



Cyber Security and Risk Management

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Term: Fall 2023

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Office Hours: Meetings available upon request

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## Course Description

Information Security is a topic that impacts every one of us in our everyday lives. This course will cover the fundamentals of Information Security and Risk Management and will shift the lens of Information Security as a “technology issue” to understand cyber risk as business risk.

In this course, you will learn common frameworks and best practices for information security, and how they apply the development of an effective risk management strategy. Students will consider information security in the context of data security with *a focus on maintaining the confidentiality, integrity, and availability of information*.

### *Course Learning Objectives:*

Upon successful completion of this course students should be able to:

1. Understand the importance of cybersecurity in the context of business and the geopolitical landscape
2. Understand best practices, frameworks, and methodologies for evaluating cyber risk
3. Identify strategies to monitor, measure and report the effectiveness of cybersecurity programs to executive leaders
4. Understand the importance of data and the importance of data protection
5. Understand the applicability of data analytics to cyber security, beyond metrics and reporting

### Course Materials:

*Effective Cybersecurity: A Guide to Using Best Practices and Standards*, Publisher - Pearson (2019)

*Cybersecurity: The Insights You Need from Harvard Business Review*

Case Study for Purchase: Alexa + Privacy dilemma <https://store.hbr.org/product/alex-a-pandora-s-box-of-risks/KE1143>

Narrated lectures, readings, and other posted material is available on the class Canvas site. This course will use various periodicals and websites (Wall Street Journal, Financial Times, etc.) as a supplement.

## How to succeed in this course

- Read all text material assigned for each class
- Actively participate in class discussions
- Follow instructions in all assignments

## COMMUNICATION

### Rutgers email - USE YOUR RUTGERS EMAIL ADDRESS

All communications to students will be done using the Rutgers email address provided to you. Please forward your Rutgers email to your personal email if necessary.

Not checking your Rutgers email is not an excuse for missing any communications.

### Canvas

Posted will be the syllabus, resources (articles and examples), announcements, guides, etc. To access this system, go to <http://canvas.rutgers.edu> log in, and click on the course in the dashboard.

### Professor Communication:

Note that during the week, from Monday until Friday, I will try reply to all e-mails within 48 hours. Please do not expect immediate response. If you do not hear from me within 72 hours, please re-send your email as I may have overlooked or accidentally deleted your e-mail.

Although, I check my e-mails a few times daily, I may not be able to completely answer all e-mails immediately upon receiving them. Note that I may also be travelling out of town on many weekends and may not be able respond to weekend e-mails until Monday.

## Course Requirements

### Class Participation (20%):

The course will be delivered using a combination of lectures, case studies, videos, and in-depth conversation. Students are expected to prepare for class discussions as indicated in the course schedule, complete the required readings, attend class, and come prepared to contribute to class discussions. Participation includes questions during the lecture portion of class, but more importantly contributions to a lively discussion. Consistent with other courses at the university, this course will assess contributions to the class discussion and consider the following:

- do your comments provide new insights?
- do the comments add to our understanding of the issues
- are the comments timely and linked to the comments of others?
- do the comments move the discussion along by giving a new perspective?
- are the comments clear and concise?
- do the comments reflect a concern for maintaining a constructive and comfortable classroom atmosphere?

Cyber security incidents occur in the news multiple times per day. Students are encouraged to monitor news outlets, tech blogs, and websites and bring the latest news to class.

Finally, there may be guest speakers during the course (virtual or in-person). Class participation includes interactions with guest speakers, including preparation of thought-provoking questions.

### Homework Assignments (15%):

Review Questions (10%) – Many of the course modules will have accompanying review questions as

outlined in the course schedule. Students are expected to complete the review questions individually and submit responses in Canvas.

*Papers (5%)* – In addition to review questions, there will be written papers required of students as outlined in the course schedule. The paper(s) must follow the guidelines as outlined in the assignment instructions in the Canvas course module. Generally, papers should be approximately 3-5 pages in length. While this is not an English class or business communications class, it is expected that students present their ideas in a clear, concise, and grammatically correct fashion. The papers in this course are designed to provide students with an opportunity to combine objective knowledge of contemporary topics with their opinions and perspectives – the more personal the submissions the better.

