Baruch COLLEGE
The City University of New York
ZICKLIN SCHOOL OF BUSINESS

Department of Statistics and Computer Information Systems

CIS 3550 Cybersecurity

Syllabus

Spring 2022

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Office Hours: by appointment. **Office:** 11-248

SECTION: CIS 3550-FTRA (26795), Tu-Th, 4:10 PM- 5:25 PM, **Link:**
https://baruch.zoom.us/j/85498197104?pwd=bmY2dmNERjA5V2ZZcEdhSzhockNsZz09
Meeting ID: 854 9819 7104
Passcode: URA32011

COURSE DESCRIPTION

This course aims to provide a managerial perspective on contemporary issues in computer and network security, including an assessment of state-of-the-art approaches used to address security problems and the integration of these approaches with organizational/informational systems audits, computer information systems, and management practices. Upon completing the course, students should have a practical understanding of how to design, implement, and maintain a network security plan that successfully defends a network from malicious or accidental intrusion. **Prerequisite:** CIS 2200.

COURSE LEARNING GOALS

Upon successful completion of this course, students will be able to:

- Discuss key cybersecurity principles, including threat actors, and common attack vectors used against modern organizations
- Apply fundamental risk management principles to quantify risk, identify relevant controls, and enact risk mitigation strategies
- Evaluate enterprise security across network, application, and cloud architectures using established frameworks, such as NIST CSF.

BBA LEARNING GOALS

The BBA Learning Goals that play a significant role in this course include:

1. **Analytical Skills:** Students will possess the analytical and critical thinking skills to evaluate issues faced in business and professional careers.
2. **Technological Skills:** Students will possess the necessary technological skills to analyze problems, develop solutions and convey information.
3. **Communication Skills:** Oral. Students will have the necessary oral communication skills to convey ideas and information effectively and persuasively.
4. **Communication Skills:** Written. Students will have the necessary written communication skills to convey ideas and information effectively and persuasively.
5. **Civic Awareness and Ethical Decision-Making:** Students will have the knowledge base and analytical skill to guide them when faced with ethical dilemmas in business. Students will have an awareness of political, civic and public policy issues affecting business.

COURSE MATERIAL/READINGS

Online and primary sources will be used.

Supplemental material:

Meyers, M., Jernigan S., Mike Meyers' CompTIA Security+ Certification Guide, Third Edition (Exam SY0-601). ISBN-13: 978-1421519180.*

Harris, S., Maymi, F., CISSP All-in-One Exam Guide, Eighth Edition. *ISBN-13: 978-0071849272**

*Available for Free at O'REILEY https://guides.newman.baruch.cuny.edu/databases/O-P

Donaldson, S.E., Siegel, S.G., Williams, C.K., & Aslam, A. (2015) *Enterprise Cybersecurity*. Apress Media, New York (NY). ISBN-13: 978-1-4302-6083-7.

Required readings will be outlined in the course schedule.
PowerPoint slides used for the lectures will be made available on Blackboard.
All other course material (including the syllabus, assignments, announcements, etc.) will be posted on Blackboard. You are expected to check the course website at least twice a week.

SCHEDULE (TENTATIVE)

S#	Dates	Topics
1	Jan 26 Jan 31	Introduction Self-Intro
2	Feb 2 Feb 7	Fundamentals (H-1; D-1)
3	Feb 9 Feb 14	Network Components, Essentials, and Security Implications (M-6; H-4) Exercise 1
4	Feb 16 Feb 21	Network Components, Essentials, and Security Implications (M-6; H-4) Conversion Day – Classes follow a Monday schedule
5	Feb 23 Feb 28	Cryptography and Data Protection (M-2; H-2; D-3) Exercise 2
6	Mar 2 Mar 7	Cryptography and Data Protection (M-2; H-2; D-3) Case Study 1 Risk Management (M-1; H-1; D-2)
7	Mar 9	**Mid-Term Review**
	Mar 14	Risk Management (M-1; H-1; D-2)
8	Mar 16	**Mid-Term**
	Mar 21	Identity and Access Management (M-3; H-5; D-3)
9	Mar 23 Mar 28	Cloud Security and Virtualization (M-8; H-2; D-6)
10	Mar 30 Apr 4	Network and Endpoint Security (M-5) Wireless Security (M-7; H-4) Exercise 3
11	Apr 6 Apr 11	**Spring Recess**
12	Apr 13	**Spring Recess**
	Apr 18	Anatomy of a Breach & Incident Response (M-13)
13	Apr 20 Apr 25	Anatomy of a Breach & Incident Response (M-13) Case Study 2
		Vulnerability Management; Penetration Testing; Bug Bounty (M-12; H-6&7; D-9)
14	Apr 27 May 2	Vulnerability Management; Penetration Testing; Bug Bounty (M-12; H-6&7; D-9)
15	May 4 May 9	**Final Project Discussion**
16	May 11	Business Continuity and Disaster Recovery (M-13; H-7; D-3)
	May 16	**Final Exam Review**
17	May 18 May 22	**Final Exam (May 18th ; 3:30 PM – 5:30 PM)** **Final Project Deadline (May 22nd; 6:00 PM)**

* A class highlighted in red means the day or date does not follow the normal pattern, typically because a previous class has been cancelled due to a school, national, or religious holiday.

