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CYBER SKYLINE

The National Cyber League
A Community Where Cybersecurity Is a Passion

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NCL Spring 2023 Individual Game Scouting Report

Dear Thaddeus Thomas,

Thank you for participating in the National Cyber League (NCL) 2023 Spring 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 2023 Spring Season had 7,820 students/players and 533 faculty/coaches from more than 450 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 March 31 through April 2. The Team Game CTF event took place from April 14 through April 16. 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/C9RA4F3CCXKG



Based on the the performance detailed in this NCL Scouting Report, you have earned **11 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 2023 Spring Individual Game! We hope you will continue to develop your knowledge and skills and make meaningful contributions as part of the Information Security workforce!

Dr. David Zeichick
NCL Commissioner



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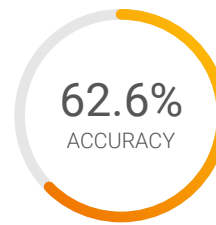
NATIONAL CYBER LEAGUE SCORE CARD

NCL 2023 SPRING INDIVIDUAL GAME

YOUR TOP CATEGORIES



NATIONAL RANK
223RD PLACE
OUT OF 6273
PERCENTILE
97TH



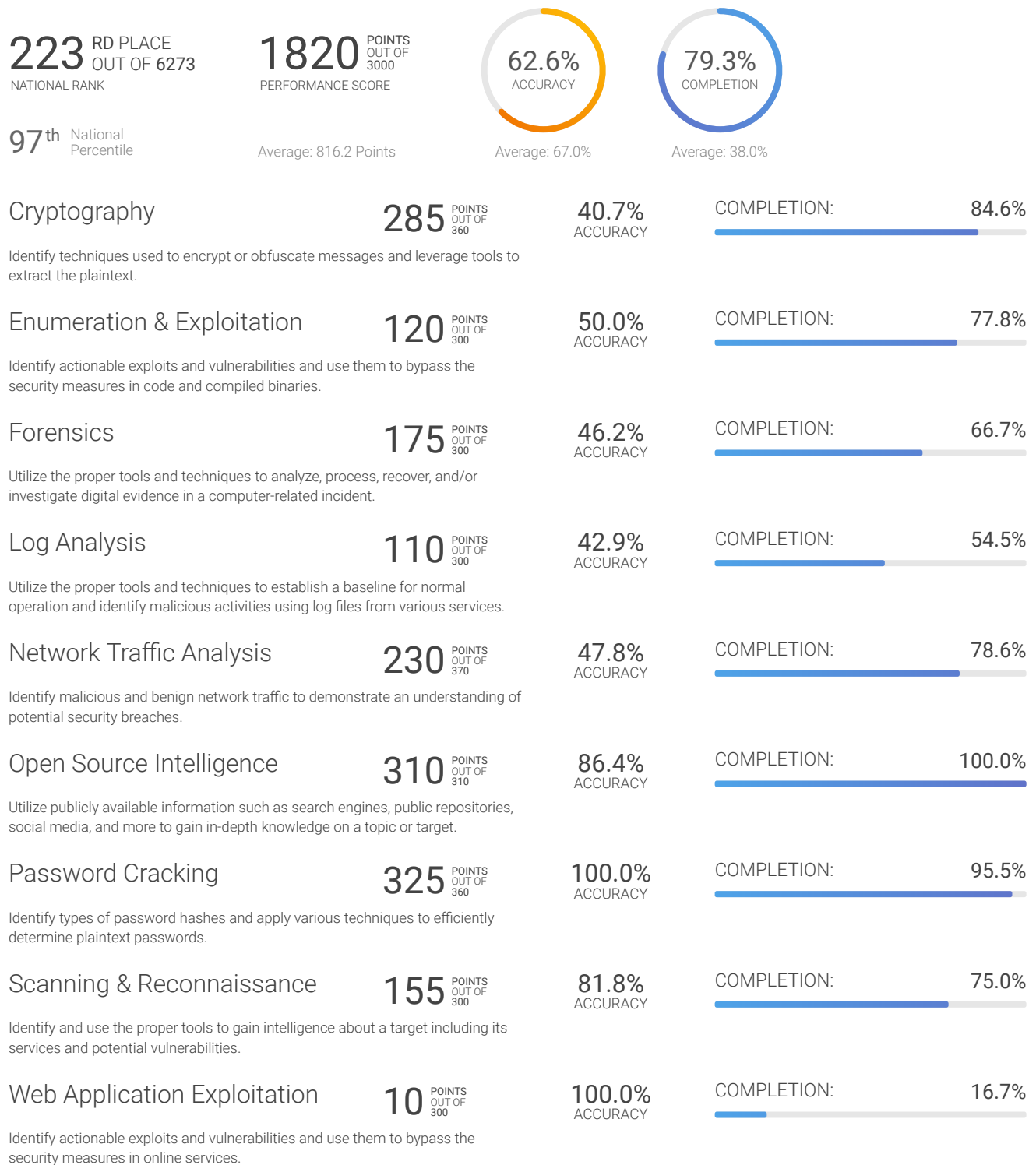
Average: 67.0%

[cyberskyline.com/report](https://cyberskyline.com/report/C9RA4F3CCXKG)
ID: C9RA4F3CCXKG



NCL Spring 2023 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

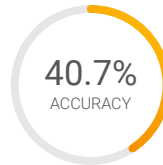
Identify techniques used to encrypt or obfuscate messages and leverage tools to extract the plaintext.

111 TH PLACE
OUT OF 6273
NATIONAL RANK

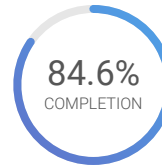
285 POINTS
OUT OF 360
PERFORMANCE SCORE

99th National
Percentile

Average: 115.0 Points



Average: 77.2%



Average: 52.7%

TOP NICE WORKROLES

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

Decoding 1 (Easy)

30 POINTS
OUT OF 30

100.0%
ACCURACY

COMPLETION: **100.0%**

Obtain plaintext from messages encoded with common number bases

