

IT 263 Syllabus – Applied Networks and Security – Winter 2021

Instructor	Dr. Sharief Oteafy	Phone	312 362-8127
Office	CDM 846	E-mail	soteafy@depaul.edu
Office Hours	Tuesdays 11:30 – 1 pm (or by appointment)	Website	d2l.depaul.edu
Class Location	Online on Zoom	Class time	Tu/Th 1:30 pm – 3 pm

--- Any changes made to this syllabus will be announced in class as well as D2L --- This is Version 1: Dec 1 ---

Course Overview

This course introduces networking and security technologies required to build and maintain a home or small-office network. 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). The course has a lab component where students apply wired and wireless technologies to design and administer a small network with various applications. PREREQUISITE(S): None.

Resources:

E-Text: Introduction to Networks: Cisco Networking Academy, which you can access at <https://www.netacad.com>.

Grade distribution over required coursework

Task	% of final grade
3 Homework assignments	15 %
2 lab exercises	10 %
1 Quiz	5%
Midterm exam	25 %
Final exam	25 %
Technology report	10 %
Class participation & discussions	10 %

Coursework

Course topics expected to be covered in each class and the corresponding readings in the Network Academy Introduction to Networks (ItN) course are listed in the course schedule on page 3. Note: you are not required to do any Activities or Labs within the ItN course unless specifically stated, but you are encouraged to complete them for extra practice if you wish. **Class Participation will be earned** as follows: students gain 0.5% credit towards their final grade for each lecture actively attended (up to 10% of final grade). Active attendance means responding to questions and/or contributing to class discussions.

Course policies & guidance

General 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: cdm.depaul.edu/enrollment. Note that **January 17th, 2020** is the last date to drop the class with no penalty.

Mental Health and Academic Assistance (credits to Dr. E. Brown)

Balancing the hard work of achieving your educational goals with the other demands of life is difficult at the best of times. For many of us, for a variety of reasons, things are all the more difficult now. I want to make sure you feel comfortable, not embarrassed, reaching out for support. I will also point out where the University has great resources just a phone call or email away. These have been created and maintained for you, so use them. Sometimes people feel like their situation isn't the worst possible, so they assume they do not need help, but don't let that prevent you from reaching out!

- **DePaul University Counseling Services** – mental health is as important as physical health, and we have professionals just a call away: <https://offices.depaul.edu/student-affairs/about/departments/Pages/ucs.aspx> (call (773) 325-7779 or 911 for emergency).
- The kind people at the **Office of the Dean of Students** can help you with a wide range of topics, including figuring out if you should withdraw or apply for an incomplete: <https://offices.depaul.edu/student-affairs/about/departments/Pages/dos.aspx>.
- There are lots of additional, more specific resources listed here with the **Office of Student Affairs**, including crisis hotlines and sexual assault resources: <https://offices.depaul.edu/student-affairs/support-services/counseling/Pages/Crisis-Hotlines.aspx>.

Plagiarism

There is a "zero-tolerance policy" regarding plagiarism. This stands for both the plagiarizer and the person(s) facilitating plagiarism (e.g., allowing someone to plagiarize their work). There's a great resource put together by DePaul University, which you can find here: <https://resources.depaul.edu/teaching-commons/teaching-guides/learning-activities/Pages/avoiding-plagiarism.aspx>

Academic Integrity

One of the core principles of education is establishing Academic Integrity. It is a viable component in the classroom, one by which learning objectives could be honestly and efficiently met. The principles of academic integrity should span all of your learning endeavours, within and beyond this course. For more information on Academic Integrity, especially definitions and norms, please visit: <https://resources.depaul.edu/teaching-commons/teaching/academic-integrity/Pages/default.aspx>. This will be the basis of all of our interactions in this course. If you have any questions or concerns, feel free to drop by and see me. All students are expected to abide by the University's Academic Integrity Policy which prohibits cheating and other misconduct in student coursework. Publicly sharing or posting online any prior or current materials from this course (including exam questions or answers), is considered to be providing unauthorized assistance prohibited by the policy. Both students who share/post and students who access or use such materials are considered to be cheating under the Policy and will be subject to sanctions for violations of Academic Integrity.

Deadlines and submission policies

Assignments are due on D2L by 11:59 pm on the deadline day posted on each assignment, unless otherwise announced. All of your work (exams, assignments, report, etc) must be your original work. Any evidence of departure from Academic Integrity will be reported, and ensuing sanctions will be pursued. You are expected to read, understand and comply with DePaul's policy on Academic Integrity. **Late submissions receive a 10% penalty for every 24 hour delay**, starting from the minute past the deadline.

