

Introduction to Linux
Computer Information Systems Division
Wake Technical Community College

NET 145 (2-2-3)	Chris James, Instructor
Course Syllabus Addendum	Fall Semester, 2003
Bioinformatics Certificate	Office: LeMay #21
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Enrollment Information: This is a restricted enrollment course. The course is open to individuals possessing course work in the field of biology (baccalaureate degree recommended) or related sciences who wish to pursue the Bioinformatics certificate offered through Wake Technical Community College's High Performance Computing curriculum.

The Bioinformatics certificate is aimed at individuals who:

- are working in the field of biology and require bioinformatics skills.
- are enrolled in an undergraduate biology curriculum who wish to gain knowledge in the field of bioinformatics for later employment opportunities.
- wish to obtain academic preparation for the information technology portion of the Certified Bioinformatics Specialist certification offered by the National Bioinformatics Institute.

Other students may be admitted to the course by prior arrangement with the course instructor. Email the course instructor (ctjames@waketech.edu) for additional information and registration procedures regarding this course or for more general information regarding the Bioinformatics certificate program.

Course Duration: This course is scheduled to meet for the first 8 weeks of the Fall semester (August 19, 2003 - October 7, 2003).

Class Meeting Time: This is a hybrid web-based course combining distance education with on campus class meetings. The course contact hours are equally divided between on-campus meetings and online access. The online portion of the course is accessed through a web browser based interface known as Blackboard. A Blackboard tutorial will be given on the night of the first class meeting. The on-campus meetings will be on Tuesday nights from 6:00 PM to 9:00 PM. The first on-campus meeting will be **August 19, 2003**.

Course Catalog Description: This course develops the necessary skills for students to develop both GUI and command line skills for using and customizing a Linux workstation. Topics include Linux file system and access permissions, GNOME interface, VI editor, X Window System expression pattern matching, I/O redirection, network and printing utilities. Upon completion, students should be able to customize and use Linux systems for command line requirements and desktop productivity roles.

Course Overview: Welcome to Linux! This survey course examines the Linux operating system. Topics include the history of UNIX and Linux, the Linux file system, use of the command line to execute commands, editing files, networking and an overview of Linux system administration fundamentals.

Course Textbooks:

- (1) "Introduction to UNIX and Linux" by John Muster. ISBN: 0-07-222695-1.
- (2) The required lab manual accompanying the text is "Introduction to UNIX and Linux Lab Manual" by Catherine Creary and Lee M. Cottrell. ISBN: 0-07-222694-3.

Course Goals:

The principal goals for the course are as follows:

1. To help students develop a basic understanding of the Linux operating system.
2. To introduce students to the basic Linux utility programs and commands.
3. To introduce students to text editing and shell scripting.
4. To provide students with the tools enabling productivity in a Linux multi-user environment.

Course Objectives:

Upon successful completion, students will be able to demonstrate (through completion of class work and assignments):

1. How to use basic Linux commands and utilities.
2. How to navigate the Linux file and directory system.
3. How to create and manage directories and files.
4. How to edit text and write shell scripts.
5. How to utilize the command line and X Window interfaces.

Grade Evaluation: Two tests plus a comprehensive final, all of equal value. Ten-point grading scale.

Testing: All tests will be closed-book take home tests. The format of the tests will vary, but expect multiple choice, matching, fill in the blank type, and short answer type questions.

Course Outline:

Part I. *NIX Fundamentals

The first section and majority of the course will focus on learning the fundamental aspects of the UNIX/Linux operating system. *NIX is characterized by the use of a command line interface. Topics will include common file operations, the *NIX file systems, wildcards, redirection, pipes, and filter utilities.

Text chapters:

- | | |
|---------------------------------|---|
| 1. Logging on to the System | 5. Exploring Utilities |
| 2. Touring Essential Programs | 7. Creating and Changing Directories |
| 3. Touring Utilities and System | 8. Specifying Instructions to the Shell |
| 4. Mastering the Visual Editor | 12. Graphical Desktops |

Part II. Internetworking

This section will examine some of the most commonly available tools and utilities that allow users to access the wide variety of information on the Internet. Topics include basic networking fundamentals, the TCP/IP protocol suite, and related Internet applications such as command line FTP, Telnet, and Ping.

Text chapters: None. Lecture notes will be provided.

Part III. System Administration

This section will provide a brief introduction to the skills necessary to perform the day-to-day administration of a UNIX-based network, with system security as a focal point. This section will also provide a introduction to creating Web pages in HTML and setting up a UNIX based World Wide Web server. Emphasis is placed on Apache, which is currently the most widely used web server in the world. Detailed guidelines on building, installing, and configuring the server will be presented.

Text chapters:

- 9. Setting and Using File Permissions
- 13. Maintaining and Administering a Linux System

Part IV. Shell Scripting

A shell script is a collection of Unix commands, with a little bit of programming syntax thrown in to make it all work. This section will provide an introduction to shell scripting with the goal of creating a shell script to administer the operation of a web server.

Text chapters: None. Lecture notes will be provided.

Instructional Methods: This is a hybrid web-based course combining distance education using Blackboard software with on-campus class meetings.

Course Webpage: All instructional materials for this course are available from the following location:

<http://dist-ed.waketech.edu/>

Course Orientation: There is no orientation meeting for this course outside of the regular on campus meetings.

Course Access: Students will be able to access the Blackboard interface to the course on the first day of the second fall semester session (**August 19, 2003**).

Login ID: Your login name will be your first initial, middle initial and last name, plus the last two digits of your student ID. Your password will be your student ID. Additional information and trouble shooting your login ID is available here:

http://www.wake.tec.nc.us/dist_ed/internet/help.html

Students who register after classes start will not have immediate access to the class.

Getting Started: You should visit the course webpage after the first on-campus meeting.