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

---

**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

---

**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

### Screenshot/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

- **Screenshot/Helps**

- **Assignment**
  - Ansible 1
  - Ansible 2

---

### Week 11 (Mar 28,30)

- **Slides**
  - Ansible Roles
  - Ansible Advanced stuff

- **Reading**

- **Lectures**
  - Ansible Roles
  - Example of Roles

- **Screenshot/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

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