REGIS UNIVERSITY

COLLEGE OF COMPUTER & INFORMATION SCIENCES

Syllabus

Course Number: CS 465
Course Title: UNIX Operating System

Course Description:

CS 465. UNIX OPERATING SYSTEM (3). Explores the architecture of the UNIX operating system. Provides hands-on experience in file management, the UNIX shell, using filters, using and developing pipes, security, software development tools, text processing tools and in-depth knowledge of how these aspects are incorporated into the UNIX system. Discusses how UNIX meets its design objectives, its relative merits in comparison with other operating systems, and interoperability issues.

Prerequisite Courses:

CS310 – Data Structures
or
CS362 – Data Structures

In order to successfully participate in this course, students are expected to have a working knowledge of the following topics within each of the pre-requisite courses:

- Completion of the lower division studies required for a *CS/CIS* major, including *CS208, CS361*, and *CS362 OR CS202, CS210, CS310.*

- Practice with problem definition, solution construction, top-down design techniques, algorithmic development, coding, and debugging (*CS361/CS362 or CS210/CS310*).

- Familiarity with control structures including: if, case/switch, for, while, and do-while (*CS361 or CS210*) and practice with creating and running C++ or Java programs (*CS361/CS362* or *CS210/CS310*).

This course is intended for an audience of programmers and advanced computer users. Therefore, the course contents will emphasize the following topics: Unix utilities, Unix shells, shell script programming, programming tools, and system administration.

This course will develop knowledge and skill through practical application of the concepts learned from the aforementioned topic areas. Each application will challenge students to recall knowledge learned from previous sections and to integrate new concepts to solve the assignments.

Course Overview

Unix/Linux is a family of multitasking, multiuser computer operating systems. The operating system provides a set of simple tools that each perform a well-defined task, using the concepts of modularity and reusability. The unified filesystem, shell scripting and command language tools enable Unix to perform complex tasks. This course will introduce you to the power of Unix.

Course Outcomes:

Upon completion of this course, learners should be able to:

1. Describe the basic components of the UNIX operating system.

2. Use UNIX utilities for basic problem solving.

3. Use the UNIX **vi** editor to create files.

4. Develop shell scripts to solve moderately complex tasks and automate procedures.

5. Perform software development using UNIX tools, such as make and SCCS.

6. Perform several UNIX networking functions.

7. Perform basic UNIX system administration tasks.

Course Materials:

Required Texts:

1. Glass, Graham. (2003). *UNIX for Programmers & Users (3rd edition)*. Prentice Hall/Pearson; ISBN: 0-13-046553-4.

2. Robbins, Arnold. (2005). *UNIX in a nutshell: A Desktop Quick Reference covers GNU/Linux, Mac OS X, and Solaris (4th edition)*. Sebastopol, CA: O'Reilly. ISBN 10: 0-596-10029-9 or ISBN 13: 9780596100292.

Technology Tools:

• Access to a PC-compatible computer system, running Windows with **putty** or **ssh** applications loaded (for remote access to the Regis Unix server).
　　OR
Access to a UNIX system with the Korn shell and C programming tools loaded.

The Regis CPS Unix system is accessible via the internet. But if you have access to another version of Unix that supports use of the Korn shell, you may use it.

Notes: If you use a different version of Unix, your facilitator may not be able to answer all of your implementation questions.

Also, if you are using another version of Unix, be sure the programming support facilities (C/C++ compiler, make, and CVS)

are all available to you on your Unix system, as you will be required to use them in this course.

To get the most out of this course, it is recommended that you always keep one window open with a connection to a Unix system. As you are reviewing the course content, try the command examples from the course/textbook in the Unix window. The more you can do on the actual Unix system while you are studying the course content, the better.

• PowerPoint or a PowerPoint viewer

Course content may be presented via PowerPoint slide shows. If you do not have PowerPoint software loaded on your PC, you can download the free PowerPoint viewer via the link below:
http://www.microsoft.com/en-us/download/details.aspx?id=13

Pre-Assignment:

Read the following in your text.

- Chapter 1 and Chap 2, pp. 14-32 and 75-80 in your Glass/Ables text.

Be prepared to **ask questions** on unclear areas and to respond to questions about information in the assigned reading.

Online Format: Sign on to worldclass.regis.edu and become familiar with the course navigation of the Web Curriculum. Complete assignments above.

Classroom-based Format: Complete assignments above by the first night of class.

