IT-263
Applied Networks and Security
Autumn 2021

Instructor: Joe Cannici
E-Mail: jcannici@cdm.depaul.edu
Web Site: https://d2l.depaul.edu
Class Hours: Wednesday's 5:45 – 9:00

Course Overview:

This course provides an introduction to data networking technologies, including Ethernet and Internet data technologies, network security, business applications and network management. Networking topics will include client/server application software configuration, network connectivity (cabling, switch and router configuration), basic IP addressing, network address translation and options for public Internet access services. Security topics will include typical threats and responses, firewalls, host hardening, password management and virtual private network (VPNs). PREREQUISITE(S): None.

Course Breakdown:

25% - 4 Homework Assignments
25% - 4 Lab Exercises
10% - Technology Report
15% - Midterm Exam
20% - Final Exam
 5% - Class Participation

Further details on each assignment will be distributed in class. Homework assignments, papers and exams must be completed individually. Grade reductions and other sanctions may be imposed on anyone who submits as his/her own any work which has been prepared by someone else. I expect all students to read and understand DePaul's policy on Academic Integrity.

E-Textbook Readings:

Each student is enrolled in an online CNA course - CCNAv7 Intro to Networks (ItN) – which is accessible at https://www.netacad.com. Note: students are not required to complete any of the Quizzes or Labs in the CNA course modules, since they are not a part of IT 263 grading. However, I would strongly recommend that students complete these Quizzes and Labs on their own to gain further practice and strengthen their networking skills.

Homework:

Four homework assignments based on the textbook reading will be given during the term. Homework must be submitted to the appropriate Dropbox in D2L. Late homework will not be accepted…**no exceptions.**

Lab Exercises:

Four lab exercises will be given during the term. Lab Exercises must be submitted to the appropriate Dropbox in D2L. Late Lab Exercises will not be accepted…**no exceptions.**

Participation:

The Class Participation grade will be based mainly on class attendance (section 701) or participation in online discussions (section 710).   Attendance will be taken in each class session.   Active attendance means that you will respond if I call on you in class.

Cell Phones:

As a courtesy to the other students and the instructor: If you must keep your cell phone on, *please* turn the ringer off and set the phone in front of you, or place cell phone on vibrate mode.

Class Notes:

All of the slides used during lecture are available on D2L. If printing them, I suggest printing three slides to a page (to save paper). To do this in PowerPoint, click on File/Print/Print what: Handouts/Slides per page: 6.

Lectures:

All lectures are available on the homepage of the D2L website. Distant Learning students are responsible for watching these lectures as soon as practical. In-class students can view classes that they missed and all students can use the videos to reinforce lectures or go back thru topics.

Objectives:

After completing IT 263, students will be able to:

- Describe network components, such as hubs, switches and routers, and how each of them forward and modify data packets.
- Describe packet forwarding through each network component
- Calculate IP address assignments using subnetting
- Discuss various types of security attacks and how to mitigate them
- Understand how to secure a network from common attacks
- Describe components of public key infrastructure (PKI) for web security
- Describe how secure web services (HTTPS) and virtual private network (VPN) services are provided using encrypted content and site authentication provided via PKI.
- Use tools such as Wireshark to analyze network traffic

Grading Scale:

92 – 100	A	72 – 77	C
90 – 91	A-	70 – 71	C-
88 – 89	B+	68 – 69	D+
82 – 87	B	62 – 67	D
80 – 81	B-	60 – 61	D-
78 – 79	C+	0 – 59	F

Academic Policies:

All students are required to manage their class schedules each term in accordance with the deadlines for enrolling and withdrawing as indicated in the University Academic Calendar. Information on enrollment, withdrawal, grading and incompletes can be found at: http://www.cdm.depaul.edu/Current%20Students/Pages/PoliciesandProcedures.aspx.

Incomplete Grades:

An incomplete grade is a special, temporary grade that may be assigned by an instructor when unforeseeable circumstances prevent a student from completing course requirements by the end of the term and when otherwise the student had a record of satisfactory progress in the course. All incomplete requests must be approved by the instructor of the course and a CDM Associate Dean. Only exceptions cases will receive such approval. Information about the Incomplete Grades policy can be found at http://www.cdm.depaul.edu/Current%20Students/Pages/Grading-Policies.aspx

Approximate outline:

Week	Date	Topics	NetAcad ItN Readings
1	9/8	Course Goals and Overview	1.1-1.7, 3.1-3.8, 4.1-4.5
2	9/15	Network Basics, Cabling Wired Ethernet and Wi-Fi	4.6, 5.1-5.2,6.1-6.3, 7.1-7.4
3	9/22	Ethernet Switching IPv4 Addressing **Homework #1 Due**	8.1-8.2, 9.1-9.2, 11.1-11.7, 14.1-14.6
4	9/29	TCP and Packet Analysis IP Subnets and Routing Wireshark **Lab #1 Due**	8.4-8.5, 9.1-9.2,
5	10/6	IP Subnetting Routers and Switches **Homework #2 Due**	6.3-6.4
6	10/13	**Midterm Exam (30%)** **Lab #2 Due**	
7	10/20	Internet Applications IPv6	8.3, 9.3, 12.1-12.5, 15.1-15.4
8	10/27	Network Security Encryption, Integrity and Authentication **Homework #3 Due (5%)**	16.1
9	11/3	Network Vulnerabilities Firewalls **Lab #3 Due**	16.2-16.4
10	11/10	Virtual Private Networks Network Address Translation **Homework #4 Due** **Lab #4 Due** **Technology Report Due**	
11	11/17	**Final Exam (30%)**	

Course Learning Outcomes

After completing IT 263, students will be able to:

- Describe network components, such as hubs, switches and routers, and how each of them forward and modify data packets.
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Students with Disabilities:

Students seeking disability-related accommodations are required to register with DePaul's Center for Students with Disabilities (CSD) enabling them to access accommodations and support services to assist with their success. There are two office locations:

- Loop Campus – Lewis Center #1420 – (312) 362-8002
- Lincoln Park Campus – Student Center #370 – (773) 325-1677

Students who register with the Center for Students with Disabilities are also invited to contact Dr. Gergory Moorhead, Director of the Center, privately to discuss how he may assist in facilitating the accommodations to be used in a course. This is best done early in the term. The conversation will remain confidential to the extent possible.

Please see https://offices.depaul.edu/student-affairs/about/departments/Pages/csd.aspx for Services and Contact Information.

Proctored exams for OL courses

If you are an online learning student living in the Chicagoland area (within 30 miles of Chicago), you will need to come to the Loop campus to take an exam. Online learning students outside of the Chicagoland area are required to locate a proctor at a local library, college or university. You will need to take the exam within the window your instructor gives. Students should examine the course syllabus to find exam dates and the instructor's policy on make-up exams. Detailed information on proctored exams for online learning students can be found at http://www.cdm.depaul.edu/onlinelearning/Pages/Exams.aspx

COVID-19

COVID-19 Health and Safety Precautions: Keeping our DePaul community safe is of utmost importance in the pandemic. Students, faculty and staff are expected to (1) wear a cloth face covering at all times while on campus, both inside buildings and outside on the grounds; (2) maintain physical distance (at least six feet) in all DePaul spaces (including classrooms, meeting rooms, hallways, rest rooms, offices, and outdoor spaces); (3) conduct a daily self-screening process for the symptoms of COVID-19 using the #CampusClear app before coming to campus; (4) complete the online Health and Safety Guidelines for Returning to Campus training; and (5) abide by the City of Chicago Emergency Travel Order. By doing these things, we are Taking Care of DePaul, Together. The recommendations may change as local, state, and federal guidelines evolve. Students who have a medical reason for not complying should register with DePaul's Center for Student with Disabilities (CSD).

Academic Integrity:

Violations of academic integrity, particularly plagiarism, are not tolerated. Plagiarism is defined by the university as:

  "..a major form of academic dishonesty involving the presentation of the work of another as one's own. Plagiarism includes but is not limited to the following:

a. The direct copying of any source, such as written and verbal material, computer files, audio disks, video programs or musical scores, whether published or unpublished, in whole or part, without proper acknowledgement that it is someone else's.

b. Copying of any source in whole or part with only minor changes in wording or syntax, even with acknowledgement.

c. Submitting as one's own work a report, examination paper, computer file, lab report or other assignment that has been prepared by someone else. This includes research papers purchased from any other person or agency.

d. The paraphrasing of another's work or ideas without proper acknowledgement.

Plagiarism, like other forms of academic dishonesty, is always a serious matter. If an instructor finds that a student has plagiarized, the appropriate penalty is at the instructor's discretion. Actions taken by the instructor do not preclude the college or the university from taking further punitive action including dismissal from the university" (DePaul Student Handbook).

This course will be subject to the university's academic integrity policy. More information can be found at http://academicintegrity.depaul.edu. If you have any questions be sure to consult with your professor.