TCOM 515
IP Routing: Lecture and Lab
George Mason University
Fall 2019

Course Description:
This course will cover the various IP routing technologies used in current data communication networks. Topics covered in this class include static routes, RIP, OSPF, EIGRP, BGP, and route redistribution and filters. The class includes lectures and labs; the labs will provide hands-on exercises to reinforce topics covered in the lectures.

Instructors:
Wei Wu (lectures and lab session 2 - Mondays 7:20-10pm) Email:**wwu1@gmu.edu**
Office Hours: Room 3708 Nguyen Engineering Building (Appointments by email)

TA: Email:
Office hours:
Office location: Engineering building #3702

Course Meeting Time:
Lectures and labs: Mondays 7:20 – 10:00pm Research Hall 201
Lab sessions are held in Johnson Center Network Lab (G10C)

Course Texts:
Required:
1. Routing TCP/IP Volume I, 2nd Edition, Jeff Doyle and Jennifer Carroll, ISBN: 1587052024
2. BGP4 Inter-Domain Routing in the Internet, John W. Stewart ISBN: 0-201-37951-1

Course Grade Breakdown
Lab: 33.3%
Midterm: 33.3%
Final: 33.4%
The lowest lab grade will be dropped. Midterm and Final are based on assigned reading, lectures, and labs.

Grading Scale
97 – 100% A+
93 – 96% A
90 – 92% A-
87 – 89% B+
83 – 86% B
80 – 82% B-
70 – 79% C

GMU Honor Code

http://www.gmu.edu/catalog/apolicies/#Anchor13

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Course Schedule (Tentative)

Class #	Topic	Required Reading
1 8/26	Lecture 1: Introduction and & Static Routing	Chapters 1 & 3
3 9/2	No Class - Labor Day	
4 9/9	Lab 1: Static Routing	
5 9/16	Lecture 2: Dynamic Routing, RIP Lecture	Chapters 4,5 & 6
6 9/23	Lab 2: RIP	
7 9/30	Lecture 3: OSPF	Chapter 8
8 10/7	Lab 3: OSPF	
9 10/15 Tuesday *	Lecture 4: EIGRP Lecture/Midterm Review	
10 10/21	Midterm	Chapter 7
11 10/28	Lab 4: EIGRP	
12 11/4	Lecture 5: BGP	Stewart BGP4 book
13 11/11	Lab 5: BGP	
14 11/18	Lecture 6: Redistribution, Default Routes, and Route Filtering	Chapter 11,12, & 13
15 11/25	Lab 6: Redistribution	
16 12/2	Final Review and TOPIC TBD	
17 12/9	Reading Day	
18 12/16	Final	

*Columbus Holiday, Monday classes moved to Tuesday

Lecture and labs

All lecture PowerPoint slides and lab guides will be posted online on Blackboard. Lecture slides are available under the Course Content tab, and lab guides are available under the Assignments tab.

Lab Preparation

Please print out and read the lab procedures before coming to class. I also recommend bringing a USB flash drive to save your router configuration and output to be used in the lab reports. You can also email lab outputs directly from the lab.

Lab Reports

- **Lab attendance is mandatory! You will get 0 if you do not attend the lab.**
- Lab reports must be submitted to Blackboard by **7:20pm at the beginning** of the next lecture. Submissions are under the Assessments tab in BlackBoard.
- Lab report grade will be decremented 10% for each day late.

- **Lab reports submitted must be individual reports; lab partners may use same lab outputs, but not submit the same report. See GMU honor code**.
- You must embed your last name in the lab report's file name.
- Put your name, lab session, and lab partner(s) at the beginning of the report.
- Identify the router name for the lab report.
- Lab reports can be done using the Lab document with your answers inserted in the document but visibly different (underline, color, bold, italics, etc). You may also draft your lab report from scratch.
- You must answer all questions in the lab, fill out any tables, and draw any diagrams or any extra work that is requested in the lab.
- You must also answer the 3 questions below for every lab.

Lab Questions: Answer these questions in addition to all questions contained within the lab itself. **2-3 sentence answers** should suffice.

1. What was the most important piece of knowledge you took away from this lab?
2. What new command did you find most useful and why?
3. Identify at least one problem you experienced in this lab. How did you figure out the problem? How did you resolve it?

Additional Links

IP addressing and Subnetting - PDF reading and exercises

IP Subnet Masking chart

RFC 1264 - IETF Routing Protocol Requirements

RFC 1058 - Routing Information Protocol

RFC 2453 - RIP Version 2

RFC 2328 - OSPF Version 2

OSPF Design Guide

EIGRP White Paper

RFC 4271 - BGP