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The National Cyber League
A Community Where Cybersecurity Is a Passion

Bryant Pham
bryantdp@uci.edu

NCL Fall 2022 Individual Game Scouting Report

Dear Bryant Pham,

Thank you for participating in the National Cyber League (NCL) 2022 Fall Season! Our goal is to prepare the next generation of cybersecurity professionals, and your participation is helping achieve that goal.

The NCL was founded in May 2011 to provide an ongoing virtual training ground for collegiate students to develop, practice, and validate their cybersecurity skills in preparation for further learning, industry certifications, and career readiness. The NCL scenario-based challenges were designed around performance-based exam objectives of CompTIA certifications and are aligned to the National Initiative for Cybersecurity Education (NICE) Cybersecurity Workforce Framework published by the National Institute of Standards and Technology (NIST).

As you look to a future career in cybersecurity, we hope you find this report to be valuable in both validating skills and identifying areas for improvement across the nine NCL skills categories. You can use this NCL Scouting Report to:

- Validate your skills to employers in any job application or professional portfolio;
- Show case your achievements and strengths by including the Score Card view of your performance as part of your résumé or simply sharing the validation link so that others may view the detailed version of this report.

The NCL 2022 Fall Season had 7,690 students/players and 475 faculty/coaches from more than 470 two- and four-year schools & 250 high schools across all 50 U.S. states registered to play. The Individual Game Capture the Flag (CTF) event took place from October 21 through October 23. The Team Game CTF event took place from November 4 through November 6. The games were conducted in real-time for students across the country.

NCL is powered by Cyber Skyline's cloud-based skills evaluation platform. Cyber Skyline hosted the scenario-driven cybersecurity challenges for players to compete and track their progress in real-time.



To validate this report, please access: cyberskyline.com/report/Y9NF0TK29JL8



Based on the the performance detailed in this NCL Scouting Report, you have earned **7 hours** of Continuing Education Units (CEUs) as approved by CompTIA. You can learn more about the NCL - CompTIA alignment via nationalcyberleague.org/comptia.

Congratulations for your participation in the NCL 2022 Fall Individual Game! We hope you will continue to develop your knowledge and skills and make meaningful contributions as part of the Information Security workforce!

David Zeichick
NCL Commissioner



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NATIONAL CYBER LEAGUE SCORE CARD

