



CAL POLY California Cybersecurity
Institute

Gencyber 2018 Teacher Training Overview

Cal Poly and the California Cybersecurity Institute

Thanks for your interest in our GenCyber 2018 teacher training! We highly value your contributions to our society and are excited to work with you.

This training is offered by Cal Poly, San Luis Obispo and the California Cybersecurity Institute and is funded by the National Security Agency's GenCyber program. For the 25th consecutive year, Cal Poly has been named the best public, master's-level university in the West by U.S. News & World Report's annual [America's Best Colleges](#) guidebook. Cal Poly's undergraduate cybersecurity program contributes to this ranking by emphasizing youth education with a strong focus on "learning by doing."

We are looking to expand our capacity to deliver cybersecurity education to underserved and underrepresented youths, by creating a cybersecurity training workshop targeting middle and high school teachers in underserved, local, low-income communities, as well as other types of educators. We are also interested in creating cybersecurity clubs at local area high schools and middle schools, or other co-curricular opportunities..

Our GenCyber workshop will run from starting on Monday, July 9 to Friday, July 1. The workshop days will start at 8:30 and end about 5pm. Exact room locations are TBD, but all workshop events will be in San Luis Obispo, CA. Attendance for all five of the workshop days is required. The workshop will teach fundamentals in cybersecurity in the morning and in the afternoon offer hands-on labs that can be readily imported to your school.

Additionally, we will be asking participants to (optionally) attend a practicum via our EPIC summer camp. Cal Poly's EPIC – Engineering Possibilities in College – engineering camp for junior high and high school was started in 2007 to promote engineering and STEM careers to youth, with a focus on reaching underserved populations. In 2014, EPIC introduced a cybersecurity track within the EPIC program, providing an opportunity to draw more students

into the field. It is in the cybersecurity track where the participants of the GenCyber workshop will practice teaching what they learned in the GenCyber workshop.

The EPIC-based practicum is voluntary. Additionally, we will want the participants in the practicum to be spread throughout the EPIC summer camp which labs run Monday-Friday, on weeks of July 16, 23 and 30. We will try and schedule mutually agreeable practicum days based on your inputs on a questionnaire linked later in this document.

Participation in the workshop **and** 3 days of practicum will award the participant a \$2000 stipend. Attendance in only the workshop will earn a \$1000 stipend.

Please note, participants in the GenCyber teacher training must be US citizen or lawful permanent resident of the United States.

We will also be offering post-training support for those that complete our workshop. Our GenCyber grant will pay for a Cal Poly undergraduate in cybersecurity to travel to your school and assist with delivering cybersecurity-related activities. Additionally, a local non-profit “Softec” has also offered support for helping establish cybersecurity clubs at your schools.

A tentative schedule for the workshop is shown in Table 1. We will first do an introduction to cybersecurity, and follow up with a board game that investigates “adversarial” thinking. On Tuesday, there will be a discussion of digital identity and an exercise on physical security. The afternoon on Tuesday will focus on Python programming which will be needed for password hacking on Wednesday afternoon. Wednesday morning will focus on network and web security. Thursday will look at secret communications and social engineering. Friday will be a forensics focus, and given an intro to AFA CyberPatriot.

Table 1. GenCyber Teacher Workshop Schedule

Time	Monday, July 9	Tuesday, July 10	Wednesday, July 11	Thursday, July 12	Friday, July 13
8	Welcome	Digital Identity and Anonymity	Securing the Web	Secret Communicatio n	Digital Forensics
9	Introduct ion to Computi ng and Security	Human factors and Physical Security	Network Security	Software Security	cyber clubs
10					
11					

noon	Lunch + Quiz	Lunch + Quiz	Lunch + Quiz	Lunch + Quiz	Lunch + Quiz
1	[d0x3d!]	Intro to Python	password hacking	social engineering - Fakesbook	computer forensics
2					
3					
4	Reflection & Discussion	Reflection & Discussion	Reflection & Discussion	Reflection & Discussion	Concept Mapping + Quiz
5					

Every day, a light breakfast will be provided (muffins, bagels, coffee, etc.). Lunch will also be provided. We will also end the days with a reflection on the day's activities.

Our workshop is intended for local area teachers, but we will consider teachers from outside the central coast as well. However, since our focus is on the local area teachers, we do not have travel and lodging support for participants.

Only basic computer literacy is expected. The exercises designed are accessible to the beginner but also have enough depth for those with a wealth of computer experience.

You may bring your own laptops, but computers for the workshop and practicum will be provided. All workshop participants will take home a copy of the [d0x3d!] game, as well as a USB drive with a copy of all course material.

