IT 3110: Systems Automation

Spring 2021 Schedule

Resources

- CIT VM Farm
  - Create VM and connect from osx/Linux
  - Manage VMs with CLI instead of Web
  - Connect to vm from Linux host
- AWS
  - Create AWS Educate Account
  - Create EC2 instance
  - Connect EC2 instance
- Software
  - If you are using windows to connect to your vm, you might need the following:
    - Putty
    - TightVNC
  - If you have a newer version of windows 10 and have installed the linux subsystem, you can just ssh from the command line like you do in OSX and Linux.

Week 1 (Jan 11, 13)

- Slides
  - DHCP Slides
- Readings
- Lectures
  - DHCP Lecture
  - Bionic Networking
  - Wireshark DHCP Capture
- Screenshots/Helps
  - DHCP Dynamic
  - DHCP Fixed
  - DHCP Dynamic Client
- Assignment
  - Hosts

Week 2 (Jan 20)

- Slides
  - NFS Slides
  - PXE Boot
  - Kickstart
- Reading
- Lectures
- Screenshots/Helps
  - NFS How To
  - kickstart
  - tftp and Netboot
- Assignment
  - DHCP

Week 3 (Jan 25, 27)

- Slides
  - Diskless
Reading
Lectures
Screenshots/Helps
  - Dual netboot
  - Create an Initial ramdisk
  - Use debootstrap to create a disk image
  - FOG
Assignment
  - NFS 1

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Week 4 (Feb 1, 3)

** EXAM 1 **

- Slides
- Reading
- Lectures
- Screenshots/Helps
  - Review
  - Capture image fog video old video
  - Deploy image fog video
- Assignment
  - DHCP 2 - netboot/kickstart
  - Diskless Boot
  - FOG

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Week 5 (Feb 8, 10)

- Slides
  - Shell 1
  - StdOut
  - StdIn
  - Command Execution
  - Variables
- Reading
  - Shell review
  - stdout review
  - stdin review
  - executing commands
- Lectures
  - Sample files
- Screenshots/Helps
- Assignment
  - Bash on Windows

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Week 6 (Feb 17)

- NO CLASS FEB 15
- Slides
  - Logic
  - Sed/Awk
- Reading
  - Variables
  - Shell logic and arithmetic
  - A better one on logic
  - Recommended on brackets
  - AWK, SED - Read 7.10-7.11
Lectures

Screenshots/Helps
  - SSH As root

Assignment
  - Shell Script 1
  - Shell Script 2

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**Week 7 (Feb 22,24)**

- Slides
  - Regex
  - Shell Features
- Reading
  - Additional Scripting
  - Shell Speed
  - Shell troubleshooting
- Lectures
- Screenshots/Helps
- Assignment
  - Shell Script 3
  - Regex

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**Week 8 (Mar 1, 3)**

- Slides
- Reading
  - Quick Shell
  - Troubleshooting
- Lectures
- Screenshots/Helps
  - Sample scripting exam
  - Sample solution other
- Assignment
  - Shell Script 4
  - Shell Script 5

TEST 2

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**Week Mar 7-13**

**SPRING BREAK**

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**Week 9 (Mar 15,17)**

- Slides
  - Terraform
  - Terraform2
  - Terraform3
- Reading
  - Read chapter 2 in “Terraform up and running 2nd edition” found on Oreilly (safarionline) from library.dixie.edu website.
- Lectures
  - Review AWS
  - Infrastructure as Code
  - Terraform
• Screenshots/Helps
• Assignment
  ◦ Terraform
  ◦ Terraform 2

### Week 10 (Mar 22,24)

• Slides
  ◦ Automation with Ansible
  ◦ Ansible Playbooks
  ◦ Ansible Playbooks 2

• Reading
  ◦ Ansible variables

• Lectures
  ◦ Configuration management with Ansible

• Screenshots/Helps
• Assignment
  ◦ Ansible 1
  ◦ Ansible 2

### Week 11 (Mar 29,31)

• Slides
  ◦ Ansible Roles
  ◦ Ansible Advanced stuff

• Reading

• Lectures
  ◦ Ansible Roles
  ◦ Example of Roles

• Screenshots/Helps
• Assignment
  ◦ Ansible 3

### Terraform and Ansible Exam

### Week 12 ( Apr 5,7)

• Slides
  ◦ Python

• Reading

• Lectures
  ◦ Python video slide lecture

• Screenshots/Helps
  ◦ Python example

• Assignment
  ◦ Python
Week 13 (Apr 12, 14)

- Slides
  - Salt
- Reading
  - Salt states
  - Basic usage
  - More complex states
- Lectures
  - Installing saltstack
- Screenshots/Helps
- Assignment
  - Salt 1

Week 14 (Apr 19, 21)

- Reading
- Lectures
  - Salt 1
  - Salt 2
- Screenshots/Helps
  - Salt example file
- Assignment
  - Salt 2
  - Salt 3

Week 15 (Apr 26, 28)

- SALT
- REVIEW
- EXAM