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

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

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**Week Mar 13-19**

**SPRING BREAK**

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**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

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**Week 11 (Mar 28,30)**

• Slides
  • Ansible Roles
  • Ansible Advanced stuff

• Reading

• Lectures
  • Ansible Roles
  • Example of Roles

• Screenshots/Helps

• Assignment
  • Ansible 3

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**Terraform and Ansible Exam**

**Week 12 ( Apr 4,6)**

• Slides
  • Python

• Reading
Lectures
  - Python video slide lecture

Screenshots/Helps
  - Python example

Assignment
  - Python

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