

Tech In The News

Assignment: Occidental College

Headphones Needed: YES NO

Step One:

Read the Article attached below

Step Two:

Navigate to the College website and research [Computer Science Majors](#)
Review the information and click on the sub links for more information.

Step Three:

Create a Word document and write the 5 W's of the LA Times story (below).
Locate the benefit of taking/passing the APCS Exam.
Research and name a U.S. President who attended Oxy
Discuss if you would attend Oxy.edu- why or why not.

Step Four:

Save and submit Oxy.eduyour name

Submit Your
Assignment :

Oxy.eduyour name

To Mr. Amerikaner
Using:

GDrive

Liberal arts aim to give computer science a reboot



SAMUEL Maury-Holmes, 20, uses a virtual reality rig at a computer science show at Occidental College. (Kent Nishimura Los Angeles Times)

By Rosanna Xia

In an upper-level seminar on artificial intelligence, Occidental College professor Justin Li started a discussion outside the realm of a typical computer science class.

Should a self-driving car, if unable to brake in time, be programmed to steer into a wall to avoid crashing into pedestrians — perhaps killing a single person in the vehicle in order to save five on the street?

One question led to another. Is it morally OK to choose five lives over one? How about 10? Who gets to make this decision anyway — the programmer, the government, the person who can afford a self-driving car?

Occidental established a computer science major this fall, one of numerous liberal arts colleges to do so in recent years. They've popped up at Reed College in Oregon and Whitman College in Washington state.

These schools better known for teaching history and philosophy are shaping their programs to draw on their strengths. They don't just focus on the vocational or on abstract algorithms. As artificial intelligence and automation increasingly enter everyday life, their courses push students to examine how modern technology both changes and challenges society.

In Maine, Bates College started a multidisciplinary Digital and Computational Studies program, with aims including "to interrogate the values and assumptions of a digitized world" and "increase understanding of the power and limitations of computers in solving problems."

At Occidental, where a young Barack Obama discovered political science, teaching students how to code is the straightforward part, said Li, a cognitive science professor who led the design of the major. Classes also push students to grapple with the inequalities and philosophical dilemmas that technology is creating out in the world. Such social discussions are woven into every lesson.

"The goal is to make students consider the real-world implications of what they are doing — that their code is not just abstract problem-solving but may have positive or negative impacts on real people," Li said.

Stephanie Angulo, a junior, says it was that approach that drew her to Occidental rather than an engineering school. She hopes to break glass ceilings one day as a tech leader and wanted to study somewhere that would also teach her how to write better.

"You have to think about how you communicate your ideas or how you think about problems," said Angulo, who has interned at Facebook and is studying computer science and philosophy. "My friends and I talk about these issues pretty much every day, whereas I've noticed the people I've worked with who are more engineering-focused don't tend to think about these questions as much."

The broader way of looking at computer science also has the benefit of perhaps drawing new people in to help narrow tech's much-discussed diversity and gender gaps, said Andrea Danyluk, a Williams College professor and member of the Liberal Arts Computer Science Consortium. "We have the art major who needs to take a science course or a history student who discovers this is actually kind of cool," she said.

As more multidisciplinary programs emerge, some in the field caution against taking too much focus away from the fundamentals of computer science. "You need a very solid core," said Kim Bruce, who started the departments at Williams and at Pomona College.

A number of East Coast liberal arts colleges have long-standing traditional programs based in math and computation. But Occidental wanted its new major to break the mold.

"Our goal isn't to emulate Stanford or MIT in terms of engineers," President Jonathan Veitch said. "Our goal is to graduate students who are versed in the ways in

which technology's impacting their life socially, culturally as well as politically — and to play some kind of thoughtful role in high tech.”

Choosing Li, whose field of expertise is multidisciplinary, to shape the major was the first step.

He looked at what other campuses were doing and found that many lacked classes that directly addressed ethics. He also noted the diversity issues.

Across the nation, more than 80% of computer science majors are men. Of the 1,780 doctorates granted in the field in 2015, just 1% went to black students, 1.7% to Latinos and less than 19% to women, according to the Computing Research Assn.

“Starting a new department is a rare chance to tackle these issues from scratch,” Li said.

Occidental's major includes a more traditional track, a mathematics pathway and a “CS + X” option in which students are free to choose the X, whether it be integrating gender studies, economics or music. They can pursue projects about anything that interests them — segregated housing, language patterns, whether there's racism in census data.

Kathryn Leonard, the department's chairwoman, who majored in English and math in college, encourages students to use their broad liberal arts educations to think about the role of humans in technology.

“If we're the ones building the machine, then we have to be very careful about putting our own biases into the machine and, furthermore, putting in biases that we aren't even aware of,” she said. “In order to have that kind of awareness, you need an exposure to a broad range of perspectives.”

Junior Chloe Zeller is double majoring in computer science and cognitive science and minoring in math. She was worried that computer science would be too hard, but says the way Occidental teaches the material helped her find ways to make it her own. She's been studying gender bias and inequity in computer programs. She's inspired by the diversity both of her classmates and of their interests.

“CS is situated in a lot of different places now. It's not just this discrete thing that's by itself in a little box,” she said. “In my very first class, there were a variety of math people, science people. I had a politics major in my class, a psych major.”

That diversity helped draw in junior Luis Figueroa, who was intimidated because his high school in San Luis, Ariz., didn't teach computer science. Now he's double majoring in it, along with math. He's interned at NASA's Jet Propulsion Laboratory and hopes one day to return to his hometown to teach kids early in their education that “computer science really can be connected to everything.”

At a recent computer science show and tell, dozens of students crowded around to see what the new major was all about.

At one table, Allie Brenner described the neural network that she and a classmate had built to recognize and distinguish between tweets from President Trump and former President Obama. One challenge, she said, was teaching a computer to detect sarcasm — which was key because Obama and Trump often have used similar words in different ways.

“The hardest part for us, we were actually joking about it the other day — it’s no longer the coding that’s intimidating,” said Brenner, who is double majoring in computer science and psychology. “It’s the theory and the thought process behind it all.”

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