Decoding 2 (Easy)

30 POINTS
OUT OF 30

100.0%
ACCURACY

COMPLETION: **100.0%**

Analyze and obtain the plaintext for a message encrypted with a shift cipher

Decoding 3 (Medium)

25 POINTS
OUT OF 25

100.0%
ACCURACY

COMPLETION: **100.0%**

Obtain the plaintext of a message using charcode encoding

Rolling (Medium)

50 POINTS
OUT OF 50

21.4%
ACCURACY

COMPLETION: **100.0%**

Analyze the cryptographic weakness of a ECB encrypted image

PGP (Medium)

75 POINTS
OUT OF 75

20.0%
ACCURACY

COMPLETION: **100.0%**

Decrypt a PGP message and encrypt a PGP message using provided keys

AES (Hard)

0 POINTS
OUT OF 75

0.0%
ACCURACY

COMPLETION: **0.0%**

Decrypt an AES encrypted message by exploiting an insecure key generation

Steg (Hard)

75 POINTS
OUT OF 75

50.0%
ACCURACY

COMPLETION: **100.0%**

Recover the plaintext of a message that was hidden using LSB steganography





Enumeration & Exploitation Module

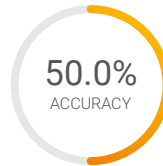
Identify actionable exploits and vulnerabilities and use them to bypass the security measures in code and compiled binaries.

828 TH PLACE
OUT OF 6273
NATIONAL RANK

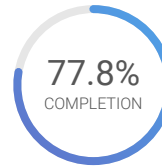
87th National
Percentile

120 POINTS
OUT OF 300
PERFORMANCE SCORE

Average: 98.8 Points



Average: 53.9%



Average: 58.8%

TOP NICE WORKROLES

Cyber Operator
Target Developer
Exploitation Analyst
Software Developer
Systems Security Analyst

Dropper (Easy)

Analyze the behavior of a PowerShell malware that schedules system events for persistence

100 POINTS
OUT OF 100

50.0%
ACCURACY

COMPLETION: 100.0%

Ground floor (Medium)

Analyze raw x64 assembly instructions to find a vulnerability in a validation check function

20 POINTS
OUT OF 100

50.0%
ACCURACY

COMPLETION: 50.0%

Memfrob (Hard)

Analyze and exploit a compiled C binary by leveraging a buffer overflow and ROP chains

0 POINTS
OUT OF 100

0.0%
ACCURACY

COMPLETION: 0.0%

Forensics Module

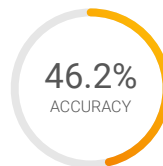
Utilize the proper tools and techniques to analyze, process, recover, and/or investigate digital evidence in a computer-related incident.

