CIS 527 - Enterprise Systems Administration
Spring 2014

Syllabus

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Office Hours: MWF 10:00 - 11:00 a.m. or by appointment

Classroom: Nichols 022
Class Times:
Section A - MW 8:00 - 9:15 a.m.
Lab Help Session - F (time TBA)

Prerequisites: CIS 308 or both CIS 209 and CIS 300. Students may enroll in CIS courses only if they have earned a grade of C or better for each prerequisite to those courses

Course Description
Computer information systems form the backbone of many large organizations, and many students will be called upon in their careers to help create, manage and maintain these large systems. This course will give students knowledge and experience working with enterprise level computer systems including workstation management, file servers, web servers, networking devices, configuration management, monitoring, and more. We will mainly focus on the GNU/Linux and Microsoft Windows server software, and much of the learning will take place in hands-on lab activities working directly with these systems. In addition, students will be responsible for developing some technical documentation and communicating information about their systems in a variety of ways. Finally, throughout the course students will be exposed to a variety of viewpoints and information directly from system administrators across campus.

Course Objectives
At the end of this course, students should be able to:
- Understand the major components of an enterprise level computer network and server system
- Design and implement a simple enterprise level server system and network, as well as provision workstations on that network quickly and easily
- Communicate and articulate information about enterprise systems clearly and effectively to users of all skill levels and interests
- Develop ways to increase efficiency by automating tasks whenever possible using scripting and configuration management tools

- Understand and describe security risks in any enterprise system and any ways that they can be mitigated
- Show how to monitor enterprise systems for problems and use that information to locate and fix any issues within the system

Major Course Topics
- Configuration Management using Puppet
- Creating Secure Workstations (CIS 225 overview/review)
- Setting up an Enterprise Directory Service & Single Sign On
- Enterprise File Sharing
- Web Servers
- Core Networking Services (DHCP, DNS, ICMP, etc.)
- System Monitoring
- Backup Strategies

Course Structure

This course will be taught in a hands-on lab format. Generally, each class period will consist of 30 to 45 minutes of new material presented in an open lecture and discussion format, followed by time to work on a hands-on lab assignment to be completed by the students. The lab assignments may consist of tasks to be performed on a computer, research to be conducted on a specific topic, documentation or communication materials to be created for different audiences, or any combination thereof.

In lieu of a final exam, there will be a presentation given at the end of the class. More information will be announced at a later time.

Due to the hands-on nature of this course, a large portion of the grade will be determined by the student's attendance in lecture and proper completion of the lab assignments.

Depending on the size of the class and the amount of resources available, some of the lab assignments may allow the students to complete the task in groups.

Grading

In theory, each student begins the course with an A. As you submit work, you can either maintain your A (for good work) or chip away at it (for less adequate or incomplete work). In practice, each student starts with 0 points in the gradebook and works upward toward a final point total earned out of the possible number of points. In this course, each assignment constitutes a portion of the final grade, as detailed below:

85% - Lab Assignments* (7 planned, drop lowest lab score, so assume ~14% each)
If a student completes all 7 labs, receive extra credit equal to one-half the lowest lab grade
15% - Final Presentation*

* All group work will include a peer evaluation component which can adjust that portion of the individual's grade up to 50%. If a student should fail to contribute to a group assignment at all, their grade for that assignment will be reduced to a zero. Failure to complete the peer evaluation will result in a 10% grade deduction for that assignment.

Letter grades will be assigned following the standard scale:

90% - 100% - A
80% - 89.99% - B
70% - 79.99% - C
60% - 69.99% - D
00% - 59.99% - F

Late Work
Every student should strive to turn in work on time. Late work will receive penalty of 5% of the possible points for each day it is late. If you have extenuating circumstances, please discuss them with the instructor as soon as they arise so other arrangements can be made. If you find that you are getting behind in the class, you are encouraged to speak to the instructor for options to make up missed work.

Recommended Texts
Since this class covers such a wide range of material, no single textbook will suffice. Therefore, students who would like a textbook should purchase a subscription to Safari Books Online (http://www.safaribooksonline.com/) for the duration of the course. It should cost around $100 for each student. This subscription is not required, but highly recommended. The K-State library has access for 4 simultaneous users to books published in the current year and previous 2 years, which may suffice for some users.
http://apps.lib.k-state.edu/databases/databases-by-az/?indexkey=S

We will also use several online resources as needed.

The following books are recommended reading for anyone interested in learning more about topics discussed in class. We may discuss information from several of these books in class. Many of them are available through Safari Books Online or directly through the author for free.

