NYU SCHOOL OF PROFESSIONAL STUDIES

Information Security Management

MASY1-GC 3220 | 104 | Spring 2024 | 01/24/2024 -05/01/2024 | 3 Credit
Modality: In person
Course Site URL: https://brightspace.nyu.edu/

General Course Information

Name/Title: Peter Peng, Adjunct Instructor
NYU Email: peter.peng@nyu.edu
Class Meeting Schedule: 01/24/2024 -05/01/2024| Wednesdays | 06:30pm -- 9:05pm
Class Location: Bldg: MIDC Room 413
Office Hours: By appointment via e-mail. Meetings can be scheduled to take place in-person after class, or remotely via Zoom.

Description

This course focuses on the importance of protecting data and information in today's digital world as related to strategy and policy, awareness, data classification, ownership, and accountability, monitoring and reporting. The course covers network components that comprise the environment, where the data are input, processed, stored and how the data travel through the Intranet, Extranet, and/or Internet. Upon completion of the course, students learn to assess the impact of data in the digital world, considering the steps that the Government, Corporations, and the Private Sector take to protect information assets. Students gain an understanding of components that comprise network security and how each component provides protection. They become familiar with preventative and detective tools such as anti-malware, ACL, virus protection, cryptography, intrusion detection, audit logs, and logical and physical controls and perform information risk assessments.

Prerequisites

1240 - Information Technology and Data Analytics

Learning Outcomes

At the conclusion of this course, students will be able to:

- Apply the key principles of information security to the value of data and technologies in the digital world
- Analyze different security frameworks used by Government, Corporations, and the Private Sector to protect digital asset
- Design a digitally secure environment to protect business information assets
- Justify how each digital security component provides protection from threats
- Support the decision to select and use preventive, detective, and responsive security elements
- Perform information security risk assessment to quantify and address high risk occurrences

Communication Methods

Be sure to turn on your NYU Brightspace notifications and frequently check the "Announcements" section of the course site. This will be the primary method I use to communicate information critical to your success in the course. To contact me, send me an email. I will typically respond within 24-48 hours.

Credit students must use their NYU email to communicate. Non-degree students do not have NYU email addresses. Brightspace course mail supports student privacy and FERPA guidelines. The instructor will use the NYU email address to communicate with students. All email inquiries will be answered within 24-48 hours.

Structure | Method | Modality
There are 14 sessions in this course. The session topics are organized in a way to include each student's participation and information sharing, as well as, learning from the Professor's experiences. The course will involve lectures/discussions/assignments/presentations as well as a final project.

NYU Brightspace is the learning management system we will use. Log-in to Brightspace frequently for course announcements, assignments & Zoom access. At times, you may be required to meet outside the lecture hours with your group members to complete the group project.

Expectations

Learning Environment
You play an important role in creating and sustaining an intellectually rigorous and inclusive classroom culture. Respectful engagement, diverse thinking, and our lived experiences are central to this course, and enrich our learning community.

Participation
Students are expected to be active participants in the learning experience as opposed to passive receptacles for information. Respect for the opinions of others and openness to new ideas is vital for all participants. For successful completion of this course, students will master material presented via lectures and demos, assigned in readings, communicated through discussions and from research activities.

Participation means contributing to the discussion versus simply speaking in class or offering a random comment in the online forum; it also means actively listening and building on the questions and discussion points of your classmates. As graduate students, you are expected to conduct yourselves in a professional manner and engage and collaborate with your classmates.

It is expected that each student will be prepared to participate in lively, intelligent, and professional discussions during and outside of the classroom. Reading assignments and homework must be completed as indicated so that everyone will benefit from an in-depth discussion of topics covered.

Assignments and Deadlines

Complete readings and submit assignments prior to class as assigned by the instructor and listed in this syllabus. All students must complete all course assignments. You should come to each class fully prepared, having read the assigned readings and completed the assignment(s), and actively engage in class discussions. Assignment details and due dates will be announced in class and posted on Brightspace. All assignments must be uploaded to the folder on Brightspace labeled "Assignments."

All written assignments are to be in a professional and business standard.
Unless previously approved due to illness or other emergency, assignments that are submitted late will automatically receive a 10% reduction in maximum grade for each 24-hour period the assignment is late, not counting any additional deductions from the assignment itself.

Please submit all assignments to the appropriate section of the course site in NYU Brightspace. If you require an extension due to an illness, hardship, or other reason, please contact me BEFORE the due date.

