

University of Arkansas – Fort Smith
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General Syllabus

CS 1024 Foundations of Programming II

Credit Hours: 4

Lecture Hours: 3

Laboratory Hours: 2

Prerequisite: CS 1014 Foundations of Programming I and MATH 1403 College Algebra or exemption by placement

Effective Catalog: 2018-2019

I. Course Information

A. Catalog Description

Advanced programming techniques and concepts are presented to include programming paradigms, object-oriented programming, exception handling, graphical user interfaces, and event-driven programming.

B. Additional Course Information

Fluency in a programming language is prerequisite to the study of most areas in the fields of information technology and computer science. This course provides an introduction to object-oriented programming, an alternate method for creating and implementing programs, including those with graphical user interfaces.

II. Student Learning Outcomes

A. Subject Matter

Upon successful completion of this course, the student will be able to:

1. Create algorithms for solving problems.
2. Design, implement, test, and debug programs in an object-oriented programming language.
3. Design, implement, test, and debug programs that operate using a graphical user interface.
4. Design, implement, and test the implementation of "is-a" relationships among objects using a class hierarchy and inheritance.
5. Design, code, test, and debug simple event-driven programs that respond to user events.

B. University Learning Outcomes

This course enhances student abilities in the following areas:

Analytical Skills

Critical Thinking Skills - Students will identify and analyze a problem, break it down into its component parts, and develop a solution using structured and object-oriented design methods.

Quantitative Reasoning - Students will develop algorithms for solving problems involving formulas and numbers.

III. Major Course Topics

- A. Review of Problem Solving using Structured Design, Methods, Strings, and Arrays
- B. Object Oriented Programming Design and Concepts
 1. Abstraction
 2. Encapsulation
 3. Inheritance
 4. Polymorphism
- C. Modular Design, Unit Testing, and Debugging Techniques
- D. Event driven programming
- E. File Processing and Exception handling
- F. Graphical user interfaces
- G. Programming paradigms