

# TDC 477 – Network Security Fundamentals

## Spring 2019/2020

**Instructor** Ahmad Abusini

**Office Hours** Online via Zoom meeting Saturday 2:00PM to 3:30PM CST

**Course Website** <http://d2l.depaul.edu>

**E-mail** aabusini@depaul.edu

**Meeting time** Thursday-Online recorded meetings via Zoom

**Location** Online-No in class meetings

5:45PM to 9:00PM CST

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### Text:

- Optional Text: Santos & Stuppi, Cisco Press/Pearson, 2015. ISBN: 978-1587205668 (PP slides and other study materials will be provided to students)
- Cisco Network Academy Website -CCNA Security

### Description:

- This course is an introductory class in network security and security applications. Both the theory behind security methods and their applications in today's business environments will be presented. Topics include: Review of components used in an enterprise security infrastructure including routers, firewalls, security auditing and assessment tools, Virtual Private Networks (VPN), and Intrusion Detection/Prevention Systems. The integration of the different components will be studied in detail, including IP addressing, Network Address Translation (NAT), design of firewall rule sets and performance considerations.

### Goals and outcomes:

- Explain the different network security threats
- Explain the technologies available to mitigate these threats
- Write appropriate firewall rules
- Configure basic firewalls and VPNs.
- Design overall communication and security infrastructure
- Explain the basics of cryptography.
- Perform vulnerability assessments and based on results improve security posture

### Prerequisites:

TDC 463 or CSC 435

### Course Breakdown:

- 20% - Homework
- 20% - Lab Assignments
- 20% - Midterm Exam-Online for all students using D2L( no proctored Exams)
- 15% - Class Participation, discussions and PT activities.
- 25% - Final Exam- Online for all students using D2L( no proctored Exams)

Further details on each assignment will be distributed in class, Homework assignments and exams must be completed individually. Late assignments will be accepted with partial credit depends on how many days late, any assignments with more than one week late will not be accepted and zero grade is granted.

**Class Participation:** Being present in each meeting and actively participate in the class activities are both important to earn your full grade credit allocated for class participation. In-class students are expected to attend all class meetings, students are encouraged to participate actively in class and on the online forums as they are posted.

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 the following grading scale:

#### Grading Scale

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%	

#### Course Schedule:

Date	Topic	Required Reading	Assignment
04/02	Class overview, general security concept, threats and defenses; Security technologies.	Ch1, Ch2.	
04/09	Firewalls technologies and filtering strategies. Configuring IOS ACLs	Ch4	HW 1 due 04/15 at 11:59PM
04/16	Firewalls II(contd.) –Network Address Translation (NAT)	Ch4	Lab1-Part A due 04/22 at 11:59PM
04/23	Firewall II (contd.) Introduction to ASA Configurations Firewall deployment and architecture	Ch4, Ch9 and ch10	Hw2 due 04/29 at 11:59PM
04/30	Virtual Private Networks (VPNs) and IPSEC	Ch8, Ch10	Lab1-Part B due 05/09 at 11:59PM
05/07	Midterm Exam		
05/14	Virtual Private Networks (VPNs) and IPSEC (contd.)	Ch8, Ch10	Hw 3 due 05/20 at 11:59PM
05/21	Fundamentals of Cryptography. Symmetric and asymmetric cryptography. Steganography	Ch7	Lab2-PartA due 03/04 at 11:59PM
05/28	Cryptography (contd) Vulnerability Scanning	Ch7 and Ch11	Hw 4 due 06/03 at 11:59PM

Date	Topic	Required Reading	Assignment
	Authentication + Public Key Infrastructure (PKI)		
06/04	Authentication and PKI (contd.) Security policy development Introduction to Intrusion Detection/Prevention System (IDPS) if we have time.	Ch5, Ch7 and Ch11	Lab2-Part B due 06/10 11:59PM
06/11	Final Exam		

\* Cisco Press <http://www.ciscopress.com/articles/article.asp?p=101151&seqNum=3>

### Course Policies:

#### Changes to Syllabus

This syllabus is subject to change as necessary during the quarter. If a change occurs, it will be thoroughly addressed during class, posted under Announcements in D2L and sent via email.

#### Online Course Evaluations

Evaluations are a way for students to provide valuable feedback regarding their instructor and the course. Detailed feedback will enable the instructor to continuously tailor teaching methods and course content to meet the learning goals of the course and the academic needs of the students. They are a requirement of the course and are key to continue to provide you with the highest quality of teaching. The evaluations are anonymous; the instructor and administration do not track who entered what responses. A program is used to check if the student completed the evaluations, but the evaluation is completely separate from the student's identity. Since 100% participation is our goal, students are sent periodic reminders over three weeks. Students do not receive reminders once they complete the evaluation. Students complete the evaluation online in [CampusConnect](#).

#### Academic Integrity and Plagiarism

**All quizzes and assignments must be completed individually.** 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.

#### 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](http://cdm.depaul.edu/enrollment).

#### Students with Disabilities

Students who feel they may need an accommodation based on the impact of a disability should contact the instructor privately to discuss their specific needs. All discussions will remain confidential.

To ensure that you receive the most appropriate accommodation based on your needs, contact the instructor as early as possible in the quarter (preferably within the first week of class), and make sure that you have contacted the Center for Students with Disabilities (CSD) at: [csd@depaul.edu](mailto:csd@depaul.edu).

Lewis Center 1420, 25 East Jackson Blvd.

Phone number: (312)362-8002

Fax: (312)362-6544

TTY: (773)325.7296

**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>

**Online exams and activities for all Students including in class enrolled students.**

All course exams, quizzes and other activities will be done online using DePaul's course shell (D2L) this will also include the in-class students enrolled in this course.