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

**Paul H. Chook Department of Information Systems and Statistics**

# CIS 3550 Cybersecurity

# Syllabus

Spring 2025

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**Office:** H-123A ■ **Office Hours:** Mo 3:00pm-5:00pm or by appointment

**SECTION:** FTRA (19205), TuTh, 4:10pm-5:25pm, **Online-Synchronous**

## 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 & ZICK/ZKTP [CompSci-BS major & CIS 2300, MTH 3300].

## 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.

**COURSE MATERIAL/READINGS**

**Textbook(s):**

- *None*. Online and primary sources will be used.

**Supplemental material:**

- Required readings will be outlined in the course schedule.
- PowerPoint slides used for the lectures will be made available on Brightspace. However, I will not provide printouts for the class. If you want to have the slides with you during class, print them out beforehand.
- All other course material (including the syllabus, assignments, announcements, etc.) will be posted on Brightspace. You are expected to check the course website at least twice a week.

**COURSE METHODOLOGY AND EVALUATION**

The course is structured around a combination of class lectures, case studies, and individual and group assignments. Students are expected to attend lectures, read the assigned readings in advance, submit the assignments on time, and actively participate in classroom discussion. You will be called upon and asked to participate. Reading the material before you arrive in class is a MUST to do well in this course. Overall class grade will be based on the following weights:

| **Deliverable** | **Weight** |
|---|---|
| Quizzes (10 from 12@2%) * | 20% |
| Midterm Exam * | 30% |
| Final Exam * | 30% |
| Exercises (5@2%) * | 10% |
| Project ** | 10% |
| **TOTAL** | **100%** |

* Individual (90%). ** Group (10%).

**Quizzes:** A quiz will follow each recorded lecture to ensure students understand the material contained in the video. The two lowest scores will be dropped.

**Exercises:** The exercises will provide a practical example of the concepts being discussed, such as information gathering, hiding web-links, assessing cyberattacks, and so on.

**Exams:** There will be one Midterm 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, short answer questions and short essays. The structure and components of the exams will be announced beforehand.
**Project:** The project will be completed in teams of 4 or 6 students. The project will be based on a tabletop exercise that simulates a fictitious organization undergoing a cyberattack. 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 a percentage of work contribution by each team member for all deliverables.

**FINAL LETTER GRADE**

Letter grades are calculated according to the Official Grading System of Baruch College. **NOTE:** The instructor reserves the right to curve the final grades (if required):

| 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 |

**COURSE POLICIES**

- **For assignments submitted by email, the time of submission will be the time of receipt by the instructor, not the time sent.**
- **Grades will be posted on Brightspace and will not be given out via e-mail or by phone.**
- **Check Brightspace 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.**
- **I will not respond to any email or entertain any request for a unilateral "bump" in a person's grade. This is unethical and potentially a criminal offence (e.g., fraud, if scholarship money is involved).**
- Attendance is required. After three absences, there will be a penalty of 5% for each additional missed class. The only proof of attendance will be the sign-in sheet.

- No make-up 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.
- If you wish to dispute a grade, you must provide a case of how the remarks given to justify the grade is in error. Note, 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 miss class, it is your responsibility to find out about any announcements or content you may have missed.

**ACADEMIC INTEGRITY STATEMENT**

Baruch College's policy on Academic Honesty 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

Deliverables that are required to be completed individually should not involve collaboration with other students. Deliverables that are required to be completed in a team should not involve collaboration across teams. 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.

**STUDENTS WITH DISABILITIES**

Students with disabilities may be eligible for reasonable accommodation to enable them to participate fully in courses at Baruch. If you feel you may need accommodation, please contact Student Disability Services, Newman Vertical Campus, 2nd Floor, Room 271, email disability.services@baruch.cuny.edu or by phone at (646) 312-4590.

**DISCLAIMER**

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

**ASSURANCE OF LEARNING**

| BBA Learning Goals | Part of Course … | | | |
|---|---|---|---|---|
| | **Significant** | **Moderate** | **Minimal** | **None** |
| Analytical Skills | ☒ | ☐ | ☐ | ☐ |
| Technological Skills | ☒ | ☐ | ☐ | ☐ |
| Communication Skills: Oral | ☐ | ☒ | ☐ | ☐ |
| Communication Skills: Written | ☐ | ☒ | ☐ | ☐ |
| Civic Awareness and Ethical Decision-Making | ☐ | ☒ | ☐ | ☐ |
| Global Awareness | ☐ | ☐ | ☒ | ☐ |

