IT 3110: Systems Automation

Spring 2022 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 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 10,12)**

- **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 19)**

- **Slides**
  - NFS Slides
  - PXE Boot
  - Kickstart

- **Reading**

- **Lectures**

- **Screenshots/Helps**
  - NFS How To
  - kickstart
  - tftp and Netboot

- **Assignment**
  - DHCP

---

**Week 3 (Jan 24, 26)**

- **Slides**
  - Diskless

- **Reading**
• Lectures  
  • Screenshots/Helps  
    • Dual netboot  
    • Create an Initial ramdisk  
    • Use debootstrap to create a disk image  
    • FOG  
• Assignment  
  • NFS 1  
  • DHCP 2 - netboot/kickstart

---  

**Week 4 (Jan 31, Feb 2)**  

** EXAM 1 **  

• Slides  
• Reading  
• Lectures  
• Screenshots/Helps  
  • Review  
  • Capture image fog video old video  
  • Deploy image fog video  
• Assignment  
  • Diskless Boot  
  • FOG

---  

**Week 5 (Feb 7,9)**  

• Slides  
  • Shell 1  
  • StdOut  
  • StdIn  
  • Command Execution  
  • Variables  
• Reading  
  • Shell review - Cookbook ch1  
  • The bash cookbook version 2 is located on Oreilly. Navigate to library.dixie.edu -> ebook collections -> O'Reilly. Search for “bash cookbook”.  
  • stdout review - Cookbook 2  
  • stdin review - Cookbook 3  
  • Executing commands - Cookbook 4  
• Lectures  
  • Sample files  
• Screenshots/Helps  
• Assignment  
  • Bash on Windows

---  

**Week 6 (Feb 14,16)**  

• Slides  
  • Logic  
  • Sed/Awk  
• Reading  
  • Variables - cookbook 5  
  • Shell logic and arithmetic - cookbook 6  
  • A better one on logic  
  • Recommended on brackets  
  • AWK, SED - Read 7.10-7.11
• Lectures
• Screenshots/Helps
  • SSH As root
  • Sample cloner script
  • Sample loops script

• Assignment
  • Shell Script 1
  • Shell Script 2

---

**Week 7 (Feb 23)**

• NO CLASS FEB 21

• Slides
  • Regex
  • Shell Features

• Reading
  • Additional Scripting - Cookbook 10
  • Shell Speed
  • Shell troubleshooting

• Lectures
• Screenshots/Helps
• Assignment
  • Shell Script 3
  • Regex

---

**Week 8 (Feb 28, Mar 2)**

• Slides
• Reading
  • Quick Shell - cookbook 18
  • Troubleshooting - cookbook 19

• Lectures
• Screenshots/Helps
  • Sample scripting exam
  • Sample solution other

• Assignment
  • Shell Script 4
  • Shell Script 5

TEST 2

---

**Week 9 (Mar 7,9)**

• 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 Mar 13-19
SPRING BREAK

Week 10 (Mar 21,23)

• 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 28,30)

• 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 4,6)

• Slides
  • Python
• Reading
Week 13 (Apr 11,13)

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

Week 14 (Apr 18,20)

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

Week 15 (Apr 25,27)

- SALT
- REVIEW
- EXAM