**Reflection Essay**

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## Introduction

Throughout my journey at Old Dominion University as a cybersecurity major, I have learned to better myself through developing and strengthening skills that provide more appeal to my future cybersecurity career. Before I started my journey, I hardly knew anything about cybersecurity. However, I always had a keen interest and the ambition to strive towards my interest. Technical skills, communication, and critical thinking were the crucial skills I learned in my degree program that stand out as the most meaningful for my future. The interdisciplinary courses I took were a key factor in achieving these skills and what was necessary, as they taught me valuable knowledge through artifacts that represent my development. These courses, skills, and academic experiences during my journey are an important part of shaping my cybersecurity career and ensuring that I am ready for the work-field ahead of me. In this paper, I will highlight the artifacts that contributed to the development of both my skills and personal growth. I will also explain how my academic experiences have demonstrated my career readiness.

## Technical Skills

Technical skills were a skill I had very little experience with prior to my time at ODU. The intricacies involved with technical skills such as coding and networking made me realize the potential that I could possess to enhance my future cybersecurity career. Considering how it is a core part of working in the cybersecurity field, it was necessary to take the interdisciplinary courses to learn this difficult but rewarding skill. The technical skill serves as a crucial part of the cybersecurity sector as all job ads will require a specified knowledge of coding, meaning that it is a must-have for my career. The three artifacts associated with this skill are my best pieces of work that showcase my development of the skill and myself as a whole.

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## The First Artifact: CYSE 250 Milestone Project

The first artifact, the CYSE 250 Milestone project, was a testament to the technical skill because it proved my independence and knowledge I have accumulated thus far regarding coding. The assignment involved creating a coding program via the Python language while also having it pertain to the concept of socket programming. It was a matter of trial and error, but it was enjoyable because I could express creativity. I have had other courses that helped me understand at least the basics of coding, but ones like CYSE 270 stood out because it set the foundation for how I learned it. The principles of coding from that course helped set part of the fundamentals of completing the assignment. This artifact helped me learn how essential coding can be as the means of the communication discipline, as socket programming is used as a way to initiate this between two devices. Also, I learned just how expansive my coding can be as I am able to develop whatever I want if I put my mind to it.

## The Second Artifact: CYSE 301 Assignment #2 – Traffic Tracing and Sniffing

The second artifact, CYSE 301 Traffic Tracing and Sniffing assignment, taught me the values of networking involved with cybersecurity, as I learned how hackers are able to intercept sensitive traffic information on a network via Wireshark's packet sniffing methods. This can prove to be useful for defense as it can also be used to find vulnerabilities within a company's network traffic. The problems that did rise during the assignment were usually solved like the others through watching the topic video for guidance and referring back to module material. Unlike the last assignment, I did not rely on any previous course or theories for help because this was the first course I took that taught networking.

## The Third Artifact: CYSE 301 Assignment #3 – Sword vs. Shield

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The Sword vs. Shield assignment was on the same course and very similar to the previous artifact but rather play the perspective of an attacker and defender. As the attacker, I performed network scans via Nmap as a means of gathering information first about the system, and then Wireshark could observe the patterns of the target system's traffic. Meanwhile, I utilized firewall rules to obstruct these tactics by blocking specific traffic. I followed the same guidance as the previous artifact through course materials and video. I did use that artifact as a means of help towards completing the assignment since it was also about networking and it showed traffic filtering on Wireshark as well. Both artifacts rely on communication to perform the technical skill, as employees in the workplace have to communicate suspicious traffic activity and firewall implementations to maximize security.

## Communication

The second skill, communication, is another core part of the cybersecurity foundation. Employees rely on communication between each other to perform optimized procedures towards security. Especially in times such as a cyberattack, many companies would not be as effective in security without communication between each other. I want to prove myself to be a valuable asset in the workplace by keeping our team at an effective level of security through this skill. The skill is heavily influenced by IDS 300W, the course where I was able to find the importance of communication in interdisciplinary work. These next three artifacts supporting communication helps support my hard work towards improving it as many job ads carry the responsibility of communication among the team.

