



## DSU North Central Region Cyber Training Center (CTC) for Cybersecurity

The gap between necessary Cybersecurity skills and the demands placed on Cybersecurity professionals is not only a challenge for the information technology industry, but also a challenge for the scientific research enterprise of the nation. The North Central Region (NCR) Cyber Training Center (CTC) for cybersecurity at Dakota State University is created and funded by the National Science Foundation (NSF OAC 1730105). The goal of CTC is to create a scalable online cyber training program to assist with the development of scientific cyberinfrastructure professionals in cybersecurity. The CTC includes three programs, i.e., CyberTraining Students, CyberTraining Faculty, and CyberTraining Professionals.

The CyberTraining Faculty program is offered to post-docs, research scientists, and faculty researchers and educators from 2-year and 4-year colleges in the North Central Region. The program will offer online summer courses to help faculty develop expertise in cybersecurity. The program also includes funds to help participating faculty host cybersecurity workshops on their campuses and develop new courses in cybersecurity. **These summer courses are free to all faculty participants!** We are now accepting applications participating in CyberTraining Faculty Program for Summer 2019. Please check the steps below about how to register cybersecurity courses for Summer 2019.

### Cybersecurity Courses for Summer 2019

There will be three cybersecurity courses offered at DSU for the CyberTraining Faculty program in Summer 2019. These three cybersecurity courses include:

**INFA792 Special Topic Cryptography and Network Security** (Instructor: Dr. Yong Wang): This course covers both the principles and practice of cryptography and network security. In the first part of the class, fundamentals of cryptography and its applications, classical and contemporary ciphers, encryption and decryption will be addressed. In the second part of the class, we will focus on network security and provide a holistic view of security issues in communication networks including transport layer security protocols and key management protocols. Along the way, cryptography applications, protocols, libraries, and automated tools are also examined.

**INFA792 Special Topic Offensive Security** (Instructor: Dr. Josh Stroschein): This course provides theoretical and practical aspects of network and web application penetration testing. The course includes in-depth details and hands-on labs for each phase of an ethical hack including, but not limited to: reconnaissance, vulnerability assessment, exploitation, maintaining access, and covering tracks. An applied approach with a focus on current tools and methodologies will be stressed.

**CSC492 Special Topic Reverse Engineering** (Instructor: Andrew Kramer): This course will cover the fundamentals of reverse engineering



This project is sponsored by the National Science Foundation (NSF OAC 1730105).



Wayne Pauli (PI)  
Professor  
Beacom College of Computer and Cyber Sciences  
Dakota State University  
Phone: 605-256-5800  
Email: wayne.pauli@dsu.edu



Yong Wang (Co-PI)  
Associate Professor  
Beacom College of Computer and Cyber Sciences  
Dakota State University  
Phone: 605-256-5690  
Email: yong.wang@dsu.edu



using several industry standard tools to analyze a variety compiled software programs. Topics will also include a study of anti-analysis techniques and how to bypass them, as well as a brief introduction to software vulnerability analysis and exploitation.

Our cybersecurity courses emphasis hands-on labs and assignments in cybersecurity. Faculty participants in these classes will be able to access our cloud-based Information Assurance (IA) Lab and other online resources.

### **Summer Schedule**

- The summer courses are 3-credit courses.
- The 12-week summer courses start from May 13, 2019 to August 2, 2019.
- Each course has a capacity of 25 students.
- Faculty participants will register as DSU students to take summer courses.
- These courses are free for faculty participants.
- All the courses are online. The course materials including class videos, slides, assignments, labs, projects will all be available through Desire to Learn (D2L) system at DSU.
- All courses are set to default Audit courses. You will have "AU" in the final grade and the audit grade (AU) does not count to GPA. If you would like to have the courses graded using letter grades, e.g, A, B, C, D, and F, send a request email to [yong.wang@dsu.edu](mailto:yong.wang@dsu.edu).

### **Eligibility**

- Post-docs, research scientists, and faculty researchers and educators from 2-year and 4-year colleges.
- Bachelor in Computer Science, Cyber Operations, or related field.
- Priority will be given to faculty members who teach cybersecurity related courses at your home institutions.

### **Benefits**

- The summer courses are free to faculty participants.
- Funds are available to support faculty participants to host cybersecurity workshops in their institutions and develop new curricular in cybersecurity.
- DSU offers two master's programs, i.e., Master of Science in Computer Science and Master of Science in Cyber Defense, and one doctoral program, i.e., Doctoral of Philosophy in Cyber Operations. The graduate (792) credits a faculty participant earned through the CyberTraining Faculty program could be transferred to credits towards graduate degrees at DSU if the participant is admitted to one of the graduate programs at DSU and the credits are approved by the participant's plan of study.

### **Important Dates**

- Application deadline: April 1, 2019
- Notification of acceptance: April 8, 2019
- Summer program: May 13 - August 2, 2019

### **How to Apply**

Application can be found at: <https://goo.gl/sJrcuF>. Contact Dr. Yong Wang ([yong.wang@dsu.edu](mailto:yong.wang@dsu.edu)) for application procedures.