Cybersecurity Curriculum Advisory Committee

Meeting UNO College of Information Science and Technology

April 28, 2023

12:00-1:30pm

Location: PKI 279

Agenda

Attendance:

Aaron Vigal	Derek Babb	Melissa Moreno
Anita Klanderud	Farida Majid	Rick Holmes
Arber Salihu	Gary Sparks	Robin Gandhi
Bill Mahoney	George Grispos	Rui Zhao
Bret Blackman	Greg Hoff	Shannon Ginsburg
Brian Dorn	Jeff Weeks	Tom Knudsen
Carlee Heylmun	Kate Cooper	Zaid Kakish
Charles Nicholson	Luke Wentsz	
Corby Dill	Matt Hale	

12:00pm Welcome and Introductions (Lead: Matt Hale)

- Hope to work with industry partners to adjust curriculum to match cybersecurity trends in industry.

12:20pm CYBR Programs at UNO (Lead: Brian Dorn)

- Undergrad and MS Program stats:
  - Brian Dorn shared year over year enrollment numbers, graduation rates, time to degree, median salary of graduates and employment rates for graduating students. He also shared program demographics.
  - For Fall 23, we are seeing major growth in the number of applications.
    - We have a lot of recruitment efforts going on, including the agreements of surrounding states for in-state tuition, free applications, and international recruitment partnerships.
  - Questions/Discussion:
    - Is the curriculum the barrier for number of graduates and time to degree?
      - Yes, we are working on trying to lessen our curricular complexity to help both of these metrics.
      - Our bachelor's degree has also recently been designated as an online degree, to hopefully attract more students.
      - Trying to balance our NSA designation with flexibility has also been a challenge, but we'll be addressing this with our latest designation submission that has been simplified.
  - How can we address the growing enrollments with faculty workload?

- Faculty recruitment is challenging right now to be competitive with industry.
- Classes are growing larger, but they cannot stay that way with room constraints and faculty resources.
  - o Internships, job shadows, and scholarships are vital to recruitment, so if you would like to partner with the College to offer these opportunities, please contact Brian or Robin.

12:35pm CAE-CO and CAE-CD Updates (Lead: Bill Mahoney)

- Centers of Academic Excellence, NSA and other agency partners.
  - o Bill Mahoney shared the process to obtain and maintain Cyber Defense & Cyber Operations designations
  - o This process consists of two stages: Program of Study Peer Review, and then the actual designation application.
  - o This designation helps our students get places on a federal level, and they recruit from these CAE designated schools.
  - o This also helps with grant submissions.
- Top 5 priorities from the Knowledge Units from industry partners CO and CD:
  - o See Slides.
- Discussion/Questions:
  - o Value of NSA designation has mixed feelings
    - Some industry partners don't really notice whether or not the student has the NSA designation.
      - They are getting this information from technical interviews.
      - CISSP is more relevant. Or Cloud certificates. Data analysis.
      - Cybersecurity is trending towards software more so than hardware.
    - Others actually specifically focus on those schools who are designated in order to recruit.
      - Helps to minimize the effort in looking through transcripts to know whether they have the skills or not.
  - o How can we get the message out that we are designated and what that means? So that our industry partners can use this for recruitment or interviews?

12:50pm Overview of Curricular Changes (Lead: George Grispos)

- We combined our Windows/Linux Administration course into one that is now called System Administration.
- We had a Computer Forensics course, and we have since split it into Forensics and Cyber Investigations. We have also added a Mobile forensics course.
- We have moved some of our courses to dual modality where we have an in-person section and remote section in order to increase accessibility.
- Discussion/Questions:
  - o What would you like to see?
    - Forensics, so they can gain skills in detection engineering. Threat detection would be a good avenue to pursue.
    - Automation to analyze and help address some of these detections. Automation can be used to address more than just threat detection.

- Our technical skills are fine, and the interns are able to hit the ground running would be helpful. That is one of the barriers from moving an intern to an employee.
  - We need to address these "soft skills" more into our curriculum. Be able to present and communicate, especially these technical aspects.
  - We're trying to address this, and seeing this in classroom from the pandemic. Students were alone for a long time, and this awkwardness could be stemming from coming out of that time.
  - Nullify is helping to address this too by restarting their meeting and participating as teams in CTF competitions.
  - Learn & Earn initiative in the college has two courses that are trying to address this as well: 1. College Readiness, 2. Career Preparation
- K-12, mostly High School Engagement: Dual enrollment- transfers credit to UNO, but the student takes the course at their High School. We're working to make this more available in high schools, but we meet technical and training barriers in doing this.
  - Taking this intro course in the first semester at UNO also has major benefits for the cohort and meeting fellow cybersecurity majors.
  - There are scholarships in CSEducation, so that more K-12 teachers have the ability to offer these courses in high school.
  - The new state bill to mandate an offering of a computer science course, may help to address some of these issues of exposure to students earlier.
  - We also do programming for students before high school, including GenCyber, which focuses on young girls and is a week-long summer camp focusing on STEM.

1:05pm The Impact of AI and other trends (Lead: Matt Hale)

- Generative AI may be changing the trajectory of the field. Instead of a software engineer, we could see more of a prompt engineer to get the AI to do the work for them.
- How can we address security concerns that may stem from AI generated software?
  - Automated review of code is being used in the workplace already. Takes less time and they get instantaneous results, so they are not blocked.
  - Co-pilot is of interest to those currently in industry. How to balance this with intellectual property rights? How do we know where the code is from in the first place?
  - These tools can be used on the offensive as well. How can we prepare?
  - How can we train students to use this as a tool? While also making sure they understand the material? We can't monitor them once they get jobs, and we know they use tools similar to this on the job.
- Are we worried about the prospects of jobs with the emergence of generative AI?
  - Leadership may be thinking about it, but jobs are not in question yet.
  - It's similar to automation, it would be nice, but it needs to be verified and implemented well first.

1:25pm Capstone Projects and Industry Engagement (Lead: Matt Hale)

- Please contact Matt (mlhale@unomaha.edu) and/or Greg (ghoff@unomaha.edu) if you would like to collaborate on a semester-long project that students can work on for their capstone work.
- Lead of the project would only need to spend about an hour or so of time checking in with the capstone team ever 1-2 weeks.
- Ideas can be already scoped to a semester or broader – we can help with scoping for a student team effort.

1:28pm Closing Remarks (Lead: Matt Hale)

- We will share slide deck, minutes, and some announcements for your calendar. if you have additional action items, please share via email.
- We have spoke a lot today about three thematic threads - Automation, Data Science, and threat detection. We will focus more on these topics and hopefully talk more about them at our next CAC.
- Thanks to everyone for participating