Missing exams and/or deadlines

Emergencies happen and that is quite understandable. If you miss an exam due to an emergency (e.g., accident, emergency hospitalization, etc) please communicate with me as soon as you can to resolve any outstanding issues. If a major illness hinders you from attending an exam or submitting a deliverable (assignment), you need to contact me beforehand via e-mail. Notices received after the deadline will not be accounted for (unless for an emergency as highlighted above). If the illness occurred after the deadline, even if accompanied with a doctor's note, you would receive a zero for that exam/deliverable. Otherwise, missing an exam without prior approval will warrant an automatic zero. Generally, all extensions are considered on a case-by-case basis. Falling sick prior to a deadline does not automatically warrant an extension. If you have any questions or concerns, please don't hesitate in contacting me.

Disability Accommodation

Feel free to speak to me as soon as possible regarding any difficulties you feel you might be encountering in this course, ideally within our first week of classes. If you feel that any given disability is hindering you, or you are not sure and wish for a consult, please reach out to CSD at csd@depaul.edu; they are trained to help out and point you to the appropriate resources.

Grade calculation

Final grades will be calculated as follows: points earned divided by possible points in each category will be multiplied by the contribution percentages shown to yield a total course percentage score between 0% and 100%. Letter grades will be assigned as:

A = 90% - 100%	A- = 88% - 90%	B+ = 86%-88%	B = 80% - 86%	B- = 78% - 80%	
C+ = 76% - 78%	C = 70% - 76%	C- = 68% - 70%	D+ = 66% - 68%	D = 60% - 66%	F = 0% - 60%

Class schedule and topics

Week	Class date	Tentative Topics	NetAcad ItN Readings	Tentative Assignment dates
1	5 January	Course overview	1.1 – 1.5	
	7 January	Network basics & Cabling	1.2 3.1 – 3.3 & 4.1 – 4.2	Technical report explained in class
2	12 January	Wired Ethernet and Switching	4.3-4.4	
	14 January	Wi-Fi Networks	5.1-5.3	Lab 1 posted
3	19 January	IP addressing and DHCP	2.1, 2.2.1, 2.3 & 6.1	
	21 January	In-class Quiz TCP and packet analysis	7.1, 7.3 9.1, 9.2	HW 1 posted
4	26 January	IP subnets and routing	6.2	Lab 1 due
	28 January	Subnetting	8.1-8.3	HW 1 due
5	2 February	Routers and Switches Sample problems and review	6.3-6.4	Lab 2 posted
	4 February	Midterm exam	6.3-6.4	HW 2 posted
6	9 February	Midterm recap (answers & discussion) NAT		Lab 2 due
	11 February	NAT & port management		HW 2 due
7	16 February	IPv6	6.1.4	
	18 February	DNS, Internet Applications	7.2 & 8.3	
8	23 February	Privacy and Network Security	10.1-10.2	HW 3 posted
	25 February	Integrity and Encryption	11.1	HW 3 due
9	2 March	Network Vulnerabilities	1.4.3	
	4 March	Authentication & Firewalls	11.2	
10	9 March	Virtual Private Networks (VPNs)		Technical report due
	11 March	Course review and Final Exam preparation		
11	18 March	Final Exam 11:30 am – 1:45 pm		

Exams (midterm and final) will be carried out using Respondus & LockDown

Respondus Monitor is a proctoring application that builds on the LockDown Browser using a webcam to assist with the academic integrity of online exams. When this feature is enabled for a quiz or exam, students are required to use a webcam and microphone with LockDown Browser to ensure that the testing environment facilitates academic honesty. After the exam is complete, instructors have access to a report that shows any students with any flagged issues. Instructors are able to review the reports and associated recordings to determine if a violation occurred.

- Assessments are displayed full-screen and cannot be minimized.
- Browser menu and toolbar options are removed, except for Back, Forward, Refresh and Stop.
- Prevents access to other applications including messaging, screen-sharing, virtual machines, and remote desktops.
- Printing and screen capture functions are disabled.
- Copying and pasting anything to or from an assessment is prevented.
- Right-click menu options, going to previous screens (i.e. previous questions), function keys, keyboard shortcuts and task switching are disabled.
- An assessment cannot be exited until the student submits it for grading.

