incident handling and response.

**ELEC - ELECTIVE**
Prerequisites: 3 Credits  Elective

**ENGL 1113 - ENGLISH COMPOSITION I**
Prerequisites: ENGL 0203, adequate placement score, or by meeting determined placement measures.
3 Credits The student will write well-developed compositions which demonstrate the principles of unity, coherence, and organization and which contain specific details and vivid language. The students will locate library material and incorporate researched materials into compositions.

ENGL 1213 - ENGLISH COMPOSITION II
Prerequisites: ENGL 1103 or ENGL 1113 taken within the last year, with strong encouragement for immediate continuation.
3 Credits In this advanced writing course, students will create essays that explore and evaluate a variety of issues and perspectives suggested by fiction, poetry, drama, essays, and other types of cultural texts. Students will refine and augment the writing techniques they learned in ENGL 1113 or ENGL 1103 to develop well- reasoned, well-structured arguments in a clear, fluid, and engaging prose style.

HIST 1483 - U.S. HISTORY TO THE CIVIL WAR
Prerequisites: ENGL 0203, adequate placement score, or by meeting determined placement measures
3 Credits After analyzing events in American history from 1400 to 1870 in such areas as revolution, geographic and social mobility, political reform, government precedents and war, the student will be able to identify patterns of present day mobility, describe governmental operations in his society and help resolve conflict in society based on the students search for change, precedents, and conflict in the American past.

HIST 1493 - U.S. HISTORY SINCE THE CIVIL WAR
Prerequisites: ENGL 0203, adequate placement score, or by meeting determined placement measures
3 Credits After analyzing events in American history from 1870 to the present in such areas as political reform, industrialization, urbanization, ethnic acculturation and war, the student will be able to identify meaningful changes in his society, identify equal rights in that society, and help resolve conflict in this society based on the students search for change, equal rights and conflicts in the American past.

MATH 1513 - COLLEGE ALGEBRA FOR BUSINESS, LIFE SCIENCES AND SOCIAL SCIENCES
Prerequisites: MATH 0403 or adequate math placement test score; ENGL 0203, adequate placement score, or by meeting determined placement measures
3 Credits The student will demonstrate an understanding of the general concepts of relation and function and specifically of polynomial, exponential, and logarithmic functions; the ability to solve systems of equations by utilizing matrices and determinants; and the ability to solve practical problems using algebra.

MATH 2013 - INTRODUCTION TO STATISTICS
Prerequisites: MATH 0403 or adequate math placement test score; ENGL 0203, adequate placement score, or by meeting determined placement measures
3 Credits The student will solve problems applying the concepts of random sampling, elementary probability, testing hypotheses, descriptive measures, chi-square, regression and correlation, and analysis of variance.

PHIL 1213 - INTRODUCTION TO ETHICS
Prerequisites: ENGL 1113
3 Credits Students will demonstrate their understanding of the relationship between philosophy and ethics; the language, concepts and traditions of ethics; and selected theories of ethics. The students will then use descriptive, normative and metathetical approaches to analyze selected contemporary ethical issues.

PHIL 1603 - INTRODUCTION TO LOGIC
Prerequisites: ENGL 1113
3 Credits Students will recognize genuine arguments in natural language, translate them into appropriate form for logical analysis, and use traditional and modern methods to determine their validity. Students also will recognize and refute various informal fallacies.

PHYS 1014 - PHYSICAL SCIENCE
Prerequisites: ENGL 0203, adequate placement score, or by meeting determined placement measures and Math 0203 or adequate math placement test score.
4 Credits Students will develop an appreciation for concepts, methods, and applications of the natural sciences in their everyday lives. Students will be able to demonstrate their familiarity with some of the basic principles of chemistry, physics, geology, astronomy, and other physical sciences by (1) indicating how disciplines can work together in the solution of common problems (2) utilizing physical science methods in their daily lives, describing physical phenomena and predicting the results of common occurrences, and (3) demonstrating the ability to utilize scientific methodologies in a laboratory setting.

PSY 1113 - INTRODUCTION TO PSYCHOLOGY
Prerequisites: ENGL 0203, adequate placement score, or by meeting determined placement measures
3 Credits A survey of the major areas of study in psychology such as motivation, learning, physiology, personality, social psychology, abnormal behavior, perception, memory, cognition/thought, and treatment.

SOC 1113 - INTRODUCTION TO SOCIOLOGY
Prerequisites: ENGL 0203, adequate placement score, or by meeting determined placement measures
3 Credits The student will identify the sociological dimensions of human behavior by analyzing the concepts of society, culture, socialization, institutions, social stratification and social change.