

**TCOM 690-002**  
**LINUX NETWORK INFRASTRUCTURE SERVICES**  
**George Mason University**  
**Spring 2013**

Instructor: Giovanni Torres

**Course Time and Location:**

Time: Thursday 4:30p.m. – 7:10p.m.

Location: IN 330

Email: gtorres1@gmu.edu

Office Hours: By appointment

**Course Description:**

At this point, students have already learned about various networking (TCP/UDP/IP) protocols, such as FTP, DHCP, SNMP, SMTP, HTTP, etc. In this course, students will configure these networking services on his or her individual Linux virtual machines. The course will also use packet-capturing software to view protocol negotiations and understand how networked servers and clients communicate with each other. This is a network applications course and is a blend of lecture, in-class exercises and labs.

**Course Prerequisites:**

Internet Protocols (**TCOM 509**) and Advanced Internet Protocols (**TCOM 529**) are mandatory prerequisites for this course. These two courses cover the protocol theory that we will apply in this course using a hands-on approach.

**Course Texts and Other Materials:**

TCP/IP Illustrated, Volume 1: The Protocols (2<sup>nd</sup> Edition)

by Kevin R. Fall, W. Richard Stevens

ISBN: 978-0321336316

Red Hat Enterprise Linux 6 Installation Guide

[https://access.redhat.com/knowledge/docs/en-US/Red\\_Hat\\_Enterprise\\_Linux/6/html/Installation\\_Guide/index.html](https://access.redhat.com/knowledge/docs/en-US/Red_Hat_Enterprise_Linux/6/html/Installation_Guide/index.html)

Red Hat Enterprise Linux 6 Deployment Guide

[https://access.redhat.com/knowledge/docs/en-US/Red\\_Hat\\_Enterprise\\_Linux/6/html/Deployment\\_Guide/index.html](https://access.redhat.com/knowledge/docs/en-US/Red_Hat_Enterprise_Linux/6/html/Deployment_Guide/index.html)

vSphere Virtual Machine Administration

<http://pubs.vmware.com/vsphere-50/topic/com.vmware.ICbase/PDF/vsphere-esxi-vcenter-server-50-virtual-machine-admin-guide.pdf>

Wireshark User's Guide

[http://www.wireshark.org/docs/wsug\\_html\\_chunked/](http://www.wireshark.org/docs/wsug_html_chunked/)

### **Course Grading:**

Homework/In-Class Exercises/Labs: 30%

Midterm: 30%

Final: 40%

The midterm and final will include material from lectures and class/lab discussions in addition to the required reading.

### **Blackboard:**

All course material, announcements and grades will be posted on the class Blackboard page. Please check Blackboard at least once a week to make sure that you have the latest course information.

### **Labs:**

Location: In-Class/GMU Telecom Lab

Students must be present to receive credit for labs.

## Course Schedule:

Please note that the schedule may change as the semester progresses.

Week	Date	Topic	Reading
1	1/24	Introduction to the Linux Operating System	Red Hat Deployment Guide (RHDG)
2	1/31	VMware Overview Installing Linux as Virtual Machines Linux Desktop Overview	vSphere VM Admin. Guide; RHDG
3	2/07	Linux Command-Line Fundamentals Understanding the networking stack	RHDG
4	2/14	Packet Capturing	Wireshark
5	2/21	Remote Access: Telnet & SSH	RHDG; OpenSSH website
6	2/28	Apache httpd: Web Server	RHDG; Apache website
7	<b>3/07</b>	<b>Midterm</b>	
8	<i>3/14</i>	<i>Spring Break - No Classes</i>	
9	3/21	TFTP & FTP Server	RHDG; vsftpd website
10	3/28	DHCP Server	RHDG; dhcp man pages
11	4/4	Lab: TFTP, FTP & DHCP	
12	4/11	Postfix: SMTP Mail Server	RHDG; postfix homepage
13	4/18	Lab: Mail Server and Client	
14	4/25	BIND: DNS Server	RHDG; Bv9ARM
15	5/02	Lab: DNS	
16	<b>5/09</b>	<b>Final</b>	

\*\*\* You *cannot* make up the exams and you must take the final during the scheduled timeslot -ABSOLUTELY NO EXCEPTIONS! - Coordinate your travel accordingly. \*\*\*

## Academic Integrity:

The integrity of the University community is affected by the individual choices made by each of us. GMU has an *Honor Code* with clear guidelines regarding academic integrity. Three fundamental and rather simple principles to follow at all times are that: (1) all work submitted be your own; (2) when using the work or ideas of others, including fellow students, give full credit through accurate citations; and (3) if you are uncertain about the ground rules on a particular assignment, ask for clarification. No grade is important enough to justify academic misconduct.

Plagiarism means using the exact words, opinions, or factual information from another person without giving the person credit. Writers give credit through accepted documentation styles, such as parenthetical citation, footnotes, or endnotes. Paraphrased material must also be cited, using MLA or APA format. A simple listing of books or articles is not sufficient. Plagiarism is the equivalent of intellectual robbery and cannot be tolerated in the academic setting. If you have any doubts about what constitutes plagiarism, please see me.

Please note that any violation of the *Honor Code* will be immediately reported to Dr. Paris and the Honor Committee without exception.

### **GMU Links:**

<http://catalog.gmu.edu>

<http://universitypolicy.gmu.edu>

### **Accommodations for Disabilities:**

If you are a student with a disability and you need academic accommodations, please see me and contact the *Office for Disability Services* (ODS) at 993-2474, <http://ods.gmu.edu>. All academic accommodations must be arranged through the *ODS*.

### **Other Resources:**

Writing Center: The GMU Writing Center is available to all students to assist in any written assignment. Please consult the following URL for more detailed information about the resources available to you as a student:

<http://writingcenter.gmu.edu/index.php>

University Libraries: The GMU University Library system is available to all students. Please consult the following URL for more detailed information about their resources: <http://library.gmu.edu>

### **Other Reading Resources**

The OpenSSH website

<http://www.openssh.org/>

Apache HTTP Server Project

<http://httpd.apache.org/>

The vsftpd website

<https://security.appspot.com/vsftpd.html>

The Postfix Home Page

<http://www.postfix.org/>

BIND 9 Administrator Reference

<http://ftp.isc.org/isc/bind9/cur/9.9/doc/arm/Bv9ARM.pdf>