*Case Studies (15%)*: There will be 2 – 3 case studies assigned during the course. Case studies will be assigned to groups of 3 – 5 students. Each team is required to complete the case as outlined in the case instructions posted and discussed during the lesson related to the case study topic. Case studies will have a written component, as well as a presentation component. Case studies must be submitted electronically through Canvas and are due by 11:59pm on the Friday before the class presentation. One member from each team may submit the case. All team members must be listed in the document. *Late submissions will not be accepted without prior pre-approval from the professor.*

#### Exams (50%):

Two exams are planned for this course. All students will take the interim and final exam during the designated time. Make-up exams are not offered. Please take this exam schedule into consideration when you make your travel arrangements. All exams will be given in the regular classroom unless otherwise posted. If an exam is missed due to a qualified emergency / university approved reason, contact me to determine alternative arrangements.

## GRADING

*Students will be assigned a final grade based on the weighted scored computed using the components indicated below. The final grade will be based very approximately on a normal distribution.*

<i>Class Participation</i>	<i>20%</i>
<i>Homework Assignments</i>	<i>15%</i>
<i>Case Studies</i>	<i>15%</i>
<i>Exam 1</i>	<i>25%</i>
<i>Exam 2</i>	<i>25%</i>

### Grade Ranges

#### Letter Grade Description

A	Highest grade (90% and above)
B+	Work of distinction (87% to 90%)
B	Work of distinction (80% to 87%)
C+	Average work (77% to 80%)
C	Average work (70% to 77%)
D	Passing, but unsatisfactory (60% to 70%)
F	Failure without credit (Below 60%)

## POLICY STATEMENTS

### Disability Services/Accommodations

The University is committed to supporting the learning of all students and faculty will provide accommodations as indicated in a Letter of Accommodation issued by the Office of Disability

Services (ODS). If you have already registered with ODS and have your letter of accommodations, please share this with me early in the course. If you have or think you have a disability (learning, sensory, physical, chronic health, mental health or attentional), please contact <https://success.camden.rutgers.edu/disability-services>.

Accommodations will be provided only for students with a letter of accommodation from ODS. Their services are free and confidential. Letters only provide information about the accommodation, not about the disability or diagnosis.

### **Academic Integrity**

The Academic Integrity policy can be found at <https://studentconduct.rutgers.edu/processes/university-code-student-conduct>  
<http://studentconduct.rutgers.edu/student-conduct-processes/academic-integrity/>

***Students are responsible for understanding the principles of academic integrity and abiding by them in all aspects of their work at the University.*** Students are also encouraged to help educate fellow students about academic integrity and to bring all alleged violations of academic integrity they encounter to the attention of the appropriate authorities.

Academic Integrity means that you (the student) must:

- properly acknowledge and cite all use of the ideas, results, or words of others,
- properly acknowledge all contributors to a given piece of work,
- make sure that all work submitted as your own in a course activity is your own and not from someone else
- obtain all data or results by ethical means and report them accurately
- treat all other students fairly with no encouragement of academic dishonesty

Adherence to these principles is necessary in order to ensure that:

- everyone is given proper credit for his or her ideas, words, results, and other scholarly accomplishments
- all student work is fairly evaluated and no student has an inappropriate advantage over others
- the academic and ethical development of all students is fostered
- the reputation of the University for integrity is maintained and enhanced.

Failure to uphold these principles of academic integrity threatens both the reputation of the University and the value of the degrees awarded to its students. Every member of the University community therefore bears a responsibility for ensuring that the highest standards of academic integrity are upheld. Violations are taken seriously and will be handled according to University policy.

### **Code of Student Conduct**

Rutgers University-Camden seeks a community that is free from violence, threats, and intimidation; is respectful of the rights, opportunities, and welfare of students, faculty, staff, and guests of the University; and does not threaten the physical or mental health or safety of members of the University community, including in classroom space.

As a student at the University, you are expected adhere to the Code of Student Conduct.

