

COURSE DESCRIPTION

Department and Course Number	CS 306	Course Coordinator	Skjellum
Course Title	Introduction to Perl Programming	Total Credits	1

Current Catalog Description

Basic syntax and data types, data structures, functions, scoping, regular expressions and pattern matching, libraries and modules, program composition, best practices.

Textbook

Beginning Perl, 2nd ed., by James Lee, Publisher Apress, 2004.

References *None*

Course Goals

To impart a solid foundation in the Perl programming language, including all common data types, functions, and operators, as well as best practices for developing Perl programs. To show, through lecture and lab exercises, how Perl excels at various classes of real-world problems.

Prerequisites by Topic

Object-Oriented Design (with grade of “C” or better)

Major Topics Covered in the Course

Basic syntax and data types, data structures, functions, scoping, regular expressions and pattern matching, libraries and modules, program composition, best practices.

Laboratory projects (specify number of weeks on each)

There are five programming assignments lasting approximately two weeks each throughout the semester. These assignments focus on material covered in the past two weeks, and are generally structured as a series of smaller programs that illustrate one or two of the key points from lecture. In some instances, essay questions supplement the programming assignments to demonstrate knowledge of key concepts. The class culminates in a final programming project of the student's choosing. The student proposals are reviewed and adjusted by the instructor to ensure the appropriate level of difficulty and relevance to the course material. Students are also encouraged to incorporate modules and other concepts not specifically covered in class lecture.

Estimate CSAB Category Content

	CORE	ADVANCED		CORE	ADVANCED
Data Structures	_____	_____ 3 _____	Computer Organization and Architecture	_____	_____
Algorithms Software Design	_____	_____ 3 _____	Concepts of Programming Languages	_____	_____ 7 _____

Oral and Written Communications

This course does not require written communications outside of programming assignment commenting.

Social and Ethical Issues

This course does not have a substantial social or ethical computing component.

Theoretical Content

This course does not have a substantial theoretical component.

Problem Analysis

Please see Solution Design section below.

Solution Design

The students are given a series of homework assignments that parallel the course lecture material and ask them to analyze and solve real-world problems using the techniques discussed in class. Assignments include:

- *Arrays and hashes as appropriate data structures for achieving complex data relationships such as a human resources employee database.*
- *The use of regular expressions and pattern matching to process email or web server log files and generate summary statistics.*
- *Use of hashes as a means to count unique occurrences of words or symbols in a file.*
- *Separation of concerns through the use of functions. A menu-driven program is written (such as a gas station customer tab tracker) that requires each menu option (add customer, add transaction, pay tab, save to disk, etc...) to be implemented by a separate function.*
- *The use of references to construct multi-level data structures. The employee database is reimplemented later in the semester as a multi-level hash through the use of references. Students also explore multi-dimensional data structures applied to common board games.*