

Course Information

CRN/Title: Linux Administration Projects, CRN 77733, Fall 2017

Book: There is no required text. There are several RHCSA/RHCE Study Guides, however. The ones by Jang and by Ghorri have been recommended. Make sure you get the one for Redhat 7 if you get one.

This semester we will be using the Redhat documents exclusively for background reading. They can be downloaded [here](#). (Start with the System Administration Guide and the Installation Guide.) They are also available on our linux systems beneath /pub/cs/gboyd/RHEL7.3_PDF and you will have a version available on your VMs after you configure it.

Meetings: Thursdays, 6:10 - 10:00PM 10/19 - 12/21

Instructor: Greg Boyd (gboyd@ccsf.edu)

Office Hours: TR 5:00-6:00 in Batmale 413

In this course we will be using CentOS, which is a recompilation of Redhat Enterprise Linux.

Goals and Learning Objectives

The goal of this course is to prepare you to take the RHCSA exam.

Upon completion of this course a student will be able to:

- A. Create a custom kickstart configuration file to perform an automated installation.
- B. Revise default parameters of the installed system using the post-installation script.
- C. Design and test an automated kickstart installation over NFS (Network File System), http, or ftp.
- D. Revise SELinux (Security-Enhanced Linux) file contexts and make the revisions persistent across restart if desired.
- E. Revise PAM (Pluggable Authentication Modules) rules to customize standard authentication tasks.
- F. Solve time-constrained administrative tasks on a Redhat-like system using only local documentation.

How this course works

This is a lab course with a lecture component. Most weeks will be spent half in lab/half in lecture. Others will be almost entirely lab. Some weeks we will get new material. Others we will review material from cs160a, cs160b, and cs260a. Three of the last four weeks will be spent in live sample exam situations.

The lab component will consist of three types of activities:

- *exercises that review material from these previous classes.* These exercises will be terse, and will not have answers. You will be responsible for investigating the answers on your own.
- *exercises that practice new material.* These exercises will be more complete, reminiscent of the exercises you had in CS260A.
- *hands-on sample exams.* There will be three sample live exam situations. In these exams you will be given an existing VM (or made to install one) and a terse set of configuration tasks to make to it. During the sample exams you will be limited to local documentation - no Internet use is allowed. Your score will be based on the percentage of the tasks you complete. Tasks will be weighted - harder tasks are weighted more. A passing score on an exam is 70%.

A few of these labs will have preparatory assignments **that must be completed prior to starting the lab.**

If you are in this class you should join the [class Google Group](#) for discussion and help

Homework

Homework will consist of reading in the text or online material **that must be performed prior to attending class** and assignments that are part of the preparation for the labs. For example, if the lab installs and configures a system using kickstart, you will have to write the post-installation script **prior** to coming to the

lab. This does not mean the preparation must be correct, but it must be a first draft of what is necessary to start the lab to increase your chances of success in the time available.

Grades

This course is graded pass/fail only. Your grade will be based on three things:

- **A single assignment.** One virtual machine assignment is required. You must significantly complete this assignment to pass the class.
- **your attendance and participation in the labs.** You must attend and successfully perform five of six non-exam labs to pass. Each lab requires a minimum level of completion to get credit for the lab. One lab per student can be made up at the discretion of the instructor and after satisfactory arrangement with him.
- **your score on the sample exams** (see the details above). To pass this course, you must pass one of the last two sample exams.

This schedule is preliminary.

(Note: the readings in the Preparations documents refer to the Redhat Documents.)

Week Date	Notes (Greg's use)	Topics	The Preparation document for each week contains topics and prep to do before class The Exercise is done in the lab session.
1 10/19		review of virtual machines remote access to VMs VM installation using ISO image and NFS installation source Basic Kickstart Installation	<u>Week One Preparation Exercises-VMBasics</u>
2 10/26		Package Management Kickstart kickstart directives installation using virt-install automated configuration in kickstart	<u>Week Two Preparation Exercises-Packages Exercises-Kickstart Asmt 1 handed out</u>
3 11/2		basic ftp, ssh and nfs servers Single-user mode and grub2	<u>Week Three Preparation Exercises-BasicServers</u>
4 11/9		Partitioning using parted logical volume management using commandline tools Resizing partitions and logical volumes	<u>Week Four Preparation Exercises-Filesystems</u>
5 11/16		Authentication	<u>Week Five Preparation Exercises-Authentication Asmt 1 due</u>
No class Thursday Nov 23. Thanksgiving.			
6 11/30		Practice Exam	Practice Exam (in-lab)
7 12/7		SELinux PAM (time-permitting)	<u>Week Seven Preparation Exercises-SELinux</u>
8 12/14		Live Exam 1	Review as required
9 12/21		Live Exam 2	Review as required