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

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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