## The First Artifact: IT 201 Critical Thinking Assignment

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In this course, The Critical Thinking Assignment consisted of how I would handle a tech company from an entrepreneurial perspective. Starting with how I would develop a product and the financial aspects to being able to make the devices secure from malicious threats, it captures a what-if scenario of my duties as an entrepreneur and taught me the business life. Communication would be a vital part of this because I would rely on communicating with the team of what further security improvements and innovation we could make for our product. This artifact was created and heavily influenced by IDS 300W, helping me be able to establish interdisciplinary concepts in this paper.

**The Second Artifact: CYSE 425W Midterm Assignment & Third Artifact: CYSE 201S Career Paper**

As the CTO or security analyst in an organization, security is the embodiment of your position as you work to find the upmost optimizations to protect infrastructure. In these artifacts, I respectively talk about the importance of using the National Cybersecurity Strategy of March 2023 security framework as a CTO and the contributions of a security analyst. I learned that leadership and more importantly, communication, is what sets the foundation for how a lot of the security procedures are conducted in the workplace. A lot of procedures are based on discussions and best course of actions for the sake of security, which is why I would choose utilizing the NCS if I was a CTO or security analyst. I was able to figure out the processes of both a CTO and security analyst through understanding how social science can be integrated into both roles, such as through communication and planning. The social science concept and discipline, which was a major part of my learning in previous courses, helped me further elaborate on how communication is a major skill to have in these particular artifacts.

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The last skill, critical thinking, is another fundamental skill to have in the cybersecurity industry. Cybersecurity requires critical thinking in spontaneous and stressful moments where security could be on the line, which is why it is important to have the critical thinking skill when cybersecurity is your discipline. This is the third and final skill that represents my strongest skills shaped by my academic experiences at ODU. In job ads, a lot of the description can be translated to having critical thinking in order to achieve what it asks, which is why this skill is necessary to possess for my career goals.

## The First Artifact: CRJS 310 White Paper Writing Assignment

A lot of courses that I explored in cybersecurity helped teach about security implementations and defense strategies that companies can enforce. This artifact was a paper I made that explored the dangers of data breaches, detailing the statistics of security incidents and the industries affected. It tells about how vulnerable companies can be against data breaches and that sensitive information, being a high-value target, affects customers. Data breaches can be thwarted as soon as possible, and maybe even prevented, through communication. The other courses that I have taken helped me complete the assignment through understanding strategies and how potentially vulnerable they may be as well.

## The Second Artifact: CYSE 280 Research Paper Submission & Third Artifact: CYSE 300 Short Research Paper #2

The courses Windows System Management and Security and Introduction to Cybersecurity taught me the security concepts and tools that cybersecurity experts use. Both of the artifacts are research papers but convey strong meanings about their general purpose. The CYSE 280 artifact was my paper about the dangers of ransomware and associated statistics,

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while my CYSE 300 artifact was about how I could best formulate security policies. A lot of these security concepts and tools cannot be implemented without efficacy if there is a lack of communication, which is why this skill is important in the workplace and how I used it to convey the dangers of ransomware and could use it to teach cybersecurity awareness training to employees.

**Conclusion**

In conclusion, my experiences ranging from honing my skills, the fundamental concepts of each cybersecurity course, and the cybersecurity program as a whole at ODU helped me develop and prepare myself for the cybersecurity career ahead of me. The interdisciplinary concepts I learned from previous courses such as the vital use of communication and technical skills such as coding helped me understand just how important it is in cybersecurity. It was also important to use these concepts towards my assignments because without them, it would feel that there is no direction. When I worked on assignments, I placed myself into the perspective of the role being mentioned as a means of better understanding what goes into the culture of the cybersecurity industry. Courses like IDS 300W taught the fundamentals of cybersecurity to better prepare myself. It is what sets everything in motion, from learning the core skills to becoming a cybersecurity analyst to being an interdisciplinary thinker where I can learn to apply skills from different disciplines, like the ones I possess, and apply them to provide meaningful solutions to cybersecurity challenges. As a result of my journey, all of these artifacts I have collaged hold a special meaning to me, as they all summarize the growth I have placed myself in for the past four years.