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
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