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.

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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

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Week 2 (Jan 19)

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

- **Reading**

- **Lectures**

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

- **Assignment**
  - DHCP

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Week 3 (Jan 24, 26)

- **Slides**
  - Diskless

- **Reading**
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
  - NFS 1
  - DHCP 2 - netboot/kickstart

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

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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

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

- Slides
  - Salt
- Reading
  - 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