# TDC 477 – Network Security Fundamentals

# Fall 2019

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| Instructor | Ahmad Abusini | Office Hours | Thursdays 5:00 PM -5:45 PM and 9:00 PM -9:45PM |
| Course Website | <http://d2l.depaul.edu> | E-mail | aabusini@depaul.edu |
| Meeting time | Thursday 5:45PM - 9:00PM | Location | Lewis Center Room 1107 |
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### **Text**:

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| **CCNA Security 210-260 Official Cert Guide.** | |  |  |  |
|  | Santos & Stuppi, Cisco Press/Pearson, 2015.  ISBN: 978-1587205668  (IMPORTANT – Note that there is another book with similar title make sure that you refer to the ISBN number) | | | |

### **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

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### **Prerequisites:**

TDC 463 or CSC 435

### **Course Breakdown:**

* 20% - Homework
* 20% - Lab Assignments
* 20% - Midterm Exam
* 15% - Class Participation and PT activities.
* 25% - Final Exam

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 (attendance will be monitored). Students are encouraged to participate actively in class and on the online forums.

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 |
| --- | --- | --- | --- |
| 9/12 | Class overview, general security concept, threats and defenses; Security technologies.  Firewalls I - Firewall types and filtering strategies. | Ch1, ch2.ch14 and Ch15 |  |
| 9/19 | Firewall I  Configuring IOS ACLs |  | HW 1 due 9/25 at 11:59PM |
| 9/26 | Introduction to ASA Configurations  Firewalls II –Network Address Translation (NAT) | Ch14 and ch16 | *Lab 1-part a due 10/2 at 11:59PM* |
| 10/3 | Firewall II (contd.)  Firewall deployment and architectures | ch14 and ch16 | Hw2 due 10/9 at 11:59PM |
| 10/10 | Virtual Private Networks (VPNs) and IPSEC | Chapters 5 to ch7 | *Lab 1-part b due 10/16 at 11:59PM* |
| 10/17 | Midterm Exam |  |  |
| 10/24 | Virtual Private Networks (VPNs) and IPSEC (contd.) | Chapters 5 to ch 7 | *Hw 3 due 10/30 at 11:59PM* |
| 10/31 | Fundamentals of Cryptography. Symmetric and asymmetric cryptography.  Steganography |  | Lab 2-part a due 11/6 at 11:59PM |
| 11/7 | Cryptography (contd)  Vulnerability Scanning  Authentication + Public Key Infrastructure (PKI) | Ch3 and ch5 | *Hw 4 due 11/13 at 11:59PM* |
| 11/14 | Authentication and PKI (contd.)  Security policy development  Introduction to Intrusion Detection/Prevention System (IDPS) if we have time. | Ch17 | Lab 2-part b due 11/20 11:59PM |
| 11/21 | 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](https://campusconnect.depaul.edu/).

**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](http://oaa.depaul.edu/what/calendar.jsp).  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>

**Proctored exams for Online Students**

If you are an online learning student living in the Chicagoland area (within 30 miles of Chicago), you will need to come to one of DePaul's campuses 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>