## Report on Wittenberg's Participation in the National Cyber League – Fall 24

The NCL (National Cyber League) 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). The NCL has challenges in nine skills categories (*Open Source Intelligence, Cryptography, Password Cracking, Forensics, Log Analysis, Network Traffic Analysis, Scanning, Wireless Access Exploitation, Enumeration & Exploitation, and Web Application Exploitation*).

The **NCL Fall 2024 Season** had **9,260** students/players and 573 faculty/coaches from more than **540** two- and four-year schools & 230 high schools across all 50 U.S. states registered to play. The **Individual Game** Capture the Flag (CTF) event took place from October 25 through October 27. The **Team Game** CTF event took place from November 8 through November 10. The games were conducted in real-time for students across the country. After the completion of the team event, each participant received an NCL Scouting Report. The report breaks down their performance in all categories and is a powerful assessment tool that participants can use to target skills they can improve. Furthermore, I have the students include it in their cybersecurity portfolio and reference it in their resume as part of their final assignment in COMP315.

## Executive Summary

This is Wittenberg's third participation in the NCL. Five students currently taking both COMP315 and COMP325 participated in the fall season. This was the first participation for all five students. They were joined by returning alum Thomas Weis, who led by example, and played a key role in helping me mentor and coach the team. His help and leadership are greatly appreciated. Thomas participated previously in this competition both in fall 23 and spring 24. We held a launch party on Friday afternoon for each event, where I provided some pizza and snacks, and cheered on our participants. It was a joy observing all participants as they worked through the various challenges and the interactions and discussions that took place during the team competition.

- Our team, named **Hacks & Tracks**, consisted of six members, five participating for the first time: *Witness Barnett, Tristan Hall, Nicholas Jones, Dominic Root, Keyshon Upchurch,* and a returning alum *Thomas Weis.* All members also participated in the individual competition.
- Team **Hacks & Tracks** racked up **2225 points out of a possible 3100**, with a completion rate of **77.9%**. **They placed 189th out of all 4893 teams** participating across the nation. In our brief history so far in this competition, this is by far our best team performance both in terms of points and national ranking.
- **We Made the Power Ranking!** In addition to raw rankings, the NCL performs a special calculation to determine the cyber power rankings and lists the **Top 50** cyber "power" colleges in the Eastern, Central, and Western regions. I am proud to announce that Wittenberg University made the **Cyber Power Rankings** for the first time. We ranked **35th** in the **Central** region.

Note: The power ranking calculation is based the school's *top performing team*, *top performing student*, and the *number of participating students*. So, Wittenberg is at a disadvantage when compared to schools that compete with a large number of students and potentially could be placed higher than 35th if only the first two factors are considered.

## Performance Comparison Across Three Seasons

### Individual Competition

| Fall 23 | Spring 24 | Fall 24 |
| --- | --- | --- |
| Our top 3 scores: 690, 570, and 540 | Our top 3 scores: 1585, 1140, and 920 | Our top 3 scores: **1830, 1250, and 1005** |

### Team Competition

| Fall 23 | Spring 24 | Fall 24 |
| --- | --- | --- |
| Cyber Tiger: 825<br>Rank: 358th out of 4672 | Cyber Tiger: 1420<br>Rank: 335th out of 4199 | **Hacks & Tracks:** 2225 points<br>Rank: **189th out of 4893** |
| *Digital Dream Team: 415<br>Rank: 614th out of 4672 | Tiger Byte: 1035<br>Rank: 458th out of 4199 | Made Cyber Power Ranking: Top 50 for Central region – 35th |
| *The composition of Tiger Byte was roughly the same as Digital Dream Team, one member from Digital Dream Team swapped places with a member of Cyber Tiger in the spring season. | | |

### Team Competition

Wittenberg participated with one team: **Hacks & Tracks**. Our team ranked in the top 200 out of **4893** participating teams in their bracket. The team ranked **189th** with **2225 points/3100**, in the **95th National Percentile**.

Our team's top 3 categories were *Network Traffic Analysis*



From left to right: Witness Barnett, Dominic Root, Nick Jones, and Tristan Hall are fully immersed in completing the challenges during the Individual Game.

(97th percentile), *Enumeration & Exploitation* (96th percentile), and *Password Cracking* (96th percentile). The ranking involves both points earned through completion when solving challenges as well as the accuracy rate.

**Hacks & Tracks** achieved an outstanding 100% completion rate in both *Log Analysis* and *Network Traffic Analysis*, a 95.2% completion rate in *Open Source Intelligence*, 88.9%, 80.0% rates, respectively, in *Enumeration & Exploitation* and *Scanning & Reconnaissance*. The team had a completion rate above 57% in eight out of the nine categories and a 33.3% completion rate in the remaining category. The team achieved an accuracy above 40% in six out of the nine categories.

## Individual Competition

In the individual competition, the six students who participated all ranked in the top half out of **8485** participants. Congratulations to all participants for their efforts. Special praise goes to our top three performers:

**Thomas Weis (1830 points), 734th place, 92nd National Percentile** with a completion rate above 70% in five out of the nine categories and greater than or equal to 50% in eight out of the nine categories. He finished an outstanding accuracy rate of 76.1%. Accuracy is affected by the number of failed attempts on each challenge.

**Tristan Hall (1250 points), 1572nd place** with a completion rate greater than or equal to 50% in five out of the nine categories and above 33% in eight out of the nine categories.

**Keyshon Upchurch (1005 points), 2095th place,** with a completion rate above 30% in seven out of the nine categories.

*Note: Nicholas Jones finished a close fourth with a total of 1000 points and an outstanding accuracy of 71.25%, with Dominic Root right behind him with a total of 940 points. I am proud of all participants for their efforts.*



Tristan Hall gives the thumbs up after completing a tough challenge during the Individual Game.

## Conclusion

Overall, our participation in the NCL in the fall 2024 season has been outstanding and a great learning experience for all involved. We have done something different this semester by using recitation time in both COMP315 and COMP325 to give students the opportunity to practice for the competition and we provided some hints, demos, and resources to support their learning journey. The top performing schools incorporate CTF preparation in their curriculum and support out-of-class, intensive CTF training activities typically through a student cybersecurity club. We are still not quite there in terms of reaching that level of relentless CTF preparation efforts, in and outside the classroom, the kind that can move us farther up the power rankings. However, the adjustments we continue to make have already, in just eighteen months, put Wittenberg University on the map in terms of our cybersecurity program. These rankings are accessible to prospective students all over the country and can boost our recruiting efforts. I am so proud of our students.