CYS 573: Network Fundamentals
Online Syllabus
Fall 2014

IMPORTANT SEMESTER DATES
Semester Starting Date ------------ [Date]
Semester Ending Date ------------ [Date]
Last Date for Class Withdrawal ----- [Date]

PROFESSOR
Name:
Office:
Phone:
E-mail address:
Class meets: Online
Meeting time: NA
Office Hours: [f2f office hours]
Cyber Office Hours: [online office hours]

TEXTBOOK
• Course handouts on certain subjects not covered by the textbook

REFERENCES
• Internetworking with TCP/IP Volume One, 6/e, by Douglas E. Comer, Addison-Wesley 2013.

DESCRIPTION
This is an introductory course that covers the basics of how networks work, including the topics of OSI model, Internet model, network components, LANs, WANs, routers, switches, wireless communication, network security, TCP/IP Internet protocols, and network applications such as web and email. It also covers the hands-on for configuring and troubleshooting network features on a Windows or UNIX workstation.

COURSE RATIONALE
This course teaches students the core portion of computer networking, which will help students in the future courses that requiring knowledge of networking. Virtually all IT applications involve networking. It is the role of the IT professional to select, design, deploy, integrate, and administer network and communication infrastructures in an organization. This course provides an overview of networking technologies, solutions, and applications. This course is required for the M.S. Cybersecurity degree program.

COURSE DELIVERY METHOD
This course is delivered entirely online with synchronous and asynchronous activities deployed as required. The primary method of access to this course is the University Blackboard Learning Management System (LMS) and may be supplemented by other online resources. This course may also employ conferencing tools such as video conferences or Web conferences to facilitate communication and interaction with distant and local students.

PREREQUISITE
None
GOALS AND OBJECTIVES
Main Objective:
The major goals of the course are
• Introduce students to the fundamental concepts, principles, technologies, architectures, protocols, solutions, and applications that form the essential building blocks for networks and communication infrastructures.
• To enable students to gain basic knowledge and skills in the troubleshooting and administration of simple networks.

Measureable Objective:
By the end of the course, students will be able to
• Describe the functions and capabilities required for communicating data reliably and economically.
• Explain the two fundamental communication technologies, circuit switching and packet switching.
• Explain the performance requirements and analysis parameters for packet switching.
• Explain the importance and benefits of protocols and protocol architectures.
• Describe the protocol architecture and functions of the seven-layer OSI model.
• Describe the protocol architecture and functions of the Internet TCP/IP model.
• Explain the protocols and operations of key Internet applications such as World Wide Web, file transfer, email, and DNS.
• Describe the basics of TCP/IP protocols, and how they are implemented in a host system such as Windows, including IP addressing, routing table, and name resolution.
• Explain the key LAN/WAN technologies and systems such as routers, switches, Ethernet, and Wi-Fi.
• Describe the protocols and techniques used for network security, such as firewall, intrusion detection, encryption, and VPN.
• Capture and analyze network traffic to identify the information exchanged by various communication protocols at multiple layers.
• Basic network administration, configuration, and troubleshooting tasks.

CORE COMPETENCIES
• Written and Oral Communication Assumed.
• Mathematical and Quantitative Reasoning Evaluated.
• Information Technology Literacy Evaluated.
• Scientific Reasoning Assumed.
• Critical Thinking Evaluated.

CREDIT HOURS
3 semester hours

ATTENDANCE POLICY
The Computer Science Department adheres to the University Policy on class attendance. For you to receive a passing grade, you must attend at least 80% of the class sessions. This means you must participate in at least 80% of the class activities.

EVALUATION
The total points system will be used in this course. There will be a significant course project with a research emphasis in this course. It will make up the heavy portion of your grading points. Students will turn in a 10+ pages of final report on the project at the end of course term. In addition, there will be a few of laboratory assignments, two period examinations and a final examination during the course term. Each assignment, exams as well as the term project will be assigned a maximum of possible points. These maximum possible points vary on each assignment depending on the difficulties of the assignments. Each examination will be worth 120 points. The term paper will be worth 240 points. All other labs will worth totally 400 points. The students’ grades are given according to the total percentage earned.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Points</th>
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<tbody>
<tr>
<td>A</td>
<td>90-100</td>
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<tr>
<td>B+</td>
<td>87-89.9</td>
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<tr>
<td>B</td>
<td>80-86.9</td>
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<tr>
<td>C+</td>
<td>77-79.9</td>
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<tr>
<td>C</td>
<td>70-76.9</td>
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<tr>
<td>F</td>
<td>0-69.9</td>
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WRITTEN WORK CRITERIA
All written work is expected to reflect correct use of grammar, spelling, and organization of material. Work with errors of this nature will be penalized.

