Outstanding Students Honored at State Capitol

In February, 17 of Cal Poly’s most accomplished students were invited to the state capitol in Sacramento, where they met with San Luis Obispo’s legislative representatives and were officially recognized on the floors of the Senate and Assembly. The group included winners of engineering design competitions, budding business entrepreneurs, scientific researchers, and Congressional interns.

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PayScale Ranks Cal Poly No. 7 for Return on Investment

Cal Poly ranks No. 7 among the nation’s public universities and No. 33 among all institutions for return on tuition investment, according to a listing from PayScale.com.

The list includes the weighted total cost for a graduate based on in-state tuition rates along with the 20-year net return on investment. For Cal Poly, the total cost is $103,600 and return on investment is $611,700.

The 2014 PayScale study looked at 1,310 public, private, religious, and secular universities around the nation.

“Cal Poly has created a wow factor,” said Cal Poly President Jeffrey D. Armstrong. “This latest PayScale listing shows that we are fulfilling our goal of providing students with an opportunity to transform themselves into the workforce-ready professionals and future leaders our world needs — and to do so at an accessible price.”

Cal Poly moved up two spots from its No. 9 ranking on last year’s PayScale ROI list in the public university category and four spots from the No. 37 spot on the overall listing. —Matt Lazier

More than 4,100 graduates joined the ranks of Cal Poly’s alumni June 14 and 15 in this year’s spring commencement ceremonies. Read more at www.calpolynews.calpoly.edu.

Photo by Chris Leschinsky
In this case, for a quickly developing profession that truly needs the best and brightest minds right away. The umbrella organization that is the Cal Poly Cybersecurity Center will create connections and partnerships between disciplines, said computer science Professor Zachary Peterson, the first person hired specifically to teach in the area of cybersecurity.

"I'm a believer in cybersecurity not being a specialization," he said. "I would go so far as to say it's a principle every computer science student needs to see." And he wants them to see it during their very first quarter on campus.

Part of Peterson's vision is to expand course offerings and rethink how students who have never studied computer science are introduced to the discipline.

"Let's avoid highly constrained, low-level programming exercises, which lack context and relevance; instead, let's go build something fun," he said.

The newly revamped Intro to Computing course lets them do just that. "The course has always been offered in a variety of flavors," Peterson said. "Students can choose to explore computer science through computational art, music, video games, or mobile apps. Now, we're offering security as a flavor."

Students in Peterson's section of Intro to Computing will work together to try to break into computing will explore computer security concepts through cryptography, the science of coding and decoding secret messages.

A third class, Malware Research Analysis, was taught in the spring with the help of engineers from McAfee Corp. "They have been extremely generous with their time and resources, sending 10 world-class experts over the course of the quarter to lecture each week," Peterson said.

Cybersecurity is uniquely suited to tap the exponential powers of a polytechnic institution, said Debra Larson, dean of Cal Poly's College of Engineering.

"Learn by Doing in a cyber world is as real-world as it gets," Larson said. "Cyberspace isn't just a technical discipline, and it's not just computer science. It involves business, economics, ethics, philosophy and psychology. It asks all of us to apply diverse knowledge in new ways."

"Similarly, our collaborations reflect the truly polytechnic nature of this initiative. Our relationships span a spectrum of industries, interests and disciplines, which contributes to the relevance of the curriculum we design," he said.

"The Internet is everywhere, which makes our cybersecurity graduates immediately valuable to employers wherever they are," Peterson said. "Whether they work specifically for a security company like McAfee or become an engineer with software giant Google, having a working knowledge of security will make them valuable to that company," he said.

"Internet connectivity is all around us — in cars, refrigerators, electrical systems. Things we thought were safe today can become totally broken and insecure tomorrow."

But should that day come, Cal Poly's students will now be there to help.

CAT POLY AND NORTHROP GRUMMAN DEDICATE CYBER LAB

When it comes to training young, workforce-ready engineers in the critical field of cybersecurity, Northrop Grumman CEO Wes Bush believes Cal Poly "gets it."

Bush was on campus in January for the dedication of the Cal Poly-Northrop Grumman Cyber Lab, a 32-workstation facility that is the centerpiece of the new Cybersecurity Center. Bush said programs like Cal Poly's are crucial in meeting the growing challenges in modern life.

"Cyberspace isn't just about national security, it's about economic security," he said.

Cal Poly students will now be able to receive intensive training in malware, encryption, cyber attacks and cryptography in the new lab, which was built with the support of a $150,000 grant from the Northrop Grumman Foundation and is connected to the defense company's Virtual Cyber Lab in Virginia. Dale Griffiths, chief scientist at Northrop Grumman's Intelligence System Division, helped configure the lab, which is equipped with specialized software, hardware and television monitors that rotate 360 degrees.

"Cyber threats evolve faster than textbooks," noted Cal Poly President Jeffrey D. Armstrong. "This opportunity is unprecedented in higher education and particularly unheard-of at the undergraduate level. This is much more than a state-of-the-art lab. Cal Poly students will be able to enter the workforce equipped and ready to handle the challenges they'll face."

Computer science student Jessie Pease, president of the university's White Hat cybersecurity club, said the lab would help the club fight hacking and "make the Internet a safer place." Pease, a junior who said her interest in cybersecurity drew her to Cal Poly, said the lab should make her major more popular. "It's really exciting to see this dream become a reality," she said.

"I'm glad I will be able to take advantage of the new lab," she said.

Bush, who joked he would "love to hire every one of the students," said he knows Northrop Grumman will have to compete for them, adding "this is going to be the place where people come to look for talent."

— Amy Heves

INDUSTRY PARTNERS WITH CAL POLY ON CYBERSECURITY

The Cal Poly-Northrop Grumman Cyber Lab represents one part of Cal Poly's initiative in cybersecurity education. The Cal Poly Cybersecurity Center serves as the nexus for a wide range of activities that involve faculty and students collaborating with experts from other universities, private companies, government agencies and research labs. Programmatic and strategic direction is provided by the Cybersecurity Council.

The Cybersecurity Council consists of individuals at the highest levels of cyber leadership in companies that include:

- Boeing
- McAfee
- Northrop Grumman
- Pacific Gas & Electric (PG&E)
- Parsons
- Raytheon
- CLUE

Both Raytheon and Boeing have been key supporters of Cal Poly's initial efforts in cybersecurity; PG&E, Parsons and McAfee have provided recent major gifts to launch the Cybersecurity Council and develop curriculum.

Cal Poly Computer Science Chair Ignatius Vakalis and Russ Bil (B.S., Industrial Technology, 1970), a member of the President's Cabinet and Sun Microsystems' original vice president of operations, serve as council co-chairs.

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Students in Peterson's section of Intro to Computing will explore computer security concepts through a quarter-long Capture the Flag-style game, in which students will work together to try to break into computing exercises, which lack context and relevance; instead, let's go build something fun," he said.

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er security while communicating core computer science principles," Peterson said. "Other sections of the class have been shown to help reduce attrition, increase performance, and maintain women and other under-represented populations in CS. I hope to do the same."

Peterson, an expert in secure storage systems and applied cryptography, said he's not aware of any university offering a course dedicated to security to students in their first quarter.

In the new Cryptography Engineering course, students learn how to build secure systems using cryptography, the science of coding and decoding secret messages. A third class, Malware Research Analysis, was taught in the spring with the help of engineers from McAfee Corp. "They have been extremely generous with their time and resources, sending 10 world-class experts over the course of the quarter to lecture each week," Peterson said.

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