NCL 2022 FALL INDIVIDUAL GAME

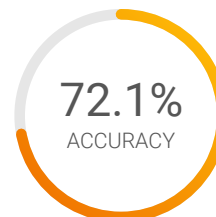
YOUR TOP CATEGORIES

LOG ANALYSIS
97TH PERCENTILE

WEB APPLICATION
EXPLOITATION
97TH PERCENTILE

SCANNING &
RECONNAISSANCE
96TH PERCENTILE

NATIONAL RANK
293RD PLACE
OUT OF 6675
PERCENTILE
96TH



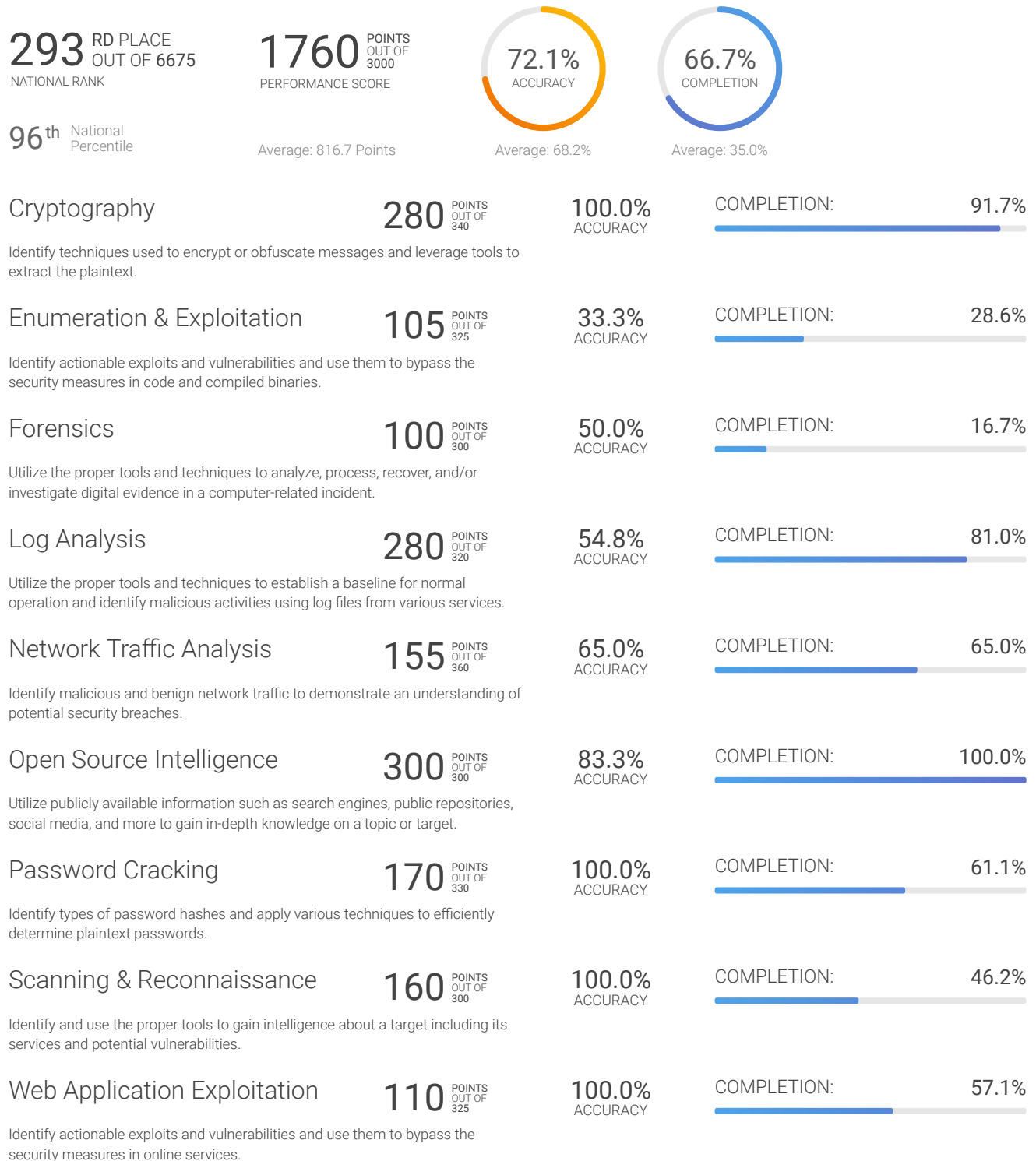
Average: 68.2%

[cyberskyline.com/report](https://cyberskyline.com/report/Y9NF0TK29JL8)
ID: Y9NF0TK29JL8



NCL Fall 2022 Individual Game

The NCL Individual Game is designed for student players nationwide to compete in realtime in the categories listed below. The Individual Game evaluates the technical cybersecurity skills of the individual, without the assistance of others.



Note: Survey module (100 points) was excluded from this report.



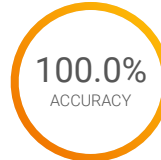


Cryptography Module

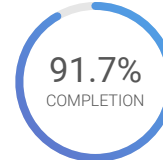
Identify techniques used to encrypt or obfuscate messages and leverage tools to extract the plaintext.

584TH PLACE
OUT OF 6675
NATIONAL RANK

280 POINTS
OUT OF 340
PERFORMANCE SCORE



Average: 77.5%



Average: 63.3%

TOP NICE WORKROLES

Security Control Assessor
Secure Software Assessor
Exploitation Analyst
Cyber Operator
Security Architect

92nd National
Percentile

Average: 177.8 Points

Decoding 1 (Easy)

30 POINTS
OUT OF 30

100.0%
ACCURACY

COMPLETION: **100.0%**

Identify the type of base encoding used and decode the data

Decoding 2 (Easy)

50 POINTS
OUT OF 50

100.0%
ACCURACY

COMPLETION: **100.0%**

Identify the cipher scheme used and decrypt the data

Decoding 3 (Easy)

