Reflection Essay

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Abstract

This paper will take a dive, into my academic journey throughout being at Old Dominion University, and how core classes that I have taken, have helped in shaping my skills and learning within my discipline of cybersecurity. This will further be displayed through various key artifacts that have helped to cover core concepts and principles, and the impact they have had on my learning and career readiness.

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Introduction

Throughout my time being at Old Dominion University, there have been many courses that I have taken that have had an everlasting impact on me and have covered many core concepts in my cybersecurity curriculum. Which includes a variety of different discipline fields, that have not only had an impact on my continuous innovation, but also developing me as an individual within the cyber realm. This is further covered through numerous artifacts, that have also inquired major growth on my career, not only building up on my soft skills, but also developing my hard skills, which can ultimately be used towards correlating real-world experience within my profession. This essay will look to further explore the importance of these key artifacts and the skillset that I have gained from them, that have helped to further develop my critical thinking skills, technical abilities, and communication skills, through a interdisciplinary lens.

Critical Thinking from a Interdisciplinary perspective

When it comes to the field of cybersecurity, my first thoughts when entering the field, was that it was only technical focused, and did not overlap with other disciplines. However, I was wrong about this assumption, and my IDS 300W course helped to me to think on a larger scale when it came to understanding the cyber realm. Furthermore, interdisciplinary perspectives, help to bridge the gap between technical and policy approaches (Ho,et al, 2023) . IDS 300W was a interdisciplinary course that aided in this matter, this course allowed me the opportunity, to understand that the field of cybersecurity is very vast and includes many different disciplines including, psychology, economics, law, computer science, engineering, and much more.

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These disciplines play a crucial role in the continuous of day to day cyber operations and are very important in addressing cyber issues, since the field can be seen from many different angles. IDS 300W was also a course that had me complete many different workshops, that where leading up to my final paper, which had to be viewed from a interdisciplinary lens. These workshops worked to integrate the understanding of different disciplines, and how they can relate to my topic of study for my final paper. One of my favorite workshops was my fifth workshop, this workshop allowed me the opportunity, to be able to incorporate insights from over three different disciplines and locate adequacy in which authors agreed upon from scholarly text. These insights allowed me to incorporate their importance to the cyber realm, and further enhanced me with tools on how to structure my paper from a interdisciplinary lens. Throughout my research workshop 5 allowed me to think more critically on the importance that different disciplines provide within the field of cybersecurity, and how they can have a negative effect on the field of cybersecurity, if not taken into consideration.

These workshops helped to guide me to writing my final paper, about if AI was sophisticated enough to take over the field of cybersecurity (https://sites.wp.odu.edu/ismael200t/research/) . Throughout Writing my paper, I included insights from the disciplines of Psychology, Sociology, economics, and computer science, to further understand how these fields have perceived the role of AI in the field of cybersecurity. These disciplines helped me come to the conclusion, from multiple Scholarly articles, that while AI does help to mitigate a lot of cyber related attacks, it however can not replace humans completely, due to the field constantly evolving with complex new trends.

Furthermore, human decision makers, make decisions of complex matters, through years of tactical experience, and personal judgment, in which AI cannot do (Jarrahi, 2018).

Social Science perspective in cybersecurity

Another course, that has aided me into thinking from a interdisciplinary perspective would have to be my cybersecurity 201 course. this was a interdisciplinary course that focused on the field of cybersecurity from a social science lens. During this course, I was able to learn many different social science principles, and how they relate to different job roles within the field of cybersecurity. I was able to benefit from this course, since I ended up writing a report about the career path, I wanted to choose within the cybersecurity field and how it relies on daily social science principles, to continue operations, in an ever changing landscape. Within this career path report, I was able to understand more deeply essential principles of social science and how they related to a cybersecurity analyst role (https://sites.wp.odu.edu/ismael200t/cyse-201s/) .