Course Assignments and Activities:

	Topics	Readings (G/A in the Glass/Ables text, R in the Robbins text)	Activities Assignments and Associated Points*
1	• UNIX History and Philosophy • Getting Started on UNIX • The UNIX File System	**G/A:** Chap 1, all **G/A:** Chap 2, pp. 14 – 32 and 75 – 80	Participation in Discussions 10% for entire course Hwk #1 - 7%
2	• The UNIX File System • The vi Text Editor and Writing Tools	**G/A:** Chap 2, pp. 33 – 69 **R:** Chap 9, pp. 561 – 578 (as needed)	Participation in Discussions Hwk #2 – 7%
3	• Shell Conventions • The Bourne Shell	**G/A:** Chap 4, pp. 145 – 166 and 168 – 175 **G/A:** Chap 5, pp. 181 – 193 and 196 – 208 **R:** Chap 2 (as needed), Chap 3, all	Participation in Discussions Hwk #3 – 9%
4	• The Bourne Shell	**G/A:** Chap 4, pp. 167 and 175 – 179 **G/A:** Chap 5, pp. 194 – 195 and 197 **G/A:** Chap 3, p. 116 **R:** Chap 2 (as needed)	Participation in Discussions Hwk #4 – 9% Midterm – 20%
5	• The Korn Shell • More Unix Utilities	**G/A:** Chap 6, pp. 210 – 251 **G/A:** Chap 3, pp. 82 – 88, 91 – 97, 104 – 108 & 120 – 126 **R:** Chap 2 & 4 (as needed)	Participation in Discussions
6	• More Unix Utilities • C Programming Tools	**G/A:** Chap 3, pp. 88 – 91, 97 – 104, 108 – 120 **G/A:** Chap 12, all **R:** Chap 2, pp. 186 – 188, 217 – 218, 222 – 223 **R:** Chap 11 – 13, 16 – 17 (as needed)	Participation in Discussions Hwk #5 – 9%
7	• Communication and Networking • System Administration and Security	**G/A:** Chap 3, pp. 126-129 **G/A:** Chap 9 & 15, all	Participation in Discussions Hwk #6 – 9%
8	• Graphical User Interfaces (GUIs)		Participation in Discussions Final Exam – 20%
		Total	**100%**

*__Note to Classroom sections only:__ Exact dates for reading assignments and programming assignments may be one week earlier or later than indicated in the Course Overview Grid. Your facilitator's syllabus, handed out the first night of class, will indicate any changes.

Summary of Assignments and Percentage Weight towards course grade

Assignment	Value (percent of overall course grade)
Homework Assignments (6)	
Homework 1 & 2 (7% each)	14 %
Homework 3 & 4 (9% each)	18 %
Homework 5 & 6 (9% each)	18 %
Homework Total	**50 %**
Midterm Exam	**20 %**
Final Exam	**20 %**
Participation/Forum	**10 %**
Course Total	100 %

Course Policies and Procedures

Homework Assignments
Each homework assignment will cover concepts discussed in the book and class. The percentage of the grade allocated to each homework assignment is an indication of the relative effort required.

Exams
There will be a midterm exam and a final exam. Exam questions will be cumulative, taken from reading assignments and course content.

Academic Integrity
Plagiarism includes work obtained from any person or from any internet web source. In CS465, all work submitted must be your own.

CC&IS Grading Scale

Letter Grade	Percentage	Grade Point
A	93 to 100	4.00
A–	90 to less than 93	3.67
B+	87 to less than 90	3.33
B	83 to less than 87	3.00
B–	80 to less than 83	2.67
C+	77 to less than 80	2.33
C	73 to less than 77	2.00
C–	70 to less than 73	1.67
D+	67 to less than 70	1.33
D	63 to less than 67	1.00
D-	60 to less than 63	.67
F	Less than 60	0

Additional information about grading can be found in the latest edition of the

University Catalog, available at
http://www.regis.edu/Academics/Course%20Catalog.aspx.

CC&IS Policies and Procedures

Each of the following CC&IS Policies & Procedures is incorporated here by reference. Students are expected to review this information each term, and agree to the policies and procedures as identified here and specified in the latest edition of the University Catalog, available at http://www.regis.edu/Academics/Course%20Catalog.aspx or at the link provided.

- The CC&IS Academic Integrity Policy.

- The Student Honor Code and Student Standards of Conduct.

- Incomplete Grade Policy, Pass / No Pass Grades, Grade Reports.

- The Information Privacy policy and FERPA. For more information regarding FERPA, visit the U.S. Department of Education.

- The HIPPA policies for protected health information. The complete Regis University HIPAA Privacy & Security policy can be found here: http://www.regis.edu/About-Regis-University/University-Offices-and-Services/Auxiliary-Business/HIPAA.aspx.

- The Human Subjects Institutional Review Board (IRB) procedures. More information about the IRB and its processes can be found here: http://regis.edu/Academics/Academic-Grants/Proposals/Regis-Information/IRB.aspx.

The CC&IS Policies & Procedures Syllabus Addendum summarizes additional important policies including, Diversity, Equal Access, Disability Services, and Attendance & Participation that apply to every course offered by the College of Computer & Information Sciences at Regis University.

A copy of the CC&IS Policies & Procedures Syllabus Addendum can be found here: https://in2.regis.edu/sites/ccis/policies/Repository/CCIS%20Syllabus%20Addendum.docx.