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
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
• Lectures
  • Python video slide lecture
• Screenshots/Helps
  • Python example
• Assignment
  • Python

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**Week 13 (Apr 11,13)**

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

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**Week 14 (Apr 18,20)**

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

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**Week 15 (Apr 25,27)**

• SALT
• REVIEW
• EXAM