352 ND PLACE
OUT OF 6273
NATIONAL RANK

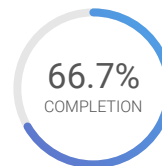
95th National
Percentile

175 POINTS
OUT OF 300
PERFORMANCE SCORE

Average: 128.7 Points



Average: 57.4%



Average: 43.4%

TOP NICE WORKROLES

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

Lost (Easy)

Recover files from the recycling bin of a Windows filesystem

100 POINTS
OUT OF 100

100.0%
ACCURACY

COMPLETION: 100.0%

Fruit (Medium)

Recover configuration data from a macOS plist file

75 POINTS
OUT OF 100

57.1%
ACCURACY

COMPLETION: 80.0%

Headless (Hard)

Identify the file type of the corrupted file and repair its magic bytes

0 POINTS
OUT OF 100

0.0%
ACCURACY

COMPLETION: 0.0%





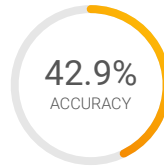
Log Analysis Module

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

342 ND PLACE
OUT OF 6273
NATIONAL RANK

110 POINTS
OUT OF 300
PERFORMANCE SCORE

Average: 65.6 Points



Average: 37.6%



Average: 32.9%

TOP NICE WORKROLES

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

Web (Easy)

Analyze a web server log and identify traffic patterns

100 POINTS
OUT OF 100

71.4%
ACCURACY

COMPLETION: **100.0%**

Email Compromise (Medium)

Analyze Office 365 & DNS logs to identify a phishing email compromise

10 POINTS
OUT OF 100

16.7%
ACCURACY

COMPLETION: **25.0%**

Fraud (Hard)

Analyze a payment log to identify what account had fraudulent purchases

0 POINTS
OUT OF 100

0.0%
ACCURACY

COMPLETION: **0.0%**



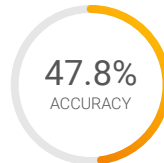


Network Traffic Analysis Module

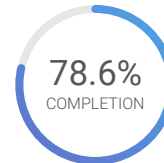
Identify malicious and benign network traffic to demonstrate an understanding of potential security breaches.

391 ST PLACE
OUT OF 6273
NATIONAL RANK

230 POINTS
OUT OF 370
PERFORMANCE SCORE



Average: 52.4%



Average: 46.9%

TOP NICE WORKROLES

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

94th National
Percentile

Average: 133.0 Points

Information (Easy)

100 POINTS
OUT OF 100

100.0%
ACCURACY

COMPLETION: **100.0%**

Analyze a network packet capture of WHOIS queries to obtain information on a domain

Hidden (Medium)

20 POINTS
OUT OF 70

50.0%
ACCURACY

COMPLETION: **66.7%**

Analyze a vulnerable WPA-encrypted network and perform a wordlist attack on the password

Scan (Medium)

100 POINTS
OUT OF 100

33.3%
ACCURACY

COMPLETION: **100.0%**

Analyze a network packet capture to identify open ports on the target server and the type of nmap scan

Ponder (Hard)

10 POINTS
OUT OF 100

33.3%
ACCURACY

COMPLETION: **33.3%**

Analyze a network packet capture to extract data stolen through DNS based data exfiltration





Open Source Intelligence Module

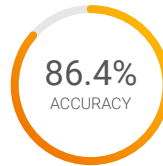
Utilize publicly available information such as search engines, public repositories, social media, and more to gain in-depth knowledge on a topic or target.

480 TH PLACE
OUT OF 6273
NATIONAL RANK

310 POINTS
OUT OF 310
PERFORMANCE SCORE

93rd National
Percentile

Average: 215.7 Points



Average: 80.0%



Average: 75.8%

TOP NICE WORKROLES

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

Rules of Conduct (Easy)

15 POINTS
OUT OF 15

100.0%
ACCURACY

COMPLETION: **100.0%**

Introductory challenge on acceptable conduct during NCL

Waypoints (Easy)

50 POINTS
OUT OF 50

83.3%
ACCURACY

COMPLETION: **100.0%**

Identify openly available information on navigation waypoints

Document (Medium)

50 POINTS
OUT OF 50

100.0%
ACCURACY

COMPLETION: **100.0%**

Extract the fields from the machine-readable zone of a passport

Esoteric (Medium)