40 POINTS
OUT OF 40

100.0%
ACCURACY

COMPLETION: **100.0%**

Identify the encoding scheme used and decode the data

Decoding 4 (Medium)

40 POINTS
OUT OF 40

100.0%
ACCURACY

COMPLETION: **100.0%**

Identify the encoding scheme used and decode the data

Decoding 5 (Hard)

-10 POINTS
OUT OF 50

0.0%
ACCURACY

COMPLETION: **0.0%**

Identify the cipher scheme used and decrypt the data

Decoding 6 (Hard)

80 POINTS
OUT OF 80

100.0%
ACCURACY

COMPLETION: **100.0%**

Break the encryption on a trivial RSA encryption without the secret key

Steganography (Medium)

50 POINTS
OUT OF 50

100.0%
ACCURACY

COMPLETION: **100.0%**

Identify the steganography technique used and extract the hidden data





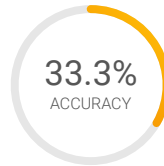
Enumeration & Exploitation Module

Identify actionable exploits and vulnerabilities and use them to bypass the security measures in code and compiled binaries.

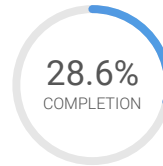
448 TH PLACE
OUT OF 6675
NATIONAL RANK

105 POINTS
OUT OF 325
PERFORMANCE SCORE

Average: 56.9 Points



Average: 41.5%



Average: 14.8%

TOP NICE WORKROLES

Cyber Operator
Target Developer
Exploitation Analyst
Software Developer
Systems Security Analyst

94th National
Percentile

Shell (Easy)

15 POINTS
OUT OF 100

100.0%
ACCURACY

COMPLETION: **50.0%**

Analyze a shell script to identify its functionalities and vulnerabilities

Tracked (Medium)

90 POINTS
OUT OF 100

37.5%
ACCURACY

COMPLETION: **75.0%**

Identify the keylogger installed on a remote Linux system and its configuration

NetCode (Hard)

0 POINTS
OUT OF 125

0.0%
ACCURACY

COMPLETION: **0.0%**

Decompile a binary malware to identify its target environment and reverse engineer the Domain Generation Algorithm (DGA) to find the Command and Control (C2) server

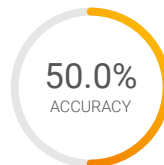
Forensics Module

Utilize the proper tools and techniques to analyze, process, recover, and/or investigate digital evidence in a computer-related incident.

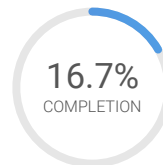
807 TH PLACE
OUT OF 6675
NATIONAL RANK

100 POINTS
OUT OF 300
PERFORMANCE SCORE

Average: 100.0 Points



Average: 42.2%



Average: 25.3%

TOP NICE WORKROLES

Cyber Defense Forensics
Analyst
Cyber Crime Investigator
Cyber Defense Incident
Responder
Cyber Defense Analyst

88th National
Percentile

Stacked (Easy)

100 POINTS
OUT OF 100

100.0%
ACCURACY

COMPLETION: **100.0%**

Extract additional files hidden in a photograph file using tools such as binwalk

Paper Trail (Medium)

0 POINTS
OUT OF 100

0.0%
ACCURACY

COMPLETION: **0.0%**

Analyze a "counterfeit" bill to find the hidden Printer Machine Identification Code and identify the machine that printed the "counterfeit" bill

USB (Hard)

0 POINTS
OUT OF 100

0.0%
ACCURACY

COMPLETION: **0.0%**

Recover and extract files from a filesystem image using tools such as Autopsy





Log Analysis Module

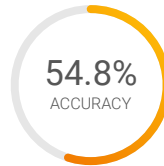
Utilize the proper tools and techniques to establish a baseline for normal operation and identify malicious activities using log files from various services.

