

University of Arkansas - Fort Smith
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General Syllabus

CS 3543 Systems Programming

Credit Hours: 3

Lecture Hours: 3

Laboratory Hours: 0

Prerequisite: CS 2003 Data Structures

Effective Catalog: 2018-2019

I. Course Information

A. Catalog Description

Covers the concepts of system-level programming within the context of Linux/UNIX environments. Introduces fundamental programming techniques and the C language vocabulary, which includes the syntax, common library functions and preprocessor process.

B. Additional Information

Fluency in a programming language is prerequisite to the study of most areas in the fields of information technology and computer science. While not all information technology and computer science practitioners are required to program, an understanding of the language of computers is essential to designing, troubleshooting, and implementing systems.

II. Student Learning Outcomes

A. Subject Matter

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

1. Design, compile, and debug programs in the C language syntax.
2. Apply and process preprocessor macros.
3. Explain and apply the concepts of system programming.
4. Create make files and compile programs with the GCC compiler.
5. Utilize the Linux/Unix environment.
6. Evaluate and use Common C libraries.
7. Create efficient applications for system-level activities.

B. University Learning Outcomes (ULO)

This course enhances student abilities in the following area:

Analytical Skills

Critical Thinking Skills - Students will identify a problem, break it down into its component parts, and develop an algorithm for solving the problem and implement it using the C language.

III. Major Course Topics

- A. Problem-solving strategies
- B. C Language syntax
- C. Types, operators and expressions in C
- D. Flow Control and Booleans
- E. System I/O
- F. Pointers and Reference
- G. States and State Machines
- H. System Programming
- I. Threads
- J. Memory Management
- K. File Systems