PROCTORING POLICY
Students who choose not to come on campus to take their exams, must have exams in online courses proctored. A proctored exam is one that is administered by an impartial individual (called a proctor) who monitors and supervises a student while that student is taking an exam. The proctor ensures the security and integrity of the exam process. Students will be required to submit an Online Course Proctor Identification Approval Form to each instructor. The form must be submitted and approved by the instructor within 30 days from the starting date of the semester. The instructor will not accept late forms (beyond the 30 day limit). Once the proctor has been approved by the instructor, the students will be required to present their Spartan Identification Card and photo identification to the proctor prior to students receiving the exam. Students are responsible for arranging a proctor for their exam(s) and all costs incurred for this service.

On-Campus Proctor Schedule for Midterm and Exams
Time Date Room
[Time] [Date] [Location] Midterm
[Time] [Date] [Location] Final Examination

METHOD OF INSTRUCTION
The primary method of instruction will be online. The instructional method of use will be inductive, going from specific to general. Online learners will acquire new knowledge through exposure to new material and ideas and will discuss these ideas and concepts on the discussion board.

The following instructional strategies and methods will be among those used to achieve the learning objectives:
1. Class discussions
2. Collaborative learning
3. Case study
4. Assigned readings
5. Blackboard (on-line delivery)

COMPUTER LITERACY REQUIREMENTS
To successfully complete this course you must possess:

- A basic knowledge of computers. For example, understanding files and folders to upload or download course content is absolutely essential. Basic computer literacy classes (CSC-150) are available on campus as elective courses. Students deficient in the necessary computer skills should consider taking such classes.
- An understanding of the Web and its resources, such as the library and online research tools accessed through a Web browser.
- Familiarity with Microsoft Office applications, such as Word and PowerPoint; this is absolutely essential for your academic success.
- Familiarity with NSU’s e-mail system to guarantee effective communications with both the instructor and classmates. All NSU students have been assigned an e-mail account and are expected to access it regularly via the Web.
- Knowledge of Blackboard Learning Management System (LMS), which is mandatory for this course.

For those of you not familiar with the Blackboard LMS, an online orientation can be accessed by self-registering in Blackboard. The course name is "Blackboard Student Training." Additional assistance with Blackboard can be obtained through the Blackboard Central Help Desk at bbtechsupport@nsu.edu or by phone at 757-823-2328 M - F 8AM - 6PM at the Lyman Beecher Brooks Library (LBBL).

Addressing your computer skills will greatly enhance your learning experience, reducing wasted time and frustration for yourself and your instructor. Please feel free to contact the Office of Information Technology (OIT) Client Services or the Office of Distance Education for advisement on how to receive assistance with your computer literacy instructional needs.
RELATED UNIVERSITY-WIDE AND COURSE-SPECIFIC REQUIREMENTS

Students apply written and oral communication skills through assignments given during the course. This course emphasizes critical thinking.

OFFICE LOCATION

The Department of Computer Science is located in suite 320 Robinson Technology Center. The individual faculty offices are located within the suite.

COMMUNICATION

BlackBoard Announcements Area

The Blackboard’s announcements is specifically designed for communicating with students of this course. Instructions to all students in this class, such as a chat-session cancellation, a change in schedule or assignments, etc., a message will be sent via announcements. Students can access the announcements by selecting the announcements icon on the main page menu in the Blackboard. Only the member of the class will receive the messages. Students are required to check the announcements daily for any new message. Students are encouraged to send the message to the instructor through the Blackboard’s e-mail. Go to https://www.nsu.edu/sel/blackboard/index for Blackboard log-on information

E-mail Policy

NSU e-mail is the only e-mail system to be used for this course; No private e-mail addresses can be used in this course. Always title your messages; be sure the subject line reflects the topic of discussion. E-mail messages should always be courteous and follow etiquette protocols. You should be respectful to those who are receiving your e-mail; never send SPAM to other classmates. Remember that these documents are never deleted from the system and nothing is ever private. Also, always check your spelling before sending a message.

