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| Course: | CSC120 | Data Communications | Spring 2009 |
| Credits: | 3 (Lab required) | | Pre-requisites: |
| Time/Location: | Tuesday-Thursday 6:00pm – 7:50pm / Room 226 | | |
| Instructor: | Geoffrey J. Cullen email: profcullen@verizon.net website: http://cullenprogramming.homelinux.com:8192/profnotes.html http://mysite.verizon.net/gjcullen/profnotes.html | | |
| Office Hours: | You may make an appointment or see me immediately before class in the adjunct office, or after class in the lab (preferred). | | |
| Text: | "Business Data Networks and Telecommunications", Raymond Panko, Prentice-Hall, ISBN 0-13-221441-5, sixth edition (or higher) | | |
| Required Supplies: | Storage media to save documents, assignments, exercises, configurations, important classroom data, etc. | | |
| Catalog: | This course covers the fundamentals of data communications: historical information; current uses; hardware, software and protocols; networks (LANs, WANs, MANs) and their design, trends and issues. Analysis of the current communications trends in the business environment will include data transmission hardware and software; local and wide area networks, information retrieval networks, routing and communication protocols; and security. Discussion of how the local and long distance telecommunications networks can be utilized to support the business communications environments. | | |
| Topics Included: | Introduction to Data Communications. Fundamentals of communications. Data communications hardware facilities and software applications. Major communications protocols and networking layered models. Network Routing, MAC and IP Addressing. Network Topologies. Internets, Intranets and Extranets. Use of common network configuration and monitoring tools. Network Management. Security issues and measures. | | |
| Core Competencies: | Know how to evaluate data networking information effectively, summarize and synthesize information from a variety of sources, make informed choices based upon analysis, integrate current technology skills for business communication. | | |

Course Objectives: By the end of the course, the student will have learned:

- Knowledge Understand fundamental data communications concepts.
Be familiar with Network Layered Architecture.
Understand the use of LANs, firewalls, gateways and proxy servers.
Understand how computers are addressed and messages routed over networks.
Be familiar with a great many network terms and some common tools.
Describe the difference between client and server machines.
Have an overview of the major Internet protocols and their roles.
Develop an appreciation for the role that networks play in business, entertainment and the home.
- Performance Be able to understand and evaluate data communication facilities.
Able to provide practical examples of communications networks.
Use data communications protocols to access other computers.
- Affective Develop an appreciation for the complex and detail nature of data networks.
Have an understanding of security issues surrounding data communication.
- Attendance Policy: Students are expected to attend all class sessions and are responsible for all material presented in class, all homework, labs and reading assignments. Grades are based on the quality of work completed in meeting the requirements for this course. If a student has more than 3 unexcused absences, his/her final grade will be lowered by 10 points. Excessive absence may be considered sufficient cause for dismissal from class. Missed work is the responsibility of the student to obtain the requirements from sources other than the instructor.
- Lateness Policy: The student must inform the instructor in advance if he/she will be late. If the student is late 3 times in excess of 30 mins, the lateness will count as an absence and you will be penalized for 1 class participation unit.
- Classroom Participation: A significant portion of your grade is based upon class participation. When lesson material is based on the text, students are to ignore their computer and take part in the learning process. No Internet surfing, text or instant messaging. When the lesson material is focused on hands-on learning, students are to be engaged in lessons as directed by the instructor. It is expected that you will participate enthusiastically and frequently in all class discussions and stay for the full class length. You will be penalized class participation units for using any electronic messaging during class.
- Homework: Reading will be assigned as well as questions relating to the covered topic. The homework is intended to reinforce the material presented in class and to prepare the student for in class discussions and examinations.

- Work Submission:** All assignment materials and homework must be submitted via demonstration or electronically. Work must be checked for accuracy. The work must include the Name, origin, Date, Course number and section. No printed submissions.
- Required format research papers:** Any research papers written for this class must follow Modern Language Association (MLA) format. All submitted work should be checked for grammatical accuracy, spelling and composition. Emailed work must be in OpenOffice (.odt) or Office (.doc) format.
- Other Student Expectations:** Communicate often with the instructor about any concerns or problems. Keep a notebook and take notes on the ideas, facts and concepts presented. Perform all reading assignments on time. Be prepared to discuss material in class. Put forth a maximum effort to learn and master the subject material with interest and persistence. Note that the class schedule is "tentative" and subject to change. It is your responsibility to be aware of changes made to the schedule.
- Late Work Policy:** All projects and assignments are to be handed in on the designated due date. Be aware that late work will affect your grade. Work handed in late will be marked off 10 percent for every class session the assignment is late. Emailed assignments are acceptable when timestamped prior to date due. You will not be reminded or coaxed to complete and submit your work. If you do not receive a response to your emailed assignments you must assume that it did not reach me.
- Missed Exam Policy:** Exams missed due to an excused absence must be made up within one week. Arrangements for make-up exams must be made between the instructor and the student prior to the regularly scheduled exam. Exams missed due to an unexcused absence cannot be made up and will receive a zero grade. Contact me in advance when you know that you will be missing any class session to avoid a penalty.
- Data:** It is the student's responsibility to ensure that his/her work is backed up to and recoverable from reliable media. There will be no acceptable excuse for lost or inaccessible assignments. Your computer's integrity is your responsibility. Any problems with campus equipment, hardware or software must be directed to the IT department by the student.
- Cheating and Plagiarism:** Cheating on examinations, through use of unauthorized aids, wandering eyes or inappropriate resources, is forbidden. In addition, plagiarism, or the unattributed use of another's words, code, algorithms or ideas, through either direct appropriation or paraphrase, is a serious breach of academic standards. If you are found to be cheating you will be given an "F" for the course.
- Electronic Equipment:** No cell phones are permitted to be audible during class. No cell phones are permitted in the classroom/lab during exams. Computing equipment is permitted for classroom assignments, however, text messaging, audio and Internet surfing is prohibited at all times.