To review the code, go to the Office of Community Standards:

<https://deanofstudents.camden.rutgers.edu/student-conduct>

Note that the conduct code specifically addresses disruptive classroom conduct, which means *"engaging in behavior that substantially or repeatedly interrupts either the instructor's ability to teach or student learning. The classroom extends to any setting where a student is engaged in work toward academic credit or satisfaction of program-based requirements or related activities."*

### **CLASSROOM POLICIES**

#### **Exam Make-up Policy/Late Policy**

If, for a university approved reason, you cannot take an exam at the scheduled time you must give the professor written notice at least one week in advance so that other arrangements can be made. If the situation does not allow for advance notification (for example, emergency hospitalization), contact the professor as soon as possible after a missed exam. Make-up exams for non-university approved reasons are not guaranteed. The professor reserves the right to

request written documentation to support your absence (such as a doctor's note, an obituary, or military orders).

### **Artificial Intelligence Use**

The use of generative AI tools (such as ChatGPT, DALL-E, etc.) are not permitted in this

class; therefore, any use of AI tools for work in this class may be considered a violation of Rutgers University's Academic Honesty policy and Student Conduct Code, since the work is not your own. When in doubt about permitted usage, please ask for clarification.

### COURSE OUTLINE AND SCHEDULE

Date	Week	Topic	Lesson Overview / Key Points	Assigned Reading
9/6/2023	Week 1	Course Introduction: Cyber Risk is Business Risk	<ul style="list-style-type: none"> <li>- Course Expectations and Syllabus Review</li> <li>- Class Introductions</li> <li>- Overview of Cybersecurity</li> <li>- Recent events and the importance of cybersecurity</li> </ul>	<p>Course Syllabus</p> <p>Week 1 - Cybersecurity Is Not (Just) a Tech Problem</p> <p>Week 1 - The Cybersecurity Risks of an Escalating Russia-Ukraine Conflict</p> <p>Week 1 - DI_Defending</p>
9/13/2023	Week 2	Understanding and Differentiating Security Frameworks	<ul style="list-style-type: none"> <li>- Discuss the need for standards and best practices in Information Security</li> <li>- Discuss the role of the NIST CSF and differences from other frameworks</li> <li>- Discuss the CIS Critical Security controls and practical applications</li> <li>- Explain the concept of security governance and provide an overview of governance components</li> <li>- Discuss key topics that should be covered in a strategic security plan</li> </ul>	<p><i>"Effective Cybersecurity"</i> - Chapters 1 &amp; 2</p> <p>"We're All in this Now" HBR prologue (page xi)</p>
9/20/2023	Week 3	Risk Management: Methodologies, Assessments, and Risk Quantification	<ul style="list-style-type: none"> <li>- Discuss risk management methodologies</li> <li>- Understand the difference between Inherent Risk and Residual risk</li> <li>- Identify practical applications of risk management frameworks</li> <li>- Discuss risk quantification and the applicability to executives and business users</li> </ul>	<p><i>"Effective Cybersecurity"</i> - Chapter 3</p> <p>"Why the Entire C-Suite Needs to Use the Same Metrics for Cyber Risk" HBR article 5 (page 59)</p>
9/27/2023	Week 4	Managing Information Security and Human Risk	<ul style="list-style-type: none"> <li>- Introduce October as Information Security Awareness Month and review CISA national campaign</li> <li>- Discuss the behavioral components of information security</li> <li>- Describe the need for a culture of information security</li> </ul>	<p><i>"Effective Cybersecurity"</i> - Chapter 5</p> <p>Week 4 - Cyber-cyber -everywhere</p> <p>"The Best Cybersecurity Investment You Can Make Is Better Training" HBR article 6 (page 67)</p> <p>"The Key to Better Cybersecurity: Keep Employee Rules Simple" HBR article 8 (page 85)</p>
10/4/2023	Week 5	Physical Security and Physical Asset Management*  *Remote Lesson - Lecture to be posted on Canvas	<ul style="list-style-type: none"> <li>- Understand the risks and vulnerabilities related to physical assets</li> <li>- Understand the difference between Information Technology (IT) systems and Operational Technology (OT) / Industrial Controls Systems (ICS)</li> <li>- Discuss physical security and</li> </ul>	<p><i>"Effective Cybersecurity"</i> - Chapter 16</p> <p><i>"Effective Cybersecurity"</i> - Chapter 7</p> <p>Week 5 - Cybersecurity and Physical Security Convergence_508_01.05.2021_0</p>