**COURSE MAPPING**

| Course Learning Goal | BBA Learning Goal | Assignment |
|---|---|---|
| Discuss key cybersecurity principles, including threat actors, and common attack vectors used against modern organizations. | • Analytical Skills<br>• Technological Skills<br>• Civic Awareness and Ethical Decision-Making | • Midterm Exam<br>• Exercises<br>• Quizzes |
| Apply fundamental risk management principles to quantify risk, identify relevant controls, and enact risk mitigation strategies. | • Analytical Skills<br>• Technological Skills<br>• Civic Awareness and Ethical Decision-Making | • Project Report<br>• Final Exam |
| Evaluate enterprise security across network, application, and cloud architectures using established frameworks, such as NIST CSF. | • Analytical Skills<br>• Technological Skills<br>• Comm Skills: Written<br>• Comm Skills: Oral<br>• Civic Awareness and Ethical Decision-Making | • Project Report |

**SCHEDULE (TENTATIVE)**

The following is a tentative schedule of topics and lectures. Changes may occur as the semester progresses and will be announced in class. * Class dates in red do not follow the normal pattern (because of school, national, or religious holiday).

| Class * | | Topics | Notes |
|---|---|---|---|
| **1** | Tu, Jan-28 | Introductions | Susskind (2020); **Self Intro** |
| **2** | Th, Jan-30 | 1: Network Essentials 1 | **Quiz 1** |
| **3** | Tu, Feb-04 | Tutorial 1 | |
| **4** | Th, Feb-06 | 2: Network Essentials 2 | **Quiz 2** |
| **5** | Tu, Feb-11 | Case Study: GRC | **Exercise 1** |
| **6** | Th, Feb-13 | 3: Malware | **Quiz 3** |
| **7** | **Th, Feb-20** | 4: Basic Defenses 1 | **Quiz 4** |
| **8** | Tu, Feb-25 | Tutorial 2 | **Exercise 2** |
| **9** | Th, Feb-27 | 5: Basic Defenses 2 | **Quiz 5** |
| **10** | Tu, Mar-04 | Tutorial 3 | **Exercise 3** |
| **11** | **Tu, Mar-11** | 6: Ad-hoc Network Security | **Quiz 6**; Brumfield (2024) |
| **12** | Th, Mar-13 | 7: Cloud Security | Targett (2024) |
| **13** | Tu, Mar-18 | **Midterm Exam** | |
| **14** | Th, Mar-20 | 8: Encryption | **Quiz 7** |
| **15** | Tu, Mar-25 | Tutorial 4 | **Exercise 4** |
| **16** | Th, Mar-27 | 9: Public Key Infrastructure | **Quiz 8**; Satter & Vicens (2024) |
| Tu, Apr-01 | | **Last day to withdraw from a course with a grade of "W"** | |
| **17** | Tu, Apr-01 | Tutorial 5 | **Exercise 5** |
| **18** | Th, Apr-03 | 10: The NIST Framework | **Quiz 9**; NIST.CSWP.29(2, 3) |
| **19** | Tu, Apr-08 | Case Study: Lazarus Heist | White (2021); da Silva (2024) |
| **20** | Th, Apr-10 | 11: Risk Management | **Quiz 10**; NIST.800-37(2) |
| **21** | **Tu, Apr-22** | 12: Intrusion Detection | **Quiz 11**; NIST.800-94(1, 2) |
| **22** | Th, Apr-24 | 13: Respond & Recover | **Quiz 12**; NIST.800-61(3), -184(2) |
| **23** | Tu, Apr-29 | Case Study: SolarWinds | Howley (2020) |
| **24** | Th, May-01 | **Project:** Day 1 | Spadafora (2023) |
| **25** | Tu, May-06 | **Project:** Day 2 | |
| **26** | Th, May-08 | **Project:** Review | Tidy (2024) |
| **27** | Tu, May-13 | **Project:** Submission | |
| **28** | Th, May-15 | Review | |
| **29** | **TBD** | **Final Exam (May 16-22)** | |

**SUPPORTING MENTAL HEALTH**

If you experience personal difficulties or sources of stress that interfere 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, visit: studentaffairs.baruch.cuny.edu/counseling or call 646-312-2155. Outside of business hours (Monday-Friday, 9am-5pm), please call the 988 national crisis line (samhsa.gov) to connect with trained counselors. If you are concerned about one of your classmates, please share that concern by filling out a Campus Intervention Team form at: studentaffairs.baruch.cuny.edu/campus-intervention-team. **Help is always available**.