All are welcome to apply for our GenCyber 2018 camp. Since interest in our camp exceeds our capacity, we will be selecting participants based on their responses from a questionnaire that is linked at the end of this document. The primary criteria we are looking for include:

- Diversity of the students at the teacher's school
- Your credentials as an educator
- Interest in starting or growing a cybersecurity club at the teacher's school
- Geographical diversity within the local community
- Support from your school for creating of a cybersecurity club or program
- Your interest, ability and flexibility to attend the EPIC-based practicum

Your depth of understanding of computing will not be considered as a criteria for selection in the workshop. All participants must be either US citizens or documented foreigners.

We fully intend to offer a GenCyber camp in 2019 for teacher training, so if you are not chosen for 2018, keep your eyes open for 2019!

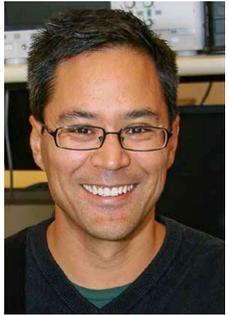
The questionnaire for participation in our GenCyber workshop for 2018 is located:

<https://goo.gl/forms/wkffAJsi3xomsTXQ2>

Timeline

4/9/18	Teacher participation questionnaire released
4/20/18	Teacher participation questionnaire closed
4/23/18	Teachers notified if they were selected for GenCyber 2018
4/30/18	Teachers to confirm participation
6/1/18	Census date - final confirmation of participation (for any late drops, we can potentially add a few participants)
6/8/18	Logistics finalized, including room locations, parking info, potential carpooling options, etc. Training logistics document distributed to all confirmed participants.
7/9/18 - 7/13/18	GenCyber Teacher Training Workshop
7/16/18- 8/3/18	EPIC-based practicum
9/9/18	GenCyber follow-up #1
10/22/18	GenCyber follow-up #2
12/3/18	GenCyber follow-up #3

Instructors:

<p>Dr. John Oliver - Associate professor in electrical engineering and director of the computer engineering program at Cal Poly, faculty fellow with the California Cybersecurity Institute. Dr. Oliver's cybersecurity background is primarily with the design and development of high school cybersecurity competitions and digital forensics. Dr. Oliver is serving as the program director of the GenCyber teacher training workshop.</p>	 A portrait of Dr. John Oliver, a man with short dark hair and glasses, wearing a dark sweater over a green shirt, smiling.
<p>Dr. Zachary Peterson - Associate professor in computer science at Cal Poly. Dr. Peterson's research is centered around cybersecurity education. Dr. Peterson has interests in Applied Cryptography, Computer Science Pedagogy, Secure Systems and Technology Law. Dr. Peterson is serving as the primary instructor for the GenCyber teacher training workshop.</p>	 A portrait of Dr. Zachary Peterson, a man with dark hair and a beard, wearing a light blue shirt and a dark jacket, smiling.
<p>Dr. Paul Hummel is a faculty member in the electrical engineering department at Cal Poly. Dr. Hummel has worked with the National Integrated Cyber Education Research Center and Cyber Innovation Center to develop and run Cyber Discovery camps for high school students at Louisiana Tech University. Dr. Hummel will be the primary instructor for the EPIC summer camp and will be serving as the practicum coordinator for the GenCyber teacher training practicum.</p>	 A portrait of Dr. Paul Hummel, a man with light brown hair and a goatee, wearing a dark shirt, smiling.
<p>Henry Danielson - Lecturer at Cal Poly, Child Development, faculty with the California Cybersecurity Institute, California Cyberhub Advisor, Director of Technology, Coast USD. Mr. Danielson's cybersecurity background includes mentor for high school CyberPatriot teams, member of the Cyber Teacher Association. Henry will be assisting with the EPIC summer camp and assist in the EPIC-based practicum for the GenCyber teacher training.</p>	 A portrait of Henry Danielson, a man wearing a dark jacket with 'CAL POLY' on it, a cap, and sunglasses, smiling outdoors in front of a tree.

Questions?

If you have any questions, please don't hesitate to contact Dr. Oliver. Email is the preferred method of communication (jyoliver@calpoly.edu), but Dr. Oliver can also be reached at 805-756-5434.

Unrelated to GenCyber:

Dr. Oliver is a program designer for the California Cyber Innovation Challenge, which is the premier cybersecurity competition for high school students. If you are potentially interested in having a team participate, or even observing please see:

<http://www.sanluisobispo.com/news/local/article158096744.html>

<https://cci.calpoly.edu/events/ccic>