			environmental protections for physical devices in the context of data protection	
10/11/2023	Week 6	Virtual / Remote Class: The Perfect Weapon **  ** No Class: Students will watch documentary and complete an assignment	- Class will be delivered virtually this week - Each student will be required to view either "The Perfect Weapon" or "Zero Days" and prepare a 3-page response paper (instructions provided in Canvas) - Class discussion the following week will be on the importance of Cyber Security in business and geopolitical relations	<a href="https://watchdocumentaries.com/zero-days/">https://watchdocumentaries.com/zero-days/</a>
10/18/2023	Week 7	Logging, Monitoring, and Behavioral Analysis	- Understand the importance of event logging and monitoring - Understand how logging and monitoring data can be mined to determine behavioral analyses, anomalies, and identify insider threats - Understand the difference between a security event and security incident - Understand the nature and value of threat intelligence data	"Effective Cybersecurity" - Chapter 15
10/25/2023	Week 8	Case Study Presentations: Security Awareness	- Class will commence with presentations of case study / group assignment - Second half of class will be discussion and overview for Mid-Term Prep	<b>Case Study 1 Submission Due 11:59pm Friday 10/20</b>
11/1/2023	Week 9	<b>Mid-Term Exam (Live)</b>		
11/8/2023	Week 10	Supply Chain Risk and Third-Party Risk Management	- Discuss supply chain risk and third-party risk management - Discuss the interconnectedness and dependencies organizations have on key suppliers - Learn repeatable and practical framework for evaluation of third parties/supply chain vendors	"Effective Cybersecurity" - Chapter 13  Week 10 - <i>pwc-mapping-and-managing-third-party-cyber-risks</i>
11/15/2023	Week 11	Privacy and Implications, Information Management, and Data Protection - Part 1	- Discuss data privacy and responsibilities of data collectors (response to documentary) - Discuss the data governance lifecycle - Understand data classification,	"Effective Cybersecurity" - Chapter 6 <b>Case Study 2 Submission Due 11:59pm Monday 11/27</b>

			labeling, and handling	
11/22/2023	Week 12	Virtual / Remote Class: Terms and Conditions Apply**  ** No Class: Students will watch documentary and complete an assignment	- Class will be delivered virtually this week - Each student will be required to view either The Great Hack or Terms and Conditions Apply - Students will submit 1 topic each for class discussion, as well as complete the privacy case study in advance of the next lesson.	<a href="https://watchdocumentaries.com/terms-and-conditions-may-apply/">https://watchdocumentaries.com/terms-and-conditions-may-apply/</a>
11/29/2023	Week 13	Privacy and Implications, Information Management, and Data Protection - Part 2	- Discuss case study results (Amazon Alexa) - Discuss implications of data privacy in an analytics profession. - Discuss the data governance lifecycle	<i>"Cybersecurity is Putting Customer Trust at the Center of Competition"</i> HBR article 11 (page 117)  <i>"Privacy and Cybersecurity are Converging"</i> HBR article 12 (page 125)
12/6/2023	Week 14	Business Continuity and Resilience	- Provide an overview of business continuity and business impact analysis - Understand the key elements of business continuity programs - Discuss business continuity operations and responding to events	<i>"Effective Cybersecurity"</i> - Chapter 17
12/13/2023	Week 15	Monitoring, Measurement, KPIs, and Reporting Careers in Information Security Course Concepts Review	- Understand key risk indicators and key performance indicators that support effective information security programs - Discuss the perspective and responsibilities of the Board of Directors with regards to oversight of information security - Discuss careers in information security and potential career paths - Provide a course overview and recap of key concepts in preparation for the final exam.	<i>"Effective Cybersecurity"</i> - Chapter 18  <i>"Why Boards Aren't Dealing with Cyberthreats"</i> HBR article 3 (page 39) Week 15 - A new chapter in cyber  <a href="https://www.cyberseek.org/">https://www.cyberseek.org/</a>
12/15- 20	Week 16	<b>FINAL EXAM (Remote)</b>		