This first book contains useful information for anyone thinking about pursuing a career in system administration or information technology in general.

"The Practice of System and Network Administration" by Thomas Limoncelli, Christina Hogan and Strata Chalup.
ISBN 0321492668 - http://www.amazon.com/dp/0321492668
Kindle Edition Available

The following books are available on Safari Books Online for a monthly subscription fee (see the Required Texts section above). I HIGHLY recommend using that service to access these books as we will be using chapters and material out of several books. The cheapest subscription allows you to read up to 5 books at a time, and these are the 5 I intend to use most.

"Windows® 8 Administration Pocket Consultant" by William R. Stanek
ISBN 073566613X - http://www.amazon.com/dp/073566613X
Kindle Edition Available. Available On Safari Books Online.

"Windows PowerShell Cookbook: The Complete Guide to Scripting Microsoft's Command Shell" by Lee Holmes.
ISBN 1449320686 - http://www.amazon.com/dp/1449320686
Kindle Edition Available. Available On Safari Books Online.

"Ubuntu Unleashed 2013 Edition: Covering 12.10 and 13.04" by Matthew Helmke.
ISBN 0672336243 - http://www.amazon.com/dp/0672336243
Kindle Edition Available. Available On Safari Books Online.

"Linux Shell Scripting Cookbook, Second Edition" by Shantanu Tushar and Sarath Lankshman.
ISBN 1782162747 - http://www.amazon.com/dp/1782162747
Kindle Edition Available. Available On Safari Books Online.

"Pro Bash Programming: Scripting the Linux Shell" by Chris Johnson.
ISBN 1430219971 - http://www.amazon.com/dp/1430219971
Kindle Edition Available. Available On Safari Books Online.

"Security Engineering" A Guide to Building Dependable Distributed Systems" by Ross Anderson.
ISBN 0470068523 - http://www.amazon.com/dp/0470068523/
Available online **FREE** at http://www.cl.cam.ac.uk/~rja14/book.html

Software
We will be using VMWare Workstation software in the labs, as well as Windows 8 and Ubuntu Linux. This software is available free for CIS students in most cases. Contact the instructor for more information.

Subject to Change
The details in this syllabus are not set in stone. Due to the flexible nature of this class, adjustments may need to be made as the semester progresses, though they will be kept to a minimum. If any changes occur, the changes will be posted on the K-State Online page for this course and emailed to all students.

Academic Honesty

Kansas State University has an Honor System based on personal integrity, which is presumed to be sufficient assurance that, in academic matters, one's work is performed honestly and without unauthorized assistance. Undergraduate and graduate students, by registration, acknowledge the jurisdiction of the Honor System. The policies and procedures of the Honor System apply to all full and part-time students enrolled in undergraduate and graduate courses on-campus, off-campus, and via distance learning. The honor system website can be reached via the following URL: http://www.ksu.edu/honor.

A component vital to the Honor System is the inclusion of the Honor Pledge which applies to all assignments, examinations, or other course work undertaken by students. The Honor Pledge is implied, whether or not it is stated: "On my honor, as a student, I have neither given nor received unauthorized aid on this academic work." A grade of XF can result from a breach of academic honesty. The F indicates failure in the course; the X indicates the reason is an Honor Pledge violation.

For this course, a violation of the Honor Pledge will result in an automatic 0 for the assignment and the violation will be reported to the Honor System. A second violation will result in an XF in the course.

Students with Disabilities

"Students with disabilities who need classroom accommodations, access to technology or information about emergency building/campus evacuation processes should contact their instructor and/or the access services office. Services are available to students with a wide range of disabilities including, but not limited to, physical disabilities, medical conditions, learning disabilities, attention deficit disorder, depression, and anxiety. If you are a student enrolled in on-campus/online courses through the Manhattan or Olathe campus, contact accesscenter@k-state.edu, 785.532.6441; for Salina campus, contact acac@k-state.edu, 785.826.2649."

Expectations for Classroom Conduct

All student activities in the University, including this course, are governed by the Student Judicial Conduct Code as outlined in the *Student Government Association By Laws, Article V, Section 3*. Students that engage in behavior that disrupts the learning environment may be asked to leave the class.

Campus Safety

Kansas State University is committed to providing a safe teaching and learning environment for faculty members and students. In order to enhance your safety in the unlikely case of a campus emergency make sure that you know where and how to quickly exit your classroom and how to follow any emergency directives. To view additional campus emergency information go to the University's main page (http://www.ksu.edu) and click on the Emergency Information button.