Course Technology Use

Establishing an environment of mutual respect and exchange in the classroom requires a commitment to presence in discussions and full attention to the course materials presented in class. In the interest of ensuring that attention stays focused on your classmates and class discussions, use of laptops, cellphones, and other electronic devices should be limited during the session unless required for a class activity.

Assignments will require the use of technology (e.g., laptop, computer lab) for learning, research, and assignment submission purposes.

Feedback and Viewing Grades

I will provide timely meaningful feedback on all your work via our course site in NYU Brightspace. You can access your grades on the course site Gradebook.

Attendance

Students are expected to attend all class sessions. Attendance will be taken into consideration when determining your final grade.

Excused absences are granted in cases of documented serious illness, family emergency, religious observance, or civic obligation. In the case of religious observance or civic obligation, this should be reported in advance. Unexcused absences from sessions may have a negative impact on a student's final grade. Students are responsible for assignments given during any absence.

Each unexcused absence or being late may result in a student's grade being lowered by a fraction of a grade. A student who has three unexcused absences may earn a Fail grade.

Refer to the SPS Policies and Procedures page for additional information about attendance.

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Textbooks and Course Material
Required:

Textbook: Principles of Information Security, 7th Edition**,** Michael E. Whitman, Herbert J. Mattord, ISBN-10: 035750643X, ISBN-13: 978-0357506431, © 2022

Details of additional course materials (including Case Studies from Harvard Business Publishing) to be provided during the semester.

Grading | Assessment
Individual assignments (45%) – Individual Grades
There will be a total of 9 assignments or hands-on labs based off the topics covered in the textbook readings and/or class. Unless stated otherwise, readings and assignments are to be completed prior to the start of the class so that when the topics are covered during the lecture, students should already have a basic understanding of the material and be prepared to discuss these topics on a more advanced level. 45% of total grade (9 assignments, each worth 5%)

Group Projects (45%) – Group and Individual Grades
Students will be assigned to groups for the purposes of group assignments. There will be at least 2 group assignments and 1 semester-long project which will culminate in a write-up submission and in-class presentation during the very last class of the semester (Session 14). Groups will be expected to take what they have learned in class and in the textbook readings and apply the knowledge to the group assignments and project.
Both innovative content and effective communication will be critical to success. This will be assessed based on several dimensions, including the ability of the team to generate a range of ideas, listen respectfully to different perspectives, distribute work fairly, resolve differences, and communicate effectively. There will be a self-reflection and peer evaluation feedback form to be submitted at the end of the semester to ensure that all students within the group have contributed equitably.

Additional information and specific details of the group assignments and project will be provided in class during the semester.

Class Participation (10%) – Individual Grade
Each student is expected to actively participate during each class session. Opportunities to participate include contributing to classroom discussions by moving the discussion and analysis forward or build on other comments, and by bringing up newsworthy topics during the "Current Events" section at the beginning of each class. Additionally, there may be break-out group exercises during the class where students will be expected to actively participate and contribute within the group as well as make informal presentations to the class based on group discussions.

Participation grades will be broken up into 2 halves of the class each worth 5% (First half: Sessions 1-7 and Second Half: Sessions 8-14) for a total combined Class Participation grade contributing 10% to the overall grade.

Individual Assignments (Individual Grade) – 9 assignments	45%
Group Project (Group and Individual Grades)	45%
Class Participation (Individual Grade)	10%
Total	100%

See the "Grades" section of Academic Policies for the complete grading policy, including the letter grade conversion, and the criteria for a grade of incomplete, taking a course on a pass/fail basis, and withdrawing from a course.

Course Outline

Start/End Dates: 01/24/2024 -05/01/2024 | Wednesdays
Time: 06:30pm -- 09:05pm
No Class Date(s): Wednesday, 03/20/2024
Special Notes: Spring Break 03/18/24 - 03/24/24

Session 1, Date: Wednesday, 01/24/2024

Session Topic: Introduction to Information Security

Required Readings (to be completed prior to class)**:** Module 1

Student Learning Objectives:

- Define information security
- Discuss the history of computer security, and explain how it evolved into information security
- Define key terms and critical concepts of information security
- Describe the information security roles of professionals within an organization

Session 2, Date: Wednesday, 01/31/2024

Session Topic: The Need for Security

Required Readings (to be completed prior to class)**:** Module 2
Individual Assignment 1 Due

Student Learning Objectives:

- Discuss the need for information security
- Explain why a successful information security program is the shared responsibility of the entire organization
- List the threats to information security and common attacks associated with those threats
- List the common development failures and errors that result from poor software security efforts