This includes social science principles such as determinism to further understand, what can be the possible motives, behind a hacker cyber behavior within the digital landscape. Which I think, is very essential to understand within a cybersecurity role, since it can benefit me to better plan out risk assessments for the organization, I work for upon graduation. This career report also displayed much difficulty as well, since there was not much essential knowledge, I was able to relate when it came social science principles at first to the job role. However, the way in which I was able to resolve this issue, was by listing class material that had social science terminology and went in depth about how they can be related to different cybersecurity skills. I feel that having a setback during this

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assignment, helped me to learn a valuable lesson, of understand that the concepts that I will work with within my cyber role, will not always relate, which is why it is crucial for me to relate these key concepts from other discipline perspectives.

These courses overall have helped me to further understand the importance in Interdisciplinary perspectives, can have in solving complex issues within the field of cybersecurity, and how they can create innovate solutions. What I also learned overall from these courses, is that complex issues, must be perceived from many different narratives. Which is very important for me in the field of cybersecurity, due to the constant adapting of cyber strategies, and the advancement of technology. I also was able to learn the fundamentals of design thinking on a global scale, which is essential for career readiness.

Enhancing technical skills in Cybersecurity

When it comes to enhancing my proficiency in my technical skills, within the cyber realm, there have been many courses that have helped me progress, but very few left a deeper impact through various artifacts.

The Importance of Programming

The first course, I look to highlight on, would be my CYSE 250 class. This was my first programming class, and was one, that I was very nervous about succeeding in. Due to the overload of different concepts one must understand, before communicating with the computer language. This includes concepts that I must have general knowledge about such as, applying if else conditions, applying list and dictionaries, applying function arguments, and even knowing socket programming. These task where very complex and took a lot of adaptability to be able to sink in the important criteria. When I first started this course,

there was a lot of trouble I had when it came to keeping on pace with weekly assignments.

However, when I decided to apply more time outside of class to the course, I had started to

progress and really enjoyed the course overall. The assignment that really helped me to

excel within my programming capabilities, would be my CYSE250

project(https://sites.wp.odu.edu/ismael200t/cyse-250/) . This project allowed me to

make a python program that could be used as a guessing game between the client and

server communicating. This project was one that I never anticipated could be reached from

a programming language, since I had a deep passion for video games. However, this

assignment allowed me to critically think on criteria of setting up the game and enhanced

my creativity on using my programming capabilities. Which will further be progressed as I

continue to develop my programmable skills, for future cyber operations within the

workforce. I was also able to adapt to having many coding projects, aligned on one another,

due to the gaming project sparking my coding capabilities.

The Importance of Linux

The most crucial technical skill, that is needed within the cybersecurity curriculum

is an understanding of Linux fundamentals, which is what my CYSE 270 course was all

about. This course had a various amount of hands-on assignments, that I really benefited

from, such as advance network configuration, file permissions, process controls, and even

password cracking. However, the assignment that stood about to me above the others,

would be my shell scripting using different text editors assignment

(https://sites.wp.odu.edu/ismael200t/cyse-270/). This assignment allowed me to

understand the importance of confidentially within using various technologies and allowed

me to execute a variety of task to ensure that these automations where safeguarded.

Furthermore, enhancing me to use various security measures, to make certain attackers,

could not obtain access to my sensitive information. I really enjoyed this assignment, since

it allowed me, to change the ways I approached defensive cybersecurity, overall, as an

upcoming cybersecurity professional. Which is crucial since the field of cybersecurity,

continuously changed.

The importance of ethical hacking

When it came to my understanding of cyber defense measures, I was sufficient

overall through many different courses, teaching me various principles. However, I wanted

to see the other side of cybersecurity which was known as offensive security. This is when I

decided to take ethical hacking. This was a cybersecurity course, that was focused on

various mechanism of offensive cybersecurity, such as packet tracing, ethical hacking,

password cracking, and steganography that where all hands-on assignments. The most

real-world hands-on assignment, however that I have dealt with within my course, would

be my Sword against shield assignment (https://sites.wp.odu.edu/ismael200t/cyse-301/) .

