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 labs (Mondays 7:20-10pm)
Email:wwu1@gmu.edu
Office Hours: Room 3708 Nguyen Engineering Building (Appointments by email)

TA:
TBA

Course Meeting Time:
Mondays: 7:20 – 10:00pm, lectures are in Nguyen Engineering Building 2608, labs are in Johnson Center Network Lab (G10C)

Course Texts:
Required:
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
“Student members of the George Mason University community pledge not to cheat, plagiarize, steal, or lie in matters related to academic work”

Course Schedule (Tentative)

<table>
<thead>
<tr>
<th>Class #</th>
<th>Topic</th>
<th>Required Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>MLK Holiday – no class</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Lecture 1: IP &amp; Static Routing Lecture</td>
<td>Chapters 1 &amp; 3</td>
</tr>
<tr>
<td>2</td>
<td>Lab 1: Static Routing</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Lecture 2: Dynamic Routing, RIP Lecture</td>
<td>Chapters 4,5 &amp; 6</td>
</tr>
<tr>
<td>4</td>
<td>Lab 2: RIP</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Lecture 3: OSPF</td>
<td>Chapter 8</td>
</tr>
<tr>
<td>6</td>
<td>Lab 3: OSPF</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Spring Break- no class</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Lecture 4: EIGRP Lecture/Midterm Review</td>
<td>Chapter 7</td>
</tr>
<tr>
<td>9</td>
<td>Midterm</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Lab 4: EIGRP</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Lecture 5: BGP</td>
<td>Stewart BGP4 book</td>
</tr>
<tr>
<td>12</td>
<td>Lab 5: BGP</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Lecture 6: Redistribution, Default Routes, and Route Filtering</td>
<td>Chapter 11,12, &amp; 13</td>
</tr>
<tr>
<td>14</td>
<td>Lab 6: Redistribution</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Final Review</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Final</td>
<td></td>
</tr>
</tbody>
</table>

Lecture and labs
All lecture PowerPoint slides and lab guides are posted online on Blackboard under “Course Content” and “Assignments”.

Lab Preparation
Please print out and read the lab procedures before coming to the lab. I recommend bringing a USB flash drive to save your router outputs to be used in the lab reports. You may 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 are due by **7:20pm at the beginning** of the next lecture. Lab reports must be submitted via Blackboard under “Assessments”.
- 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 name.
• Put your name, lab session, and lab partner(s) at the beginning of the report.
• Identify the router name you were working on for each lab.
• 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.
• Lab report grade will be decremented 10% for each day late.
• 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