

# COMPUTER PROGRAMMING (COP)

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## COP1000C INTRODUCTION TO COMPUTER PROGRAMMING (3.00 Credits)

This course provides the beginning programming student with the techniques necessary to write well-documented, structured computer programs. The course is intended to emphasize the planning process using examples involving sequence, selection, and iteration. The course is designed to promote good programming practices for further study of other programming languages.

Total Contact Hrs: 48.00

Lecture Hrs: 32.00

Lab Hrs: 16.00

Fees: LABORATORY FEE \$10.00

## COP1250C PROGRAMMING 1 (3.00 Credits)

This course provides an introduction to the fundamental concepts, methodologies, and techniques associated with Object Oriented Programming. The course is intended to provide the novice programming student with the techniques needed to develop well-documented computer programs.

Total Contact Hrs: 48.00

Lecture Hrs: 32.00

Lab Hrs: 16.00

## COP1334C INTRODUCTION TO C++ (3.00 Credits)

This course provides an introduction to computer program design and development using the C++ language. A structured, multi-phase, program development process featuring a series of steps involving problem definition, top-down design, and formal program specification is stressed. The course is intended to provide the novice programming student with the techniques needed to develop well-documented, structured computer programs.

Total Contact Hrs: 48.00

Lecture Hrs: 24.00

Lab Hrs: 24.00

Fees: LABORATORY FEE \$10.00

## COP1700C INTRODUCTION TO DATABASE AND MYSQL (3.00 Credits)

This course gives students an introduction to MySQL. Students will learn the design and creation of Object-Oriented Databases (using MySQL). Topics will include storing, retrieving, updating and displaying data using MySQL from Oracle.

Total Contact Hrs: 48.00

Lecture Hrs: 32.00

Lab Hrs: 16.00

Fees: LABORATORY FEE \$95.00

## COP2044C MACHINE LEARNING WITH PYTHON (4.00 Credits)

Students will learn why machine learning is crucial for automation and how machines learn with data. Using Python, students will use a variety of packages to create regression and classification models that make predictions. Students will become proficient in developing machine learning models, evaluating models, and learning how to answer business questions with artificial intelligence.

Total Contact Hrs: 64.00

Lecture Hrs: 32.00

Lab Hrs: 32.00

Fees: LABORATORY FEE \$95.00

Complete all the courses in the following option:

- Prerequisite: COP1000C (minimum grade: C)

## COP2071C SQL FUNDAMENTALS (4.00 Credits)

This course provides a basis for students to implement the core principles and tools of a relational database. Students will gain a working knowledge of queries, insert, update and delete SQL statements as well as some Data Definition language and Data Control Language. This combination of knowledge and skills will allow students to create tables, manage data within those tables, and write SQL queries derived from data stored in relational databases. Practice will be provided to prepare students for the Oracle SQL Database certification exam.

Total Contact Hrs: 64.00

Lecture Hrs: 32.00

Lab Hrs: 32.00

Fees: LABORATORY FEE \$95.00

COP2251C PROGRAMMING II (4.00 Credits)

This course continues the study of Programming I. Topics will include classes, polymorphism, inheritance, streams, exception handling, dynamic memory allocation, and memory management. An introduction to data abstraction and data structures is also included.

Total Contact Hrs: 64.00

Lecture Hrs: 32.00

Lab Hrs: 32.00

Complete all the courses in the following option:

- Prerequisite: COP1250C (minimum grade: C)

COP2335C INTERMEDIATE C++ PROGRAMMING (3.00 Credits)

This course continues the study of structured programming and the C++ language begun in COP1334C. Topics will include classes, polymorphism, inheritance, streams, templates, exception handling dynamic memory allocation, and memory management. An introduction to data abstraction and data structures is also included.

Total Contact Hrs: 48.00

Lecture Hrs: 24.00

Lab Hrs: 24.00

Fees: LABORATORY FEE \$10.00

Complete all the courses in the following option:

- Prerequisite: COP1334C (minimum grade: C)

COP2360C C# PROGRAMMING (3.00 Credits)

This course teaches students how to create C# programs and gives the student a solid foundation on building applications using an object-oriented / event-driven language. Students will write programs using C# controls and their main properties, methods and events. Students will also write programs that access sequential access files and will learn basic programming structures and manipulation of arrays in C#. The class assumes a working knowledge of basic programming control structures.

