Reedley College

Fall 2013

11/18/13 - 12/13/13

## Course: **IS 63 Networking** **I (50619)**

## Class meets: Monday, Tuesday, Wednesday, and Thursdays 3:00 pm – 5:10 pm

Instructor: David L. Atencio - BA Computer Science. MBA

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Office Hours: TBD

**Text Books and Study Material:**

Network+ Guide to Networking

LabSIM

1. **Course Description and Information:**

This course provides an introduction to computer networking by providing hands on networking learning tasks such as: making and testing network cabling; troubleshooting networking hardware; as well as working with common network protocols, both TDP and UDP as well as IPV4 and IPV6 transitional technology. In this course, students will learn network topology, network types (wired and wireless), and basic principles of network security as well as network hardware and software installation and configuration.

This course will prepare students to be competitive candidates in obtaining their CompTIA Network+ certification.

Also included are elements of the Security+ certification and covers [computer security](http://en.wikipedia.org/wiki/Computer_security), [cryptography](http://en.wikipedia.org/wiki/Cryptography) and [access control](http://en.wikipedia.org/wiki/Access_control). Both certifications further prepare candidate for continuing to [Microsoft](http://en.wikipedia.org/wiki/Microsoft_Certified_Professional) and [Cisco certifications](http://en.wikipedia.org/wiki/Cisco_Career_Certifications). A Network + certification can fulfill at least one elective exam requirements of the [Microsoft Certified Systems Administrator](http://en.wikipedia.org/wiki/Microsoft_Certified_Professional#Previous_Generation_Certification_Programs) (MCSA) certification.

1. **Course Learning Objectives and Outcomes:**

**Objectives:**

* 1. explain how networks are interconnected.
  2. distinguish between media types and properties for differing topologies of networks.
  3. understand how operating system software affects hardware choices.
  4. identify the various nodes that can exist on a network.
  5. compare, contrast, and install various network media.
  6. compare various computer operating systems for both the client and the server and determine their appropriate use.
  7. identify the functions of domains in a network operating system environment.
  8. differentiate among the various server processor architectures.
  9. determine hardware and software requirements for varying network topologies.
  10. understand network server installation.
  11. set up security policies, create user profiles, and modify registry entries.
  12. manage servers, users, and resources with a server manager utility.
  13. monitor network system performance.
  14. identify and distinguish the abilities, rights, shares, and permissions of folders and files.
  15. Understand network server installation.
  16. Set up security policies, create user profiles, and modify registry entries.
  17. Manage servers, users, and resources with a server manager utility.
  18. Monitor network system performance.
  19. Identify and distinguish the abilities, rights, shares, and permissions of folders and files.
  20. Understand printer operations, including priority levels, print devices, and scheduling.

**Outcomes:**

* 1. design a network topology (using the open systems interconnection (OSI) 7 layer model) for a typical small business. Topology selection to consider: scalability, security needs, projected growth, available resources, and.
  2. make up and test networking CAT5 cables, cable identification, identifying appropriate connectors, selecting appropriate cables for given physical topologies in both LANs and WANs while following current industry wiring standards
  3. configure network hardware and software to recognize and utilize addressing schemes such as unicast, multicast broadcast, as well as their technologies i.e. NAT, SNAT, etc. internet protocol version 4 (IPV4) and internet protocol version 6 (IPV6), as well as explain routing protocols such as open shortest path first (OSPF),
  4. utilize server software to manage and maintain a small for a small local area network, including changing network interface NIC hardware, in order to optimize network performance.

1. **Attendance:** Attendance is required and the instructor reserves the right to take roll at any time during the duration of the class period. To achieve successful completion of the course, it is critical for the students taking this course to attend all classes. I will drop you if you have more than three consecutive unexcused, absences.
2. **Policies:** Campus code requires that shoes or sandals and appropriate attire be worn at all times on Eating, drinking, and smoking is not allowed in the classroom or computer labs. Cell phone must be turned off or in the silence mode while class is in session. A student will be subject to discipline if she or he:

* Prevents other students from pursuing their authorized curricular or co-curricular interests.
* Interferes with or disputes faculty and administrators who are fulfilling their professional responsibilities.
* Prevents classified employees from fulfilling their prescribed duties.
* Deliberately endangers the safety of persons or the security of college property.
* Violates Reedley College computers and networks usage policy.

1. **Academic Dishonesty:** Students at Reedley College are entitled to the best education that the college can make available to them, and they, their instructors, and their fellow students share the responsibility to ensure that this education is honestly obtained. Because cheating, plagiarism, and collusion in dishonest activities erode the integrity of the college, each student is expected to exert an entirely honest effort in all academic endeavors. Academic dishonesty in any form is a very serious offense and will incur serious consequences.

* **Plagiarism:** Plagiarism is the adoption or reproduction of the ideas or words or statements of another person without due acknowledgment. This can range from borrowing without [attribution](http://en.wikipedia.org/wiki/Attribution) a particularly apt phrase, to paraphrasing someone else's original idea without citation, to wholesale [contract cheating](http://en.wikipedia.org/wiki/Contract_cheating). When plagiarizing, students will often turn to the [Internet](http://en.wikipedia.org/wiki/Internet), due the ease of [copying and pasting](http://en.wikipedia.org/wiki/Copying_and_pasting) from websites. Other more old fashioned forms of plagiarism such as [paper mills](http://en.wikipedia.org/wiki/Essay_mill) and passing off obscure articles or chapters of books of others as original work also still occur. Plagiarized papers are often riddled with gross inconsistencies such as referencing non-existent sections of the essay, changes in spelling and grammar customs, or the argument changing in mid-paragraph.
* **Cheating:** Cheating is the act or attempted act of taking an examination or performing an assigned, evaluated task in a fraudulent or deceptive manner, such as having improper access to answers in an attempt to gain an unearned academic advantage. Cheating can take the form of [crib notes](http://en.wikipedia.org/wiki/Cheat_sheet), looking over someone's shoulder during an exam, or any forbidden sharing of information between students regarding an exam or exercise. Also, the storing of information in graphing calculators, pagers, cell phones, and other electronic devices has cropped up since the information revolution began.

Incidents of cheating and plagiarism may result in a variety of sanctions and penalties, which may range from a failing grade on a particular examination, paper, project, or assignment in question to a failing grade in the course at the discretion of the instructor and depending upon the severity and frequency of the incidents.

1. **Accommodations for students with disabilities:** If you have a verified need for an academic accommodation or materials in alternate media (i.e., Braille, large print, electronic text, etc.) per the Americans with Disabilities Act (ADA) or Section 504 of the Rehabilitation Act please contact me as soon as possible.
2. **Learning Methods:**
   1. Lectures – used to provide bring all students to a level playing field of learning
   2. Required reading
   3. Class projects and Blackboard assignments (lab work)
   4. Textbook assignments (lab work)
3. **Reading and Lab Assignments:**  Assigned chapters MUST be read prior to attending class. Students are required to complete class/lab assignments in class. You may collaborate with fellow students on lab assignments. Late lab assignments will not be accepted.
4. **Outcomes assessment:**

*Network+ Guide to Networks:* Quizzes (2 @ 20 points each) 40 points

*Network+ Guide to Networks* Labs (15 @ 10 points each) 150 points

Midterm 50 Points

Participation 100 points

Final Exam/demonstration 100 points

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Total 440 points

Grading scale:

90-100% = A 80-89% = B 70-79% = C 60-69% = D <60% = F

1. **Final Drop Date:** The final drop date for this class is: N/A
2. **Examinations and assignments:** All examinations must be completed individually. Students may make use of the help feature of any application provided in the classroom computers. Students may use their books and notes for all examinations. I will keep open the previous week, current week and one future week at all times for assignments and exams. Once a week is closed out it will be too late to make up.
3. **Schedule:**

Note: I reserve the right to change the schedule or topics at any time during the course.

| **Week** | **Notes** | **Reading Assignments** | **Homework/Lab Assignments** |
| --- | --- | --- | --- |
| ***Week 1*** |  | **Chapter 1**  An Introduction to Networking  **Chapter 2**  Networking standards and the OSI model  **Chapter 3**  Transmission Basics and Networking Media | **Class orientation, Intro to Blackboard, syllabus review, district policies, companion website.**  **Introduction to networking**  **Lab 1 - Project 2-3, section 1 & 2**  **Lab 2 - Make up Ethernet cables** |
| ***Week 1*** | Dear Optimist, Pessimist, and Realist,  While you guys were busy arguing about the glass of water I drank it... | **Chapter 3**  Transmission Basics and Networking Media  **Chapter 4**  TCP/IP Protocols  **Chapter 5**  Topologies and Ethernet Standards | **Lab 3 - Test Ethernet cables**  **Lab 4 - Project 3-1**  **Lab 5 - Project 4-4 & 4-5**  **Quiz 1 (Chapters 1-3)** |
| ***Week 2*** | Don't let Perfect be the enemy of the good... | **Chapter 5** Continued  **Chapter 6**  Network Hardware  **Chapter 6** (cont)  Network Hardware  **Chapter 7**  WAN’s and Remote Connectivity | **Lab 6 (Project 5-2)**  **Lab 7 (Project 5-3)**  **Lab 8 (Project 6-4)**  **Quiz 2 (Chapters 4-5)**  **Midterm** |
| ***Week 2***  ***Thursday*** | The best is yet to come... | **Chapter 7**  WAN’s and Remote Connectivity  ATM, SONET, Remote connectivity, Remote access servers, remote virtual computing, VPN  **Chapter 8**  Wireless Networking | **Lab 9 (Project 8-2)**  **Lab 10 (Project 8-3)** |
| ***Week 3*** |  | **Chapter 9**  Network Operating Systems  Linux  **Chapter 12**  Network Security | **Lab 11 Windows server 2008 (installation, settings, roles)**  **Lab 12 Windows server 2008 (DHCP, DNS)**  **Lab 13 Windows server 2008 (other roles)**  **Lab 14 cont... Virtual machines,**  **Lecture Linux**  **Lab 15 Linux (Apache WEB server, File server**  **Security Audits, Security Risks, Security policy, NOS security, encryption**  **Firewall, routers**  **Malware, Spyware, etc…, Final Review** |
| ***Week 4*** |  |  | **Final** |