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Successful career in the technical industry 101

On July 22, LSU's Center for Computation & Technology (CCT) in collaboration with LSU's Office of Strategic Initiatives held an industry panel for students in the STEM disciplines. CCT's Juana Moreno who is an associate professor at the Department of Physics & Astronomy, organized the event with CCT's Scientific Coordinator Bety Rodriguez-Milla, while CCT's Deputy Director Honggao Liu moderated it. Distinguished employees of Albemarle, Dell, Dow Chemical, and ExxonMobil shared their career paths, job opportunities, and insights on how work in the industry is different or similar to academia.

More than 75 students came to the panel session, the majority of them graduate, but undergraduate students, including summer Research Experience for Undergraduates (REU) participants, and several post doctoral researchers attended as well. Several faculty expressed their interest in the event, too, including CCT's faculty Brygg Ullmer and Mayank Tyagi, and the Department of Chemistry's Les Butler. They wanted to know what academia does right and wrong for students to prepare them for a career in the industry.

The most important question on the agenda was what it takes to succeed in the industry. All of the panelists agreed that experience is one of the most important factors in landing a good job.

"I decided to co-op in college, and it was the best decision I ever made," said Blake Gonzales, high performance computing scientist at Dell Inc. "What you can actually do will make the world of difference, not your GPA or where you went to school," he added.

"I had a low GPA at one point as an undergraduate student, but received 13 job offers. So if you don't have a job yet, walk out of this room after our meeting and find one!" he said.

When asked about differences and similarities between industry and academia, the panelists agreed that the main similarity is the requirement to learn and grasp new concepts.

"The difference is in how you apply what you learn," said Jennifer Montgomery, Baton Rouge site utilities engineer at ExxonMobil. "In academia you will have to pass a test, whereas in the industry you are not tested on your knowledge, but you have to get it right," she said.

"Learning is very important for me, too, and while designing supercomputers at Dell, I spend a lot of time reading and writing papers," said Gonzales.

"Go beyond what your boss tells you. He tells you to do X, then go do Y as well. And go do some research. If you are the only guy on the team who does the work plus writes white papers, you will be looked upon as an expert," he added.

"How fast you can learn is critical. My degree is in chemistry, but I work as an engineer," Montgomery said. "I use many concepts from college, but I had to learn how to think as an engineer. Understanding and mastering the thought process of an engineer was necessary to succeed," she added.

The faculty who came to the event wanted to know what they could do to prepare students for careers in the industry.

"We want more risk takers, said Wyndham Cook, PhD, research funding director and scientific liaison at Albemarle. "More challenge-the-system, fearless types of people who are change-agents. I also want them to have a vision," he said.

"Teach them how to work in groups more effectively," Gonzales suggested. "The hardest part is not the actual assignment, but dealing with people. And that's what real life is all about."

"The thing that they don't teach you in academia is taking everything you've learned, putting all the concepts together, and actually coming out with a result," Montgomery said. "This was the biggest disconnect I found and it was challenging," she added.

When talking about job opportunities at Dell, Gonzales pointed out that there are many open positions in the area of high performance computing (HPC).

"HPC is infiltrating every part of society, every manufacturing process, every biological process, and it is becoming a very exciting field to work in," he said.

Gonzales mentioned a project recently implemented by Dell that involved the top cancer that strikes children. After the little patients are diagnosed, it takes several weeks to start treatment, because doctors first must complete DNA sequencing that requires a lot of computation. Dell's specialists in HPC were able to cut down the time from several weeks to four hours. This can literally save lives, as children will be getting their treatment sooner now.

When asked about what advice they could give students, all panelists emphasized the importance of hard work.

"Whenever you go into the industry, when you walk into that door, every one else around you is giving 100 percent," Montgomery said.

"That's not enough. Are you everybody or are you setting yourself apart from everybody? If you want to succeed, it will require 200 or 300 percent. There are times when I wake up early on a Saturday morning after having stayed at work until 10 p.m. the night before, but they are expecting me to be there at the crack of dawn. Those are the hard days. But when I sit back and look at everything I've learned while walking, eating, and sleeping ExxonMobil, I realize how rewarding it was," she added.

"How well you keep your skill set up-to-date is in your hands," said Larry Meiske, PhD, process consultant at Dow Chemical. "The more you keep yourself current and competitive, the more companies will look at you. It's up to you to write your career path," he said.

"And don't get frustrated with doing the basics," Montgomery recommended. "Don't get upset that you are not at your dream job right after you graduate, because it's a process and you have to be patient with yourself to get through that process," she said.

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