**IT 3110: Systems Automation**

**Spring 2022 Schedule**

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### 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**
**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