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

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**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

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**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

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**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

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**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

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**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**

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**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
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