Zoom Overview:

We're going to meet using Zoom, a video conferencing tool. Zoom allows people to gather in a virtual room and meet synchronously, as well as record the session for offline viewing. Please find the access info to join our Zoom classes in the "Welcome to Class" news item. During our sessions, I'll be speaking to you directly, and going over Power Points slides (sharing my screen). I'll also be recording our sessions and uploading them to our D2L course site.

You are expected to **actively** attend all classes via Zoom, in lieu of attending in person for an in-class session. You need to participate in the discussions, and demonstrate that you are engaged with the material. Throughout the classes, you will be called upon to answer questions and/or engage in discussions. Your participation grade is earned through these interactions. This is vital to sustain a lively "remote class" environment.

Best Practices During our Zoom Session:

List your name: Please sign in with your full name, so I know who's who.

Muting your audio (and video): Unless you're actively speaking, please keep your audio muted. This will help prevent background noise in our discussion. If you need to get up and change locations, please mute your video before you move. You'd be surprised how distracting it is to see a camera in motion during the session!

Speaker View and Gallery View: There are two ways to view the Zoom participants:

- **Speaker View:** This view prioritizes the person speaking, so you'll see a large-screen view of the speaker and a handful of other participants right above.
- **Gallery View:** This is the "Brady Bunch" view, where you'll see a grid with small videos of all participants. A small green box will appear around the person speaking.

Screenshare and Full Screen View: If someone in the Zoom session starts sharing their screen, Zoom will automatically go into "full screen mode" on your computer. You can navigate out of full screen mode by hovering your mouse over the video, and at the top, clicking View Options > Exit Full Screen.

Muting notifications: If you un-mute your audio and you're speaking, remember that the class will be able to hear any audio coming through. So, if you get a text message or email notification, we'll hear it. You may want to mute your notifications when our Zoom session starts.

Chat option: Given that I'll be running multiple tasks, I **will not** be able to look at the chat window all the time. Please don't use it. If you need to say something, simply use the "**raise your hand**" option.

Video: Yes, I am planning to keep my video on. You are encouraged to do so as well, however that is totally up to you. If you do keep your video on, please conduct yourself as you would in a public place. I'd rather not make a lengthy list of Zoom etiquette here, but I trust you'll use your common sense :)

Video background: While it is tempting to use the "background" option, remember that it will (very) quickly eat up your battery power. Also, it can get distracting :) if you choose one, please make sure it is neutral/simple.

Additional Zoom Resources: [Getting Started with Zoom](#) | [How to Join a Meeting](#)

Liberal Studies Domain Information

IT 263 is included in the Liberal Studies program as a course with credit in the Scientific Inquiry domain. Courses in the Scientific Inquiry domain are designed to provide students with an opportunity to learn the methods of modern science and its impact in understanding the world around us. Courses are designed to help students develop a more complete perspective about science and the scientific process, including: an understanding of the major principles guiding modern scientific thought; a comprehension of the varying approaches and aspects of science; an appreciation of the connection among the sciences and the fundamental role of mathematics in practicing science; an awareness of the roles and limitations of theories and models in interpreting, understanding, and predicting natural phenomena; and a realization of how these theories and models change or are supplanted as our knowledge increases.

Learning Outcomes

After completing this course, students will be able to:

- Understand foundational networking topics and concepts
- Analyze and maintain Local Area Networks
- Plan IP address assignments through subnetting
- Discuss various types of security attacks and how to mitigate them
- Understand how to secure a network from common attacks
- Use tools such as Wireshark to analyze network traffic

Learning Outcomes for Scientific Inquiry-Elective (SI-Elective) courses

- Students will be able to apply appropriate concepts, tools, and techniques of scientific inquiry.
- Students will be able to describe how natural scientific, mathematical, and/or computational methodologies function as mechanisms for inquiry.
- Students will be able to explain the interaction between the content of their SI-Elective course and other scientific disciplines or the broader society.

These learning outcomes will be met through homework and lab assignments that will include: short answer questions that will require the application of networking concepts covered in class, labs in which the student will observe and analyze how traffic passes through a network, situational problem-solving, and researching recent security hacks and vulnerabilities.

Course evaluations

During the course, your feedback on how well the course is running (pace, difficulty, resources, etc) will be solicited. This is a vital component of improving and tailoring this course to your learning objectives. While all students are expected to achieve the learning outcomes highlighted above, each of us inevitably learn differently. This course is designed to meet the aforementioned learning outcomes, and I will endeavor to incorporate different activities to improve the learning experience.

If you have any concerns about how the course is running, or would like to suggest an improvement, feel free to reach out to me. Also, on week 10, we will hold the official course evaluations in class.