218TH PLACE
OUT OF 6675
NATIONAL RANK

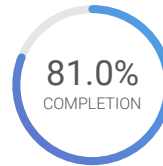
97th National
Percentile

280 POINTS
OUT OF 320
PERFORMANCE SCORE

Average: 107.6 Points



Average: 41.6%



Average: 41.7%

TOP NICE WORKROLES

Cyber Defense Analyst
Systems Security Analyst
All-Source Analyst
Cyber Defense Forensics
Analyst
Data Analyst

Compromise (Easy)

80 POINTS
OUT OF 100

Analyze a Linux kernel log to identify threat actor activity and backdoors

46.7%
ACCURACY

COMPLETION: **77.8%**

Access (Medium)

80 POINTS
OUT OF 100

Analyze a SSH server log to identify compromise attempts from threat actors

66.7%
ACCURACY

COMPLETION: **75.0%**

Minimal (Hard)

120 POINTS
OUT OF 120

Analyze a binary log format and calculate anomalies in the log

57.1%
ACCURACY

COMPLETION: **100.0%**

Network Traffic Analysis Module

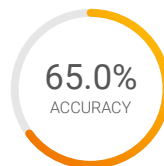
Identify malicious and benign network traffic to demonstrate an understanding of potential security breaches.

729TH PLACE
OUT OF 6675
NATIONAL RANK

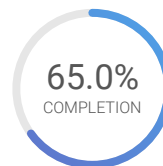
90th National
Percentile

155 POINTS
OUT OF 360
PERFORMANCE SCORE

Average: 125.6 Points



Average: 62.3%



Average: 49.6%

TOP NICE WORKROLES

Cyber Defense Analyst
All-Source Analyst
Cyber Defense Incident
Responder
Target Network Analyst
Cyber Operator

Retriever (Easy)

90 POINTS
OUT OF 90

Extract sensitive information from emails in an IMAP packet capture

70.0%
ACCURACY

COMPLETION: **100.0%**

WiFi Cracking (Medium)

35 POINTS
OUT OF 70

Identify vulnerable WiFi encryption scheme and crack the WiFi password

60.0%
ACCURACY

COMPLETION: **60.0%**

Trip to the Movies (Medium)

30 POINTS
OUT OF 90

Extract the video stream transferred in an RTP packet capture

60.0%
ACCURACY

COMPLETION: **60.0%**

Secret (Hard)

0 POINTS
OUT OF 110

Analyze and extract sensitive information from a covert DNS-based tunneling protocol in a comprehensive packet capture

0.0%
ACCURACY

COMPLETION: **0.0%**



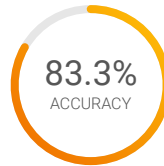


Open Source Intelligence Module

Utilize publicly available information such as search engines, public repositories, social media, and more to gain in-depth knowledge on a topic or target.

729 TH PLACE
OUT OF 6675
NATIONAL RANK

300 POINTS
OUT OF 300
PERFORMANCE SCORE



Average: 79.4%



Average: 77.7%

TOP NICE WORKROLES

Systems Security Analyst
Target Developer
System Administrator
Research & Development
Specialist
Cyber Intel Planner

90th National
Percentile

Average: 204.2 Points

Rules of Conduct (Easy)

15 POINTS
OUT OF 15

100.0%
ACCURACY

COMPLETION: **100.0%**

Introductory challenge on acceptable conduct during NCL

Bank Routes (Easy)

40 POINTS
OUT OF 40

100.0%
ACCURACY

COMPLETION: **100.0%**

Identify bank routing numbers using openly available information

Alley (Medium)

35 POINTS
OUT OF 35

100.0%
ACCURACY

COMPLETION: **100.0%**

Extract GPS coordinates from JPEG metadata to find where the photo was taken

GeoData (Medium)

50 POINTS
OUT OF 50

100.0%
ACCURACY

COMPLETION: **100.0%**

Utilize Geographic Information System (GIS) to identify land plot and owner data

Colonial Crypto (Medium)

60 POINTS
OUT OF 60

100.0%
ACCURACY

COMPLETION: **100.0%**

Uncover the redacted Bitcoin wallets in the 2021 Colonial Ransomware Attack

Info (Hard)

100 POINTS
OUT OF 100

50.0%
ACCURACY

COMPLETION: **100.0%**

Analyze an unknown identifier scheme to find the media metadata





Password Cracking Module

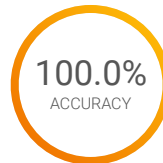
Identify types of password hashes and apply various techniques to efficiently determine plaintext passwords.