Discussion Boards

As part of your NSU online experience you will be using the Blackboard Discussion Forum. A good way of entering a discussion board or chat is to briefly introduce yourself. It is important to keep your questions and comments relevant to the topic of the discussion; when posting to a discussion board, you should read prior messages to get a sense of the flow and language of the discussion before posting your own message. If another person posts a comment or question that is off the subject, do not reply to the discussion board; if you want to reply, do so via a private e-mail directly to that person. When working in groups do not hijack the discussion. Keep paragraphs and messages short and to the point.

AMERICANS WITH DISABILITIES ACT (ADA) STATEMENT

In accordance with Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act (ADA) of 1990, we ask if you have a disability or think you have a disability please make contact with the Disability Services Department.  

Location: Student Service Center, Suite 110  
Contact Person: Ms. Janet L. Timberlake  
Phone: (757)823-8325

ACADEMIC HONESTY

Students are expected to adhere to the ACM Code of Ethics. No lying, cheating, or plagiarism will be tolerated. Specifically, handing in work that is not your own or allowing another student to copy and hand in your work will result in automatic failure of the course – no exceptions. There may be assignments where you are REQUIRED to work together. In these cases the prohibition deals with working among and between groups and not within the group doing the assignment.

The Department of Computer Science employs a no tolerance policy on cheating. Cheating includes, but is not limited to, copying others work, misrepresenting the work of others as your own (including online sites), plagiarism, sharing when unauthorized, and the use of cellular phones and/or electronic media when unauthorized. The following outlines the departmental procedure if a student is suspected of cheating during his or her academic tenure with the Computer Science Department at Norfolk State University.

• Offense 1 – The student will receive a grade of zero on the assignment and a note will be placed in the student’s permanent departmental file.
• Offense 2 – The student will receive a letter grade of “F” for the course and the student will be reported to the Office of Student Rights and Responsibilities for adjudication.

LIBRARY SUPPORT
Extensive library resources are available online, 24 hours a day, seven days a week at http://library.nsu.edu/. The Lyman Beecher Brooks Library (LBBL) at NSU provides research assistance in creating search strategies, selecting relevant databases, and evaluating and citing resources in a variety of formats via its Ask a Librarian service at http://library.nsu.edu/screens/askalibrarian.html. The Subject Guides area of the library’s Web site at http://library.nsu.edu/screens/databases_subject.html provides a listing of resource guides for each subject area, with each guide containing relevant databases, Web sites, books, and other resources along with technical and citation assistance. A guide to locating scholarly articles and using the LBBL’s databases is available at http://library.nsu.edu/screens/search_articles.html. LBBL allows users to simultaneously search for scholarly articles, books, and/or other research resources via a single search engine in most of the databases to which LBBL subscribes, either directly or as additional resources (http://library.nsu.edu/).

OUTLINE

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<tr>
<th>DATE</th>
<th>TOPIC</th>
<th>READING ASSIGNMENT</th>
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<tbody>
<tr>
<td>WEEK 1</td>
<td>Overview of TCP/IP</td>
<td>Chapter 1</td>
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<tr>
<td>WEEK 2</td>
<td>Delivering the Data</td>
<td>Chapter 2</td>
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<td>WEEK 3</td>
<td>Network Services</td>
<td>Chapter 3</td>
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<td>WEEK 4</td>
<td>Connected &amp; Non-Connected Networks</td>
<td>Chapter 4</td>
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<tr>
<td>WEEK 5</td>
<td>Basic configuration</td>
<td>Chapter 5</td>
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<tr>
<td>WEEK 6</td>
<td>Configuring the Interface</td>
<td>Chapter 6</td>
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<td>WEEK 7</td>
<td>Routing IP</td>
<td>Chapter 7</td>
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<td>WEEK 8</td>
<td>Review and Labs</td>
<td>Chapter 8</td>
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<td>WEEK 9</td>
<td>Configuring Domain Name System</td>
<td>Chapter 9</td>
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<td>WEEK 10</td>
<td>Local Network Services</td>
<td>Chapter 10</td>
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<td>WEEK 11</td>
<td>Sending mail</td>
<td>Chapter 11</td>
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<td>WEEK 12</td>
<td>Configuring Apache</td>
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<td>WEEK 13</td>
<td>Network Security</td>
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<td>WEEK 14</td>
<td>Troubleshooting TXI/IP</td>
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<td>WEEK 15</td>
<td>Review and Labs</td>
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