50 POINTS
OUT OF 50

66.7%
ACCURACY

COMPLETION: **100.0%**

Identify the esoteric alphabet used to hide a secret message

Greek (Medium)

70 POINTS
OUT OF 70

100.0%
ACCURACY

COMPLETION: **100.0%**

Identify the location of a photograph using reverse image search

Numbers (Hard)

75 POINTS
OUT OF 75

75.0%
ACCURACY

COMPLETION: **100.0%**

Identify the scheme of a set of numbers without a well known format





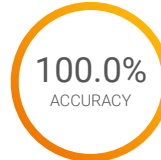
Password Cracking Module

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

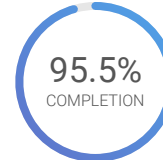
3RD PLACE
OUT OF 6273
NATIONAL RANK

325 POINTS
OUT OF 360
PERFORMANCE SCORE

Average: 133.2 Points



Average: 87.3%



Average: 45.5%

TOP NICE WORKROLES

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

100th National
Percentile

Hashing (Easy)

30 POINTS
OUT OF 30

100.0%
ACCURACY

COMPLETION: **100.0%**

Generate password hashes for MD5, SHA1, and SHA256

Cracking 1 (Easy)

45 POINTS
OUT OF 45

100.0%
ACCURACY

COMPLETION: **100.0%**

Crack MD5 password hashes

Cracking 2 (Easy)

45 POINTS
OUT OF 45

100.0%
ACCURACY

COMPLETION: **100.0%**

Crack Windows NTLM password hashes using rainbow tables

Cracking 3 (Medium)

45 POINTS
OUT OF 45

100.0%
ACCURACY

COMPLETION: **100.0%**

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

Cracking 4 (Hard)

45 POINTS
OUT OF 45

100.0%
ACCURACY

COMPLETION: **100.0%**

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

Cracking 5 (Hard)

65 POINTS
OUT OF 100

100.0%
ACCURACY

COMPLETION: **80.0%**

Build a wordlist to crack passwords not found in common wordlists

PDF (Medium)

50 POINTS
OUT OF 50

100.0%
ACCURACY

COMPLETION: **100.0%**

Crack the password for a protected PDF file





Scanning & Reconnaissance Module

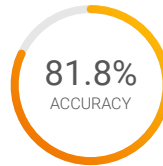
Identify and use the proper tools to gain intelligence about a target including its services and potential vulnerabilities.

313 TH PLACE
OUT OF 6273
NATIONAL RANK

96th National
Percentile

155 POINTS
OUT OF 300
PERFORMANCE SCORE

Average: 111.6 Points



Average: 70.1%



Average: 43.7%

TOP NICE WORKROLES

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

Ports (Easy)

Scan a remote host for open ports and identify running services

100 POINTS
OUT OF 100

100.0%
ACCURACY

COMPLETION: **100.0%**

Who (Medium)

Enumerate the possible domains on a WHOIS server to extract information

0 POINTS
OUT OF 100

0.0%
ACCURACY

COMPLETION: **0.0%**

Metadata (Hard)

Scan an AWS EC2 Metadata Service to extract information about the instance

55 POINTS
OUT OF 100

66.7%
ACCURACY

COMPLETION: **80.0%**

Web Application Exploitation Module

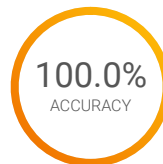
Identify actionable exploits and vulnerabilities and use them to bypass the security measures in online services.

709 TH PLACE
OUT OF 6273
NATIONAL RANK

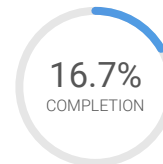
89th National
Percentile

10 POINTS
OUT OF 300
PERFORMANCE SCORE

Average: 33.0 Points



Average: 39.7%



Average: 20.0%

TOP NICE WORKROLES

Cyber Operator
Software Developer
Exploitation Analyst
Systems Security Analyst
Database Administrator

Shopping (Easy)

Exploit an implicit type conversion vulnerability in an express application

10 POINTS
OUT OF 100

100.0%
ACCURACY

COMPLETION: **50.0%**

Attack Portal (Medium)

Manipulate a web form to inject extra JSON fields to override a server-side check

0 POINTS
OUT OF 100

0.0%
ACCURACY

COMPLETION: **0.0%**

File Server (Hard)

Exploit a race condition to download a restricted file during server operations

0 POINTS
OUT OF 100

0.0%
ACCURACY

COMPLETION: **0.0%**