1167TH PLACE
OUT OF 6675
NATIONAL RANK

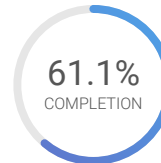
170 POINTS
OUT OF 330
PERFORMANCE SCORE

83rd National
Percentile

Average: 133.7 Points



Average: 87.6%



Average: 50.1%

TOP NICE WORKROLES

Cyber Operator
Exploitation Analyst
Systems Security Analyst
Cyber Defense Incident
Responder
Cyber Crime Investigator

Hashing (Easy)

Generate password hashes for MD5, SHA1, and SHA256

15 POINTS
OUT OF 15

100.0%
ACCURACY

COMPLETION: **100.0%**

Cracking 1 (Easy)

Crack MD5 password hashes

60 POINTS
OUT OF 60

100.0%
ACCURACY

COMPLETION: **100.0%**

Cracking 2 (Easy)

Crack Windows NTLM password hashes using rainbow tables

0 POINTS
OUT OF 60

0.0%
ACCURACY

COMPLETION: **0.0%**

Cracking 3 (Medium)

Build a wordlist or pattern config to crack password hashes of a known pattern

60 POINTS
OUT OF 60

100.0%
ACCURACY

COMPLETION: **100.0%**

Cracking 4 (Hard)

Build a wordlist to crack passwords not found in common wordlists

35 POINTS
OUT OF 135

100.0%
ACCURACY

COMPLETION: **33.3%**





Scanning & Reconnaissance Module

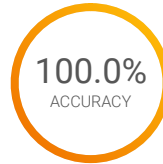
Identify and use the proper tools to gain intelligence about a target including its services and potential vulnerabilities.

281 ST PLACE
OUT OF 6675
NATIONAL RANK

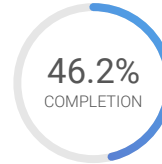
96th National
Percentile

160 POINTS
OUT OF 300
PERFORMANCE SCORE

Average: 115.0 Points



Average: 70.6%



Average: 31.3%

TOP NICE WORKROLES

Vulnerability Assessment
Analyst
Target Network Analyst
Cyber Operations Planner
Target Developer
Security Control Assessor

Looking Glass (Easy)

Scan a HTTP server to enumerate its contents and possible vulnerabilities

100 POINTS
OUT OF 100

100.0%
ACCURACY

COMPLETION: **100.0%**

Net Track (Medium)

Communicate with a text-based service using netcat/telnet

50 POINTS
OUT OF 100

100.0%
ACCURACY

COMPLETION: **66.7%**

Tracker (Hard)

Scan and analyze the results from an HTTP BitTorrent Tracker service

10 POINTS
OUT OF 100

100.0%
ACCURACY

COMPLETION: **14.3%**

Web Application Exploitation Module

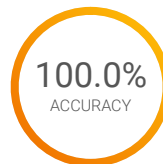
Identify actionable exploits and vulnerabilities and use them to bypass the security measures in online services.

263 RD PLACE
OUT OF 6675
NATIONAL RANK

97th National
Percentile

110 POINTS
OUT OF 325
PERFORMANCE SCORE

Average: 74.9 Points



Average: 82.6%



Average: 40.2%

TOP NICE WORKROLES

Cyber Operator
Software Developer
Exploitation Analyst
Systems Security Analyst
Database Administrator

Tom's Fan Club (Easy)

Craft custom requests to a web server to uncover hidden pages

100 POINTS
OUT OF 100

100.0%
ACCURACY

COMPLETION: **100.0%**

Setup (Medium)

Identify and exploit a directory traversal vulnerability in nginx to download sensitive files from the web server

10 POINTS
OUT OF 100

100.0%
ACCURACY

COMPLETION: **33.3%**

Mystery (Hard)

Identify and exploit a SQL injection vulnerability to gain unauthorized access to a web server database

0 POINTS
OUT OF 125

0.0%
ACCURACY

COMPLETION: **0.0%**