Other Student Responsibilities: Each student is responsible to be aware of important dates on the college calendar, including: The last date to Withdraw Passing and the last date to Withdraw Failing. You are responsible for understanding the information contained in this syllabus. The student is responsible to check the college website for any notification information with regards to cancellations due to weather or other. It is the student's responsibility to recognize and be familiar with the full contents of the Student Handbook and all college policies.

Disability Accommodations: Students with documented disabilities are entitled under the law to reasonable accommodations. If you have a disability and need accommodations, please notify the instructor as early as possible during the semester. You should also contact the Office of Disability Services.

Miscellaneous: "Publication" of written work and assignments -- By your continuation in this course and by submitting written assignments and work, you understand that you are granting a limited license to publish that work for the purposes of grading the work. That limited license extends to my submission, within my sole discretion, to various electronic grading tools (e.g., grading books, cite checkers, etc.).

Methods of Evaluation: Course grade is determined as follows:

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| Mid-term Exam | 30% |
| Final Exam | 30% |
| Lab Assignments | 10% |
| Participation and Discussion | 20% |
| Research Paper | 10% |

Grading System:

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|----|---|----------|---|---|---------|
| A | = | 90 - 100 | C | = | 70 - 76 |
| B+ | = | 87 - 89 | D | = | 60 - 69 |
| B | = | 80 - 86 | F | = | 0 - 59 |
| C+ | = | 77 - 79 | | | |

STATEMENT AND POLICY ON CHEATING, PLAGIARISM AND ACADEMIC DISHONESTY:

Students are required to perform all the work specified by the faculty, and they are responsible for the content and integrity of all academic work submitted. A violation of academic integrity will occur if a student: (1) knowingly represents work of others as one's own, (2) uses or obtains unauthorized assistance in any academic work, (3) gives fraudulent assistance to another student, or (4) furnishes false information or other misuse of college documents.

In cases of suspected violation of academic integrity, the incident is to be reported to the Office of the Dean of Academic Services, and an investigation will be conducted as appropriate. A student found guilty of violating the rule of academic integrity by a committee composed of the Dean of Student Services and the Dean of Academic Services (or their designees) will be considered to have failed in personal obligation to the College; such failure will be subject to disciplinary action by the College. Unless otherwise notified, the instructor will allow students who are pending disciplinary action to attend class.

INSTRUCTIONAL SUPPORT CENTER:

The ISC located inside the Library provides academic consultation and assistance for all disciplines free of charge. For scheduling or further information, visit the ISC in person, log on to the WCCC Web page ISC link.

LIBRARY:

The WCCC Library is comprised of the joint collections of the academic and small business resources libraries. Library materials include print and electronic books, journals, magazines and newspapers; audiovisual materials such as: audio cassettes, compact discs, DVDs, laserdiscs, and videotapes; and specialized computer software programs. Special segments within the Library's collection include American history, law, literature and small business.

WCCC Library resources and services are available to all WCCC students, faculty, staff, and residents of Warren County.

Hours

The Library is open 72 hours per week. Check the Academic Calendar for specific holiday dates. Exceptions may apply during breaks, and summer sessions. Any change to the Library's hours are posted on EAGLE, the campus messaging system, the Library bulletin board, and the Library doors.

Student, Faculty and Staff Library Card/College ID

- 1 Your library card is your college ID.
- 2 Materials will not be checked out to you without it!
- 3 Register in the Library for your Library Card/College ID.
- 4 Initial cards are provided at no charge. Replacement cards have a charge.

Tentative Itinerary

(This syllabus is tentative and subject to change by the instructor as deemed necessary.)

| Week | Manual/Chapter | Topic | Hands-on labs |
|------|--------------------------------|--|------------------------------|
| 1 | (first day) | Introduction | |
| 1 | Chapt 1 | Home Networking | Ping, dig, host, ipconfig |
| 2 | Chapt 2 | Network Standards and Layered Architecture | |
| 3 | Chapt 3 | Physical Networking Layer | |
| 4 | Chapt 4 | Ethernet and DataLink Layer Propagation | ifconfig, route, ip, tc |
| 5 | | Network Topologies Communications Protocols | netstat netcat |
| 6 | Chapt 5 | Wireless LANs | |
| 7 | Review of first half semester | | |
| 7 | Exam | Mid-Term | |
| 8 | Chapt 6 | Public Telecommunications | |
| 9 | Chapt 7 | Wide Area Networks | |
| 10 | Chapt 8 | TCP/IP Internetworking Packet Addressing and IP Routing | tcpdump, traceroute, xmtr |
| 11 | Chapt 9 | Network Security Firewalls and Proxies Hacker tools | NMAP, WireShark ShieldsUp |
| 12 | Chapt 10 | Network Management | |
| 13 | Chapt 11 | Networked Applications | |
| 14 | Review of second half semester | | |
| 15 | Exam | Final Exam | |