**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
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
Week 13 (Apr 11,13)

- Lectures
  - Python video slide lecture
- Screenshots/Helps
  - Python example
- Assignment
  - Python

Week 14 (Apr 18,20)

- Reading
- Lectures
  - Salt
  - Installing saltstack
- Screenshots/Helps
  - Salt example file
- Assignment
  - Salt 1
  - Salt 2
  - Salt 3

Week 15 (Apr 25,27)

- SALT
- REVIEW
- EXAM