M: Meyers and Jernigan (3rd Edition); H: Harris and Maymi (8th Edition); D: Donaldson et al. (2015)

Academic Calendar (Subject to Change)

https://www.baruch.cuny.edu/registrar/registration/academic-calendar.htm

Final Exam Schedule

https://enrollmentmanagement.baruch.cuny.edu/registrar/final-exams/

ASSESSMENT

Mid-term exam*	25%
Final exam*	25%
Project **	20%
Case Report**	15%
Exercises*	15%
TOTAL	**100%**

* Individual (65%). ** Group (35%).

Final Letter Grades

Letter grades are calculated according to the Official Grading System of Baruch College. The instructor reserves the right to curve the scale when computing final grades, if deemed necessary.

From (%)	To (%)	Letter Grade
0.0	**59.9**	**F**
60.0	**67.0**	**D**
67.1	**69.9**	**D+**
70.0	**72.9**	**C-**
73.0	**77.0**	**C**
77.1	**79.9**	**C+**
80.0	**82.9**	**B-**
83.0	**87.0**	**B**
87.1	**89.9**	**B+**
90.0	**92.9**	**A-**
93.0	**100.0**	**A**

Grade Distribution

A & A -	**35% or less**
B+, B & B-	**40% or less**
C+, C & C-	**25% or less**
D(s) & F(s)	**any students who have earned these grades**

- **Exams:** There will be one Mid-term and one Final exam. The exams will cover material from all aspects of the class sessions (lectures, assigned readings, discussions, case studies, videos, and so forth). The format of the exams may include multiple choice questions, true/false questions, short answer questions, and short essays. Students will be informed of the structure and components of the exams beforehand.

- **Case and Final Project Reports:** The case and final project report(s) will be completed as a group project in teams of 4 students. Each group will prepare a written analysis involving the defense of an organizational network. The reports will be based on an actual case study. The final project report will be based on a fictitious organization described and assessed in-class. Each team member is required to contribute his/her fair share of work for each deliverable that requires teamwork. **The instructor reserves the right to ask for percentage of work contribution by each team member for all deliverables.** Detailed instructions are posted in blackboard for preparing the report.
- **Participation:** This component of the grade reflects the individual effort students put into the class by submitting the required individual assignments and by participating in the in-class discussions. Students are expected to develop compelling ideas and articulate them well in the classroom and in the appropriate online forums.
- **NOTE:** Be sure to have a back-up copy of any work you submit.

Recording of Remote Class:

Students who participate in a possible online class with their camera on or use a profile image are agreeing to have their video or image recorded solely for the purpose of creating a record for students enrolled in the class to refer to, including those enrolled students who are unable to attend live. If you are unwilling to consent to have your profile or video image recorded, be sure to keep your camera off and do not use a profile image. Likewise, students who un-mute during class and participate orally are agreeing to have their voices recorded. If you are not willing to consent to have your voice recorded during class, you will need to keep your mute button activated and communicate exclusively using the "chat" feature, which allows students to type questions and comments live.

COURSE POLICIES

- **Exams**
  - Exams will cover material from all aspects of the class sessions. There will be two exams. The instructor reserves the right to curve the scores for the exams based on the guidelines provided in the syllabus, if deemed necessary. Please check the tentative course schedule for exam time and make the necessary plans as early as possible.
  - Grades will be posted in Blackboard and **will not** be given out via e-mail or by phone.
  - Email entertaining any request for a unilateral “bump” in a person’s grade will not be responded. This is unethical and potentially a criminal offence (e.g., fraud, if scholarship money is involved).
  - No make-ups will be given for missed exams unless you have a verifiable emergency which will require dated documentation that details the nature of the emergency. Transportation delays are not valid emergencies. Otherwise, all exams must be taken at the scheduled days/times. Please make your travel plans accordingly.

- Students will have an opportunity to check their graded exams but the instructor retains all midterms and final exams.
- If you wish to dispute a grade, you must provide a case of how the remarks given to justify the grade is in error. Not liking the grade is not a valid reason. Bear in mind, also, that a re-grading means a re-grading of the entire assignment or exam. This could result in a higher *or* in a lower grade.
- If you have any question concerning a grade you receive in an exam, it is your responsibility to inform the instructor **within 1 week of the exam**. Grades will not be discussed after that time.
- The final exam must be taken in the time slot posted in the college bulletin.
- The exams will include materials from both the readings and from the topics covered in the lectures. The lecture material may not be found in the book. Therefore, it is very important to attend class regularly and keep up with the pace of the reading assignments.
- Behavior during exams is expected to conform to Baruch College guidelines. Any form of cheating or communications with other students or any other incident of improper behavior will be dealt according to the guidelines established by the College.
- Laptops, cell phones, smart watches, headphones, pagers and other electronic devices should be turned off during exams.

- **Class Attendance**
  - Class attendance is an important element of the course, so make every effort to attend. To avoid disruption, you should join the class meeting on time.
  - Baruch College does not allow students to have more than four absences. Violating this policy may result in WU grade.
  - Baruch College drop policy will be in effect for this course. Please refer to the academic calendar to find out about the last day to drop. Do not assume that a course will be dropped automatically if you do not attend.
  - If you miss class, it is your responsibility to find out about any announcements or assignments you may have missed. It is not necessary to email the professor if you miss a class.
  - Students should refrain from engaging in any kind of disruptive behavior during class.
  - Students are expected to spend significant time outside the lectures doing homework, reading the assigned materials and checking the course web site.
  - Students should check Blackboard at least twice a week to ensure you are aware of any updates or changes to material.
  - **Extra credit assignments will not be given under any circumstances** and emails with this regards will not be answered.

- **Work Submission Standards**

- Assignments are considered on time only if they are submitted on the due date as per the submission guidelines.
- As with any other academic submission, students must do their work carefully, striving to achieve high quality work. This includes checking the spelling and grammar, proofreading the submissions, and handing in the work on the specified due date.
- Extensions can be granted for situations involving illness, family business, or personal emergencies. If you need an extension, you must request one in writing or via e-mail before the due date of an assignment. Note: extensions will not be granted for problems relating to use of home or workplace computer systems (please use the BCTC facilities to avoid such problems), and back up your work. You will never be liable for failures of BCTC systems or CONNECT availability.
- For individual assignments or group projects, any instance of copying, cheating or plagiarism will be penalized and reported to the dean's office. Students **(or groups)** handing in similar work will both receive a 0 in the assignment and will face disciplinary actions. (See academic integrity statement below)
- Each group should report its progress on the group project or assignment via the log file provided by instructor. All members should sign the logs. The instructor cannot act on the complaints that is outside what is stated on the log submitted by the group.
- For group assignments, a group member may receive a lower grade if other members report that he or she has not equally contributed (reported via the log). Furthermore, he or she may be requested to submit any further group assignments and projects by himself or herself.

ACADEMIC INTEGRITY STATEMENT

The CIS Department fully supports Baruch College's policy on Academic Honesty, which states, in part: "Academic dishonesty is unacceptable and will not be tolerated. Cheating, forgery, plagiarism, and collusion in dishonest acts undermine the college's educational mission and the students' personal and intellectual growth. Baruch students are expected to bear individual responsibility for their work and to uphold the ideal of academic integrity. Any student who attempts to compromise or devalue the academic process will be sanctioned." Additional information can be found at:

http://www.baruch.cuny.edu/academic/academic_honesty.html

Cheating and plagiarism are serious offenses. The following definitions are based on the College's Academic Honesty website at:
https://provost.baruch.cuny.edu/academic-affairs/academic_honesty/

Cheating is the attempted or unauthorized use of materials, information, notes, study aids, devices or communication during an academic exercise. Examples include but are not limited to:

- Copying from another student during an examination or allowing another to copy your work
- Unauthorized collaborating on a take home assignment or examination
- Using unauthorized notes during a closed book examination
- Using unauthorized electronic devices during an examination
- Taking an examination for another student
- Asking or allowing another student to take an examination for you
- Changing a corrected exam and returning it for more credit
- Submitting substantial portions of the same paper to two classes without consulting the second instructor
- Preparing answers or writing notes in a blue book (exam booklet) before an examination
- Allowing others to research and write assigned papers including the use of commercial term paper services

Plagiarism is the act of presenting another person's ideas, research or writing as your own, such as:

- Copying another person's actual words without the use of quotation marks and footnotes (a functional limit is four or more words taken from the work of another)
- Presenting another person's ideas or theories in your own words without acknowledging them
- Using information that is not considered common knowledge without acknowledging the source
- Failure to acknowledge collaborators on homework and laboratory assignment

Unauthorized collaborative work will result in appropriate disciplinary action. Academic sanctions in this class will range from a grade of F on the assignment to a grade of F in the course. A report of suspected academic dishonesty will be sent to the Office of the Dean of Students. This report becomes part of your permanent file.

