

CERIAS

The Center for Education and Research in Information Assurance and Security

Perceptions of Cyber Security Student Preparedness

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Abstract

While students work hard through their undergraduate careers, many still struggle to get a job right after graduation. This study seeks to figure out why and help undergraduate students go the extra mile to help them secure a job. A survey was sent out to industry professionals to help understand their expectations of students and their perspectives on the matter.

Background

In the past, similar studies have found:

- Students lack soft skills
- Students lack knowledge in data-related knowledge areas
- More collaboration between school-industry required

Methodology

- Developed a survey with open-ended, multiple-choice, and Likert questions.
- Distributed survey to industry partners.
- Analyzed data to determine what recent grads are lacking

Research Question

- Where do recent graduates fall with regards to industry requirements?
- How to bridge the gap between recent graduates and industry requirements?

Impact

- Help universities improve their programs to benefit students
- Encourage universities to partner up with industry and prepare a curriculum
- Help Students identify points of improvement

NIST NICE Framework

- The framework served as inspiration for questions
- It has seven categories, thirty-three specialty areas, and fifty-two work roles.
- Created to assist in the expansion of a cybersecurity team within the industry

Gaps Identified Previously

- Data evolution analysis,
- Identifying the relevance of data
- Data protection in a sensitive manner
- Identifying connections
- Data collection
- Understanding data-driven business models
- Data visualization
- Tracing and identifying the source of data
- Understanding the value of data/data interpretation
- Developing data-based solutions

Rank the following categories from most to least important in cybersecurity right now (drag to move).

| |
|----------------------|
| Analyze |
| Collect and Operate |
| Investigate |
| Operate and Maintain |
| Oversee and Govern |
| Protect and Defend |
| Securely Provision |

The screenshot displays the NIST NICE Framework interface with the following categories and descriptions:

- Analyze:** Performs highly-specialized review and evaluation of incoming cybersecurity information to determine its usefulness for intelligence.
- Collect and Operate:** Provides specialized denial and deception operations and collection of cybersecurity information that may be used to develop intelligence.
- Investigate:** Investigates cybersecurity events or crimes related to information technology (IT) systems, networks, and digital evidence.
- Operate and Maintain:** Provides the support, administration, and maintenance necessary to ensure effective and efficient information technology (IT) system performance and security.
- Oversee and Govern:** Provides leadership, management, direction, or development and advocacy so the organization may effectively conduct cybersecurity work.
- Protect and Defend:** Identifies, analyzes, and mitigates threats to internal information technology (IT) systems and/or networks.
- Securely Provision:** Conceptualizes, designs, procures, and/or builds secure information technology (IT) systems, with responsibility for aspects of system and/or network development.

How important do you feel the following categories are in cybersecurity?

| | Not at all important | Slightly important | Moderately important | Very important | Extremely important |
|----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Analyze | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Collect and Operate | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Investigate | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Operate and Maintain | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Oversee and Govern | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Protect and Defend | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Securely Provision | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |