Spring 2012

CEG 2350: OS Concepts and Usage

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Room & Time: Section 2: 1640-1800 MW in Medical Sciences 129
Course Description: Provides introduction to Linux and Windows operating systems and system administration. Covers files and directories, ownership and sharing, programs and processes, system calls, libraries, dynamic linking, command line shells, scripting, regular expressions and secure network protocols. 4 credit hours.
Prerequisites: Undergraduate level CS1180 (Minimum Grade of D) or Undergraduate level CS1160 (Minimum Grade of D) or Undergraduate level CEG2170 (Minimum Grade of D). Understanding of Windows OSs and a programming language (C++, Java, etc).

Textbook: The following textbooks are available online for free. Follow the link at the end of each listing to access the book.

1. Mark G. Sobell, "A Practical Guide to Linux Commands, Editors, and Shell Programming", Prentice Hall, 2009, 1080 pp. http://proquest.safaribooksonline.com.ezproxy.libraries.wright.edu:2048/0131478230/

2. Bruce Payette, Windows PowerShell in Action, Manning Publications, 2007; 576 pp.; http://proquest.safaribooksonline.com.ezproxy.libraries.wright.edu:2048/9781932394500

3. William R. Stanek, Windows 7 Administrator's Pocket Consultant, Microsoft Press, 2009, 704 pp; http://proquest.safaribooksonline.com.ezproxy.libraries.wright.edu:2048/9780735634732

Grading: Grades will be assigned on a standard A/90%, B/80%, C/70%, D/60% scale. Clustering of grades may cause the thresholds to be lowered; they will not be raised. It is required that students submit *all* lab projects. The overall course grade will be the weighted sum of the following grades:

60% - Laboratory Projects	12 @ 5% each
15% - Mid-term Examinations	2 @ 10% each
25% - Final Examination	1 @ 20%

Laboratory Projects: Late projects will be 10% off each day. Projects will not be accepted more than 4 days late unless prior arrangements are made with the course instructor. Corrupt files or other computer problems will not be considered a sufficient excuse to extend this deadline. It is your responsibility to back-up your work! Your projects should be submitted via

the 'turnin' command. **The instructor reserves the right to fail students that do not receive above 50% on three or more labs.**

Examinations: Examinations will occur at the normally scheduled class time and location unless announced otherwise in class. The final examination is cumulative and will take place during the university's scheduled time period in the scheduled class location unless announced otherwise in class.

It is neither possible, nor desirable, to discuss every nuance of the material covered in this course during our limited class time. Students should be aware that although we will discuss the most important materials in class, the textbooks contain important facts that may not be discussed in class. Students should not only be able to discuss course concepts in detail, but they should also be able to demonstrate their mastery by applying these concepts on examinations to related problems with which they have no previous experience.

Schedule: The below schedule is for planning purposes. It is very likely that material will get shifted depending throughout the term. Updated syllabi will be released throughout the term reflecting changes.

Week	Topics	Due Dates
1	Course Overview. Linux BASH, Windows PS, CLI vs. GUI, OS	NONE
2	Booting, BIOS, POST, NTLDR, Grub, init, Login. Volumes, Files, Directories, and Links; Linux usage;	Lab 1: 18 January
3	Files: Open/Close, tar, zip, bzip2 Archives; Programs Processes: Loading, dynamic vs. static, sates; parent-child.	Lab 2: 25 January
4	Virtual memory: Frames, pages, page-faults, swaps, page tables, memory protection, page replacement	Lab 3: 1 February
5	File-name RegEx. Interactive bash and Powershell. Editing via emacs, vi, sed, grep; String RegEx, Editing w/ emacs, vi; find	Lab 4: 8 February
6	**Midterm #1 (20 February)**	Lab 5: 15 February
7	Network layer: IP address. Ports. TCP, DNS, DHCP, IMAP, HTTP, SSL, SSH, NFS, and Samba	Lab 6: 22 February
8	**Spring Break**	
9	More on scripting with BASH/PS; Dynamic Loading and Linking of Processes; File System Integrity	Lab 7: 8 March
10	The init process; boot scripts; kernel processes; File system integrity	Lab 8: 15 March
11	**Midterm #2**: 18 March	Lab 9: 22 March
12	Cloud computing: Google App engine, Google drive, Amazon web service, MS SkyDrive	Lab 10: 29 March
13	Privacy and Security; Firewalls; SSL, SSH, VPN	Lab 11: 5 April
14	Windows Sys Admin, Std Processes, Registry. Linux Sys Admin, DIsstributions, Patches and Updates	Lab 12: 12 April

15	Programs: Compiling, Linking, LIbraries, Exec formats. Building a Linux kernel from source	
Finals		**Final Exam**: 22 April

Academic Integrity: Student-teacher relationships are built on trust. For example, students must trust that teachers have made appropriate decisions about the structure and content of the courses that they teach, and teachers must trust that the assignments which students turn in are their own. Acts which undermine this trust inherently undermine the educational process. It is the policy of Wright State University to uphold and support standards of personal honesty and integrity for all students consistent with the goals of a community of scholars and students seeking knowledge and truth. Furthermore, it is the policy of the university to enforce these standards. The following recommendations are made for students:

1. Be honest at all times.
2. Act fairly towards others. For example, do not seek an unfair advantage over others by cheating with or by looking at other individual's work during examinations or laboratory assignments.
3. Take group as well as individual responsibility for honorable behavior. Collectively, as well as individually, make every effort to prevent and avoid academic misconduct, and reports acts of misconduct that you witness.
4. Know the policy -- ignorance is no defense. Read the policy contained in the student handbook. If you have any questions regarding academic misconduct, contact your instructor.

Students are encouraged to get together in small study groups to discuss the course topics and ungraded homework problems. However, **students must work on all graded course assignments and examinations on an *individual* basis**.

Conduct for Laboratory Assignments: Students may discuss "general concepts" of laboratories assignments with each other, but may not, under any circumstances, work with (or show) anyone on their actual implementation. **If you work with other students on "general concepts," be certain to acknowledge the collaboration and its extent in the assignment. Unacknowledged collaboration will be considered dishonest**. *You are responsible for ensuring that other students do not have access to your work* - do not give another student access to your account, do not leave printouts in the recycling bin, pick up your printouts promptly, do not leave your workstation unattended, etc. If you suspect that your work has been compromised, notify your instructor immediately.

Conduct for Examinations: The academic code demands that no student should have an unfair advantage over any other student during examinations. Thus, it is strictly forbidden for any student to refer to information from previous offerings of this course unless this information is provided by the instructor to all students fairly. Thus, the use of test banks of previous quizzes or asking questions about examinations or laboratory assignments to prior students is strictly forbidden.

Absences: Class attendance will not be a direct factor in your grade but will strongly affect the quality of your education. Students who miss class are responsible for the material or announcements presented. Any extenuating circumstances which impact your participation in the course should be discussed with me as soon as those circumstances are known. Make-ups for examinations may be arranged if a student's absence is caused by documented illness or personal emergency. It is the student's responsibility to provide a written explanation (including supporting evidence) to the instructor in a timely manner. Students registering after the term begins are responsible for all missed assignments and cannot expect that due dates will be altered.

Additional Information: Slides will be made available via www.wright.edu/~richard.vanhook

Additional Needs: Students with disabilities or any additional needs are encouraged to set up an appointment at their convenience to discuss any classroom accommodations that may be necessary.