The use of artificial intelligence (AI) is strictly prohibited in all coursework and assignments. This includes, but is not limited to, the use of AI-generated text, speech, or images, as well as the use of AI tools or software to complete any portion of a project or assignment. Any violations of this policy will result in disciplinary action, up to and including a failing grade for the assignment or course. Our goal is to encourage critical thinking and creativity, and the use of AI detracts from this objective. Students are expected to use their own knowledge, research and analysis to complete coursework.

STUDENTS WITH DISABILITIES

Students with disabilities may be eligible for a reasonable accommodation to enable them to participate fully in courses at Baruch. There is a process at Baruch for determining whether a student who identifies as disabled is eligible for reasonable accommodations in order to complete the student's academic program. We strive to ensure that no student with a disability is discriminated against and that none is denied participation in College programs and activities for lack of reasonable accommodations. Some people think that a disability has to be visible to

be accommodated. This is not the case. There are many disabilities – diabetes, psychological illness, learning disabilities, AIDS, seizure disorders, arthritis, etc., – that require accommodations. Examples of possible accommodations include additional testing time; adaptive equipment; and taping of classes. If you feel that you may need a reasonable accommodation based on a disability, please contact the staff at the Office of Disability Services, Newman Vertical Campus, Room 2-271, or by phone at (646) 312-4590.

CAMPUS INTERVENTION TEAM

At Baruch, we acknowledge that as a student, you are balancing many demands. During the semester, if you start to experience personal difficulties or stressors that are interfering with your academic performance or day to day functioning, please consider seeking free and confidential support at the Baruch College Counseling Center. For more information or to make an appointment, please visit their website at https://studentaffairs.baruch.cuny.edu/counseling/ or call 646-312-2155. If it's outside of business hours (Monday-Friday 9-5pm) and you need immediate assistance, please call 1-888-NYC-WELL (888-692-9355). If you are concerned about one of your classmates, please share that concern by filling out a Campus Intervention Team form at https://studentaffairs.baruch.cuny.edu/campus-intervention-team.

DISCLAIMER

If required, the course content and schedule may be changed at the instructor's discretion. Announcements made in class will over-ride any statement made here.

APPENDIX: BBA Learning Goals, Assurance of Learning, and Course Mapping

1. BBA LEARNING GOALS

Analytical Skills	Students will possess the analytical and critical thinking skills to evaluate issues faced in business and professional careers.
Technological Skills	Students will possess the necessary technological skills to analyze problems, develop solutions and convey information.
Communication Skills: Oral	Students will have the necessary oral communication skills to convey ideas and information effectively and persuasively.
Communication Skills: Written	Students will have the necessary written communication skills to convey ideas and information effectively and persuasively.
Civic Awareness and Ethical Decision-Making	Students will have the knowledge base and analytical skill to guide them when faced with ethical dilemmas in business. Students will

	have an awareness of political, civic and public policy issues affecting business.
Global Awareness	Students will know how differences in perspectives and cultures affect business practices around the world.

2. ASSURANCE OF LEARNING

BBA LEARNING GOALS	Significant Part of Course	Moderate Part of Course	Minimal Part of Course	Not Part of Course
Analytical Skills	☒	☐	☐	☐
Technological Skills	☒	☐	☐	☐
Communication Skills: Oral	☐	☒	☐	☐
Communication Skills: Written	☐	☒	☐	☐
Civic Awareness and Ethical Decision-Making	☐	☒	☐	☐
Global Awareness	☐	☐	☒	☐

3. COURSE MAPPING WITH LEARNING GOALS

Course Learning Goal	BBA Learning Goal	Assignment
Discuss key cybersecurity principles, including threat actors, and common attack vectors used against modern organizations.	• Analytical Skills • Technological Skills • Civic Awareness and Ethical Decision-Making	• Midterm Exam
Apply fundamental risk management principles to quantify risk, identify relevant controls, and enact risk mitigation strategies.	• Analytical Skills • Technological Skills • Civic Awareness and Ethical Decision-Making	• Final Exam • Case report

Evaluate enterprise security across network, application, and cloud architectures using established frameworks, such as NIST CSF.	• Analytical Skills • Technological Skills • Communication Skills: Written • Communication Skills: Oral • Civic Awareness and Ethical Decision-Making	• Case report