This assignment gave me the opportunity, to conduct a offensive cyber-attack, on a

defensive environment I built, with the ultimate goal of finding vulnerabilities and

weaknesses within the system. I was able to learn various characteristics about the

defensive measures that where in place, and the various offensive operations that threat

actors, could use to exploit various systems I work with. This experience helped, me to

conduct both aspects of cyber operations, and strengthened my ability to think like a

hacker. What I also found valuable about this very assignment, is that it did not only

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improve my technical abilities, but it also highlighted the importance of continuing to

research within the field and seeing new trends, which overall will advance my career

readinesss.

Communication skills in Cybersecurity

While the field of cybersecurity is seen as only a technical field, it does however

require a need for communication to succeed in all roles. Communication is essential since

it gives cybersecurity professional the clear guidelines and procedures to be met through

various cybersecurity practices. Which is why, I have strengthened my skills in many

courses, through distinctive writings, when it comes to communicating to a non-technical

audience about cybersecurity related matter. Communication is also very crucial, since it

ensures and enforces policy's, regulations, incident response measures, and collaboration

across different business sectors. This was further highlighted with my policy paper on the

political implications of the General data protection regulation, within the European Union

(EU)(https://sites.wp.odu.edu/ismael200t/cyse-525/) . This paper allowed me to see the

importance of laws and regulations that govern the European Union, and how they can

affect society's view. The most difficult task during the research phase of this paper, would

be being able to see social implications of GDPR, from a interdisciplinary perspective,

which is crucial to regulations like the GDPR. However, the way I was able to solve this

issue, was by integrating different discipline perspectives on the privacy laws that where

incorporated within GDPR. This helped me, to further elaborate cybersecurity topics and

concepts, to a broader lens, which is essential for a cybersecurity professional.

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Another crucial artifact, that I look to highlight on would be through my windows system management course, in which I created a project paper named, A guide to limiting windows server vulnerabilities. This project allowed me to understand the key technical concepts, that attributed within windows server, such as vulnerabilities and mitigation techniques that were used to safeguard against certain attack vectors on Windows server. Which is crucial, since it allows me to better understand how vulnerabilities occur through windows server environments, and how I can better protect myself in these environments. This project allowed me to further enhance my communication skills, through technical material, and I further related it back to non-technical individuals. This project further enhanced my skill in communication and allowed me to distinguish my solutions to complex matters of windows server.

The importance of cyber laws and regulations

The last course I look to reflect upon that further highlights my communication skills, through various artifacts would be in my cyber law course. This course allowed me the opportunity to be able to see cybersecurity from a law perspective, and further highlighted its importance in the digital landscape (https://sites.wp.odu.edu/ismael200t/cyse-406/) . The assignment that further enhanced my skillset would be my memorandum paper. This was a paper I wrote, that further evaluated the importance of digital security for a nation state, that had data protection issues, and privacy issues for their country against various organizations. This paper allowed me to create a strategic plan to protect the citizens of a state, personal information, and their biometric data. Throughout the development of this artifact, it was very

challenging to understand what current data regulation, would serve best to protect the citizens of the nation personal information. However, I further learned through various data protection regulations, that the GDPR has strict measures in place, to further protect individual's data (Tobin, 2024). Which led me to conclude, that the implementation of the GDPR would best serve the nation state.

Conclusion

In conclusion, throughout my time being at Old Dominion University, it is crucial to display that the variety of my interdisciplinary coursework has been able to further shape me into a upcoming cybersecurity professional. Throughout various courses such as social science, ethical hacking, programming, and even interdisciplinary theory's and Concepts. These courses have allowed me to strengthen my skillset in, critical thinking, technical abilities, and even communication through various artifacts. Which allows me the opportunity to further apply these skillsets to a professional workspace, where I will progress rapidly. These skillsets are also important, due to the cybersecurity field continuing to progress, and professional continually needing to adapt from a interdisciplinary lens. these skillsets will better prepare me for overall career readiness, and ensure that I continue to progress within the cyber realm.

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