Course Description

This course presents a complete overview of the standard Internet routing algorithms and protocols, data link-layer, wireless and mobile networks and multimedia networking. This course first focuses on the fundamental concepts of networking. Then, routing algorithms and unicast, broadcast and multicast routing protocols are described in details. Next, the fundamentals of the data-link layer and Ethernet is discussed. Then we will cover the principles of wireless networks with a particular focus on WiFi and cellular network protocols. Finally, we will learn about the concept of multimedia networking used by Internet multimedia providers.

Textbook(s)

Title: Computer Networking: A Top-Down Approach, 6/E  
Author: James F. Kurose and Keith W. Ross  
Publisher: Addison-Wesley  
Year: 2013  
ISBN: 0132856204

Required? (Y)

Course Outline

- Overview on Networks and the Internet
  - What Is the Internet?  
  - The Network Edge  
  - The Network Core  
  - Delay, Loss, and Throughput in Packet-Switched Networks  
  - Protocol Layers and Their Service Models
- Routing Algorithms
  - Link state (Dijkstra’s algorithm)  
  - Distance Vector (Bellman-Ford Equation)  
  - Hierarchical routing
- Routing Protocols
  - RIP: Routing Information Protocol  
  - IGRP: Interior Gateway Routing Protocol (Cisco proprietary)  
  - OSPF: Open Shortest Path First  
  - EIGRP: Enhanced Interior Gateway Routing Protocol (Cisco proprietary)
Code of Academic Integrity

The University of Maryland, College Park has a nationally recognized Code of Academic Integrity, administered by the Student Honor Council. This Code sets standards for academic integrity at Maryland for all undergraduate and graduate students. As a student you are responsible for upholding these standards for this course. It is very important for you to be aware of the consequences of cheating, fabrication, facilitation, and plagiarism. For more information on the Code of Academic Integrity of the Student Honor Council, please visit http://shc.umd.edu/SHC/HonorPledgeInformation.aspx.