# Cybersecurity: Skills for TCID Students to Learn

## Intro

As the technical communication field grows, more industries are seeing the value of what a skilled technical communicator can offer their company. Perhaps none more so than cybersecurity. With vast amounts of data to collect, documentation to edit, and lines of communication to update, technical communicators can play a vital role. This report will show the technical communication jobs in the cybersecurity field, the basic skills and competencies needed for these positions, and an overview of classes offered in the UCCS computer science program that teach these skills.

## Cybersecurity Technical Writers

Most job listings looking for a technical communicator will typically title the position as *Technical Writer.* Some might use a slightly different title, such as *Documentation Writer* or *Publication Writer/Editor*, but these jobs are usually calling for the same skills as most technical writing jobs. In this section, we will discuss the responsibilities of technical communicators in this field, as well as their typical salary ranges.

### Usual Duties

While different companies might prioritize different parts of the job depending on their current goals or situation, the duties and skills needed for a cybersecurity technical communicator are usually similar. Those in these positions are responsible for maintaining efficient and understandable communication throughout the company. Most cybersecurity technical writers are expected to do tasks such as (Jones 2022):

- Writing and editing various documentation, manuals, and reports
- Planning of communications strategies
- Data collection
- Keeping information and documentation up to date
- Audit preparation

### Average Salaries

The salary of a cybersecurity technical writer can vary widely depending on the company and location. In the United States, the annual salary for this position ranges from $58k to $141k, with the national average at about $97k. This is roughly equivalent to roughly $47 an hour. In Colorado, the average salary is only 6% below the national average, at around $91k per year (ZipRecruiter, n.d.).

## Core Skills and Competencies

While cybersecurity does need technical communicators, there are many in the work force who are looking to fill these roles. To stand out amongst the crowd, students should consider investing time in gaining skills and competencies related to the field. Programming, computer systems, data collection, and an understanding of core cybersecurity concepts are all skills that will catch the eye of anyone looking to hire for cybersecurity.

## Basic Programming

Almost all jobs for technical communicators within the cybersecurity field, and most of the tech industry, recommend understanding core programming concepts. While working with many programmers, it's helpful to know how they perform their day-to-day tasks. Many programming languages used by cybersecurity companies are also offered as classes at UCCS, including:

- Python
- Java
- C++
- C
- C#

## Computer Systems

As almost all facets of cybersecurity involve computer usage, an understanding of the ins and out of computer systems is expected in this field. Technical communicators interested in cybersecurity should familiarize themselves with the fundamentals of how computers function. This includes hardware components such as the motherboard, CPU, and RAM, and software such as debuggers, editors, and file systems.

## Data Collection

As the cybersecurity field has grown, so too has the volume of data that needs to be constantly organized and kept up to date. Data collection is an important function of a cybersecurity technical communicator. They are expected to separate relevant from irrelevant data, process research gathered through various mediums, and present findings to a specific audience (RSI Security, 2020).

This data is often highly sensitive. Technical communicators must know how to keep it secure and organized while making it more accessible for their company. They must understand the systems being used, as well as their strengths and weaknesses. With that knowledge, they can propose ways to enhance and improve those systems moving forward (Maryville Online, n.d.).

## Understanding Basic Cybersecurity Concepts

While technical communicators aren't required to be experts in all aspects of the industry that they are writing about, it is expected that they understand the field's core concepts. Anyone wanting to pursue a career in cybersecurity should understand terms like (Devon, 2020):

- Ransomware
- Trojan horse
- Botnet
- DDoS
- Phishing
- Encryption
- Social Engineering

Cybersecurity technical communicators are expected to clearly articulate risks, gaps, flaws, or concerns with current security measures. Their reports will be read by stakeholders, management, and fellow employees. Many technical communicators are expected to understand the current goals and direction

of their company, and to use that information to help them plan out future documentation. A clear understanding of the founding principles and concepts of the field is required to ensure clear communication of ideas (Dixon, n.d.).

Of course, technical communicators aren't expected to know everything. While on the job, they should be asking questions and learning new things, and not just with their fellow employees. Many cybersecurity technical communicators liaison with contracted companies to ensure they understand all aspects of a given project (RSI Security, 2020).

## UCCS Courses & Resources

For students interested in cybersecurity, UCCS has many resources to take advantage of. Classes, lectures, and professors who are experts in their fields are all available to help students learn more about cybersecurity.

### Classes

UCCS has several classes with few required prerequisites which teach the core skills and competences needed for a job in cybersecurity. These classes range from teaching broad, basic concepts, to classes which teach more specific skills that are highly sought after by employers in the industry.

#### CS 1120 - Computational Thinking with Beginning Programming

This course explores computational thinking to analyze problems and form precise solutions, with the problems being implemented as computer programs. Students will learn the basics of data collection, analysis, and representation; algorithms and procedures; simulation, which are all useful skills to know for anyone wanting to enter the cybersecurity field. Prerequisite: high school algebra or equivalent course.

#### CS 1150 - Principles of Computer Science

An introduction to programming and computer science concepts to develop a proficiency for programming. This class also introduces fundamental concepts of computer systems, such as debuggers, editors, and file systems. Prerequisites: high school algebra equivalent and familiarity with computer file operations and text editing.

#### CS 1910 - Cybersecurity for All

This course explores various cybersecurity issues, including Cyber Threats; Cybersecurity Planning and Management; Policy, Legal, Ethics, and Compliance; Security Program Management; and Security Risk Analysis. This course also counts towards the Compass Curriculum requirement of: Explore-Physical and Natural World.

#### CS 1450 - Data Structures and Algorithms

Provides an understanding of data structures, data types, and data abstraction which is crucial to cybersecurity. Prerequisites: CS 1150 - currently only available for College of Engineering students, so TCID students will need to speak to their advisors about the possibility of enrolling in this class.

## More Information

UCCS offers other students services, including help with scheduling classes or information about cybersecurity at UCCS. The computer science and cybersecurity staff at UCCS is also available to answer and questions via phone call or email.

# Works Cited

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