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 debbootstrap 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

• 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

---

**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