Session 3, Date: Wednesday, 02/07/2024

Session Topic: Information Security Management

Required Readings (to be completed prior to class)**:** Module 3
Individual Assignment 2 Due

Student Learning Objectives:

- Describe the different management functions with respect to information security
- Define information security governance and list the expectations of the organization's senior management with respect to it
- Describe management's role in the development, maintenance, and enforcement of information security policy, standards, practices, procedures, and guidelines
- List the elements in an effective security education, training, and awareness program and describe a methodology for effectively implementing security policy in the organization
- Explain what an information security blueprint is, identify its major components, and explain how it supports the information security program

Session 4, Date: Wednesday, 02/14/2024

Session Topic: Risk Management

Required Readings (to be completed prior to class)**:** Module 4
Individual Assignment 3 Due

Student Learning Objectives:

- Explain the risk management framework and process model, including major components
- Discuss the history of computer security and explain how it evolved into information security
- Define risk appetite and explain how it relates to residual risk
- Describe how risk is identified and documented
- Discuss how risk is assessed based on likelihood and impact
- Describe various options for a risk treatment strategy
- Discuss conceptual frameworks for evaluating risk controls and formulating a cost-benefit analysis
- Compare and contrast the dominant risk management methodologies

Session 5, Date: Wednesday, 02/21/2024

Session Topic: Incident Response and Contingency Planning

Required Readings (to be completed prior to class)**:** Module 5
Individual Assignment 4 Due

Student Learning Objectives:

- Discuss the need for contingency planning
- Describe the major components of incident response, disaster recovery, and business continuity

- Identify the processes used in digital forensics investigations
- Define the components of crisis management
- Discuss how the organization would prepare and execute a test of contingency plans

Session 6, Date: Wednesday, 02/28/2024

Session Topic: Legal, Ethical, and Professional Issues in Information Security

Required Readings (to be completed prior to class)**:** Module 6

Student Learning Objectives:

- Explain the differences between laws and ethics
- Describe the relevant laws, regulations, and professional organizations of importance to information security
- Identify major national and international laws that affect the practice of information security
- Discuss the role of privacy as it applies to law and ethics in information security
- Explain the roles of some U.S. law enforcement agencies with an interest in information security

Session 7, Date: Wednesday, 03/06/2024

Session Topic: Security and Personnel

Required Readings (to be completed prior to class)**:** Module 7
Individual Assignment 5 Due

Student Learning Objectives:

- Describe where and how the information security function should be positioned within organizations
- Explain the issues and concerns related to staffing the information security function
- List and describe the credentials that information security professionals can earn to gain recognition in the field
- Discuss how an organization's employment policies and practices can support the information security effort
- Identify special security controls and privacy considerations for personnel management

Session 8, Date: Wednesday, 03/13/2024

Session Topic: Security Technology: Access Controls, Firewalls, and VPNs

Required Readings (to be completed prior to class)**:** Module 8

Student Learning Objectives:

- Discuss the role of access control in information systems, and identify and discuss the four fundamental functions of access control systems
- Define authentication and explain the three commonly used authentication factors
- Describe firewall technologies and the various categories of firewalls
- Explain the various approaches to firewall implementation

- Identify the various approaches to control remote and dial-up access by authenticating and authorizing users
- Describe virtual private networks (VPNs) and discuss the technology that enables them

Session 9, Date: Wednesday, 03/27/2024

Session Topic: Security Technology: Intrusion Detection and Prevention Systems and Other Security Tools

Required Readings (to be completed prior to class)**:** Module 9

Student Learning Objectives:

- Identify and describe the categories and models of intrusion detection and prevention systems
- Describe the detection approaches employed by modern intrusion detection and prevention systems
- Define and describe honeypots, honeynets, and padded cell systems
- List and define the major categories of scanning and analysis tools and describe the specific tools used within each category

Session 10, Date: Wednesday, 04/03/2024

Session Topic: Cryptography

Required Readings (to be completed prior to class)**:** Module 10

Student Learning Objectives:

- Chronicle the most significant events and discoveries in the history of cryptology
- Explain the basic principles of cryptography
- Describe the operating principles of the most popular cryptographic tools
- List and explain the major protocols used for secure communications

Session 11, Date: Wednesday, 04/10/2024

Session Topic: Implementing Information Security

Required Readings (to be completed prior to class)**:** Module 11

Student Learning Objectives:

- Explain how an organization's information security blueprint becomes a project plan
- Explain the significance of the project manager's role in the success of an information security project
- Discuss the many organizational considerations that a project plan must address
- Describe the need for professional project management for complex projects
- Discuss technical strategies and models for implementing a project plan
- List and discuss the nontechnical problems that organizations face in times of rapid change

Session 12, Date: Wednesday, 04/17/2024

Session Topic: Information Security Maintenance

Required Readings (to be completed prior to class)**:** Module 12

Student Learning Objectives:

- Discuss the need for ongoing maintenance of the information security program
- Describe recommended security management models
- Define a model for a full maintenance program
- Identify the key factors involved in monitoring the external and internal environment
- Describe how planning, risk assessment, vulnerability assessment, and remediation tie into information security maintenance
- Explain how to build readiness and review procedures into information security maintenance
- Discuss physical security controls

Session 13, Date: Wednesday, 04/24/2024

Session Topic: Information Security Simulation

Student Learning Objectives:

- Participate in a hands-on, real-world simulation of an Information Security breach
- Apply what has been covered in class to choose specific actions to take in the simulation
- Create sample communications to describe what happened, and obtain peer feedback
- De-brief of the simulation, discuss best practices when addressing a security breach or attack

Session 14, Date: Wednesday, 05/01/2024

Session Topic: Group Final Project Presentations

Group Assignment Due: Write-up & Presentation Submission
Individual Assignment Due: Individual Project Analysis/Assessment

At the discretion of the faculty, the syllabus may be modified to better meet the needs of the students and to achieve the learning outcomes established in the syllabus

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NOTES:

The syllabus may be modified to better meet the needs of students and to achieve the learning outcomes.

The School of Professional Studies (SPS) and its faculty celebrate and are committed to inclusion, diversity, belonging, equity, and accessibility (IDBEA), and seek to embody the IDBEA values. The School of Professional Studies (SPS), its faculty, staff, and students are committed to creating a mutually respectful and safe environment (*from the SPS IDBEA Committee*).

NYU SCHOOL OF PROFESSIONAL STUDIES

New York University School of Professional Studies Policies

1. Policies - You are responsible for reading, understanding, and complying with University Policies and Guidelines, NYU SPS Policies and Procedures, and Student Affairs and Reporting.

2. Learning/Academic Accommodations - New York University is committed to providing equal educational opportunity and participation for students who disclose their dis/ability to the Moses Center for Student Accessibility. If you are interested in applying for academic accommodations, contact the Moses Center as early as possible in the semester. If you already receive accommodations through the Moses Center, request your accommodation letters through the Moses Center Portal as soon as possible (mosescsa@nyu.edu | 212-998-4980).

3. Health and Wellness - To access the University's extensive health and mental health resources, contact the NYU Wellness Exchange. You can call its private hotline (212-443-9999), available 24 hours a day, seven days a week, to reach out to a professional who can help to address day-to-day challenges as well as other health-related concerns.

4. Student Support Resources - There are a range of resources at SPS and NYU to support your learning and professional growth. For a complete list of resources and services available to SPS students, visit the NYU SPS Office of Student Affairs site.

5. Religious Observance - As a nonsectarian, inclusive institution, NYU policy permits members of any religious group to absent themselves from classes without penalty when required for compliance with their religious obligations. Refer to the University Calendar Policy on Religious Holidays for the complete policy.

6. Academic Integrity and Plagiarism - You are expected to be honest and ethical in all academic work. Moreover, you are expected to demonstrate how what you have learned incorporates an understanding of the research and expertise of scholars and other appropriate experts; and thus recognizing others' published work or teachings—whether that of authors, lecturers, or one's peers—is a required practice in all academic projects.

Plagiarism involves borrowing or using information from other sources without proper and full credit. You are subject to disciplinary actions for the following offenses which include but are not limited to cheating, plagiarism, forgery or unauthorized use of documents, and false form of identification

Turnitin, an originality detection service in NYU Brightspace, may be used in this course to check your work for plagiarism.

Read more about academic integrity policies at the NYU School of Professional Studies on the Academic Policies for NYU SPS Students page.

7. Use of Third-Party Tools - During this class, you may be required to use non-NYU apps/platforms/software as a part of course studies, and thus, will be required to agree to the “Terms of Use” (TOU) associated with such apps/platforms/software.

These services may require you to create an account but you can use a pseudonym (which may not identify you to the public community, but which may still identify you by IP address to the company and companies with whom it shares data).

You should carefully read those terms of use regarding the impact on your privacy rights and intellectual property rights. If you have any questions regarding those terms of use or the impact on the class, you are encouraged to ask the instructor prior to the add/drop deadline.