Total Contact Hrs: 48.00

Lecture Hrs: 32.00

Lab Hrs: 16.00

Fees: LABORATORY FEE \$10.00

Complete all the courses in the following option:

- Pre or Corequisite: COP2361C (minimum grade: C)

COP2361C OBJECT-ORIENTED ANALYSIS AND DESIGN (3.00 Credits)

This course focuses on the object-oriented software development process, including object-oriented methodologies and workflows. Students will be able to determine the Use Cases and Domain Model of the problem domain. Create a system design supporting functional requirements. Create a system architecture supporting the nonfunctional requirements and development constraints.

Total Contact Hrs: 48.00

Lecture Hrs: 32.00

Lab Hrs: 16.00

Fees: LABORATORY FEE \$10.00

Complete all the courses in one of the following options:

- Option 1 - Prerequisite: COP1334C (minimum grade: C), Corequisite: COP2335C (minimum grade: C)
- Option 2 - Prerequisite: COP1250C (minimum grade: C), Corequisite: COP2335C (minimum grade: C)
- Option 3 - Prerequisite: COP1334C (minimum grade: C), Corequisite: COP2251C (minimum grade: C)
- Option 4 - Prerequisite: COP1250C (minimum grade: C), Corequisite: COP2251C (minimum grade: C)

COP2658C IOS APPLICATION DEVELOPMENT I (3.00 Credits)

In this course, students will learn how to create mobile applications that can be deployed to iOS smartphones, tablets, or simulators utilizing standard tools for development. Emphasis will be placed on learning the underlying iOS framework and components in order to create quality mobile applications.

Total Contact Hrs: 64.00

Lecture Hrs: 48.00

Lab Hrs: 16.00

Complete all the courses in one of the following options:

- Option 1 - Prerequisite: COP2335C (minimum grade: C), Pre or Corequisite: COP2361C (minimum grade: C)
- Option 2 - Prerequisite: COP2251C (minimum grade: C), Pre or Corequisite: COP2361C (minimum grade: C)

**COP2940 WEB PROGRAMMING INTERNSHIP (3.00 Credits)**

An Internship will provide the student with practical work experience in the field. In preparation, the student will produce a resume to present to potential employers. The student will work a minimum of 144 hours. Prerequisite: All students must contact the Co-operative Education Office to obtain registration approval.

Total Contact Hrs: 144.00

Other Hrs: 144.00

**COP3808C WEB DEVELOPMENT I (3.00 Credits)**

An introduction to the common principles of computer programming and the basics of a commonly used programming language, including methods. Students will gain a good understanding of Object-Orientated Programming (OOP) in web development.

Total Contact Hrs: 48.00

Lecture Hrs: 24.00

Lab Hrs: 24.00

Complete all the courses in the following option:

- Pre or Corequisite: ISM3054C (minimum grade: C)

**COP3809C WEB DEVELOPMENT II (3.00 Credits)**

This is a new course for the new Web Coding and Development Specialization in the T300, Bachelor of Applied Science in Information Technology.

Total Contact Hrs: 48.00

Lecture Hrs: 24.00

Lab Hrs: 24.00

Complete all the courses in the following option:

- Prerequisite: COP3808C (minimum grade: C)

**COP4111C INTERMEDIATE WEB SCRIPTING (4.00 Credits)**

This course covers intermediate client and server side scripting concepts. Students will learn how to incorporate HTML5 APIs, AJAX, XML and JSON in web sites as well as use popular client and server side scripting libraries and frameworks in web site development.

Total Contact Hrs: 64.00

Lecture Hrs: 32.00

Lab Hrs: 32.00

Fees: LABORATORY FEE \$10.00

Complete all the courses in the following option:

- Option 1 - Prerequisite: CTS2852C (minimum grade: C) and CTS3870C (minimum grade: C)

**COP4858 INTEGRATIVE PROGRAMMING AND TECHNOLOGIES (3.00 Credits)**

Organizations typically use many disparate technologies that need to communicate and work with each other. A key component to the discipline of information technology is the integration of applications and systems. This knowledge area examines the various types of programming languages and their appropriate use. It also addresses the use of scripting languages, architectures, application programming interfaces and programming practices to facilitate the management, integration and security of the systems that support an organization.

Total Contact Hrs: 48.00

Lecture Hrs: 48.00

Complete all the courses in the following option:

- Prerequisite: ISM3054C (minimum grade: C)

**COP4940 INTERNSHIP (3.00 Credits)**

An Internship will provide the student with practical work experience in the field. In preparation, the student will produce a resume to present to potential employers. The student will work a minimum of 144 hours. Prerequisite: All students must contact the Co-operative Education Office to obtain registration approval.

Total Contact Hrs: 144.00

Other Hrs: 144.00

Complete all the courses in the following option:

- Prerequisite: COP4850C (minimum grade: C)