Feature Educator Highlight

Gregory Florant

Interviewed by Laura L. Mays Hoopes

Halstead-Bent Professor of Biology and Molecular Biology, Pomona College, Claremont, CA 91711

Note from the Editor

Educator Highlights for CBE—Life Sciences Education show how professors at different kinds of institutions educate students in life sciences with inspiration and panache. If you have a particularly creative teaching portfolio yourself, or if you wish to nominate an inspiring colleague to be profiled, please e-mail Laura Hoopes at lhoopes@pomona.edu.

LH: Greg, you've been a professor at some very different kinds of institutions.

Florant: Yes, at Swarthmore College, a very small and select school, Temple University, a large and urban school, and now I'm at Colorado State University (CSU), a big state school with large classes of students with a variety of abilities. There are good students everywhere, although the concentration is highest at Swarthmore.

LH: What has been your most exciting teaching experience?

Florant: It was back in my days at Swarthmore, teaching Comparative Physiology. We never abused an animal, but we did real experiments using animals and humans, and the students learned a great deal first hand. Today it would be very difficult to offer such a laboratory course. Two students from that class are now professors and many went on to medical school. The dynamics were tremendous—there were only 15 students in class and we really talked together and worked as a team.

LH: Did that class work so well because there was a small class of very strong students, or was there something about the design that made it succeed?

Florant: I think a little of both. Undeniably, these students wanted to learn. But I will say I tried to facilitate that learning. I gave them the information they needed and the opportunity to learn in many different ways. In laboratory, I designed the experiments so that the students would grow in skill and in understanding of the concepts. We took field trips to see the animals in their natural settings. I was available—it was before I was married—and I was available day and night. Some of those students became undergraduate researchers with me, and I came back to the lab at night

Greg Florant, Professor of Biology, Colorado State University, Fort Collins, CO

to go over articles with them. I made sure I used challenging material and made the material as clear and well organized as I could. I brought in guest lecturers. Not one of those students complained that the course was too difficult. They said it was challenging but that they learned a great deal and appreciated it. I teach the same way at CSU, but now the students say "Too hard." But there are always some exceptional students that rise to the top, that respond the same way my students did in that great class at Swarthmore. At state institutions students come from all walks of life. The situation was similar at Temple, where I was for five years. Some of the students were great, but the spread in interests and preparation was broader than at Swarthmore.

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Address correspondence to: Laura L. Mays Hoopes (lhoopes@pomona.edu).

LH: Are there any special ways you try to encourage the participation and success of minority students in your classes?

Florant: No. I only have one or two minority students in a class. The ones enrolled in my Comparative Physiology class are usually good students. I talk with them to break the ice. I may call them and say, "I didn't see you in class, is everything okay?" I exchange e-mail with them regularly if they respond to the call. In fact, some of them exchange e-mail with me years after they graduate. When I teach 800 students in the Introductory Biology class, I make it known that I'm accessible. I go to the Black Student Services office and make known my availability. But there are so few black students here that my efforts are not very successful. We have 22,000 students, 800 biology majors, and one or two black graduates each year. The chemistry barrier weeds them out.

LH: What about Latino students?

Florant: Yes, we have a lot of Latinos here in Colorado. They don't usually seek me out, although I make myself available. We just hired a new professor who is Latino. Perhaps they'll talk with him more. I've helped a couple of Native American students, though. I do seek them out also, and they have welcomed my support.

LH: What do you think about study groups for minority students? I recall Uri Treisman's study at Berkeley that

showed that Asian American students succeeded more than other minority groups in math because they formed study groups.

Florant: It all depends on what the study groups do. If they simply ask each other things like, "You know the Krebs Cycle, right?" then it's not worth the trouble. But if they say, "Okay, everyone draw the Krebs Cycle and let's check it," that's much more valuable. With all the technical support we have today, the students still need to put the black on the white, or they won't know if they get it.

LH: Can you recall a great moment in your teaching experience?

Florant: Here's one I'll never forget. We were studying hormone physiology—specifically insulin and glucose regulation. The students ate a pint of Häagen-Dazs ice cream. They collected blood samples for glucose testing. When we plotted the class data, there was one student who was an outlier. Luckily, she was a very open student and wasn't upset that we diagnosed her with possible diabetes. She went to her doctor later and confirmed type 2 diabetes. She talked about the biology of it with the class with no embarrassment. We all felt awestruck by the real effects of our study.

LH: Have you ever used computer labs, simulations?

Florant: No, we're having a harder time at CSU today giving any lab work to our students. But here's my problem with computer labs. You see the veins in your wrist there? Are they always in the same place in every person? No. You find out there is so much biological variation—we always discuss that during real experiments. Every animal, every person is different. Sometimes I show experiments on the board and I say "this structure may be located anywhere from here to there." Some students like experiments described, some don't—you have to take the bitter with the sweet. I do ask students to write a critical paper. Often it's on data from a paper or from a reliable source. I ask them to write an Introduction, Materials and Methods, Results, and Discussion from the hypothetical lab, just as if they had done it themselves. They have to figure out the hypothesis they're testing, etc. Some students love doing that, and they learn a lot. Or, I let them choose a paper they like and critique it. They gravitate to different topics. I let it count for one-fourth of the semester's grade. It can help students who are struggling with examinations to raise their grade considerably. I'll meet with each student to discuss their methods. If the paper or data came from a while ago, I'll ask them to look into whether a new, better method has been developed that they can suggest using instead of the one used.

LH: How about undergraduate research?

Florant: I have an NIH program to support it, and have students from all over the country. I've had a student from your college! Most of the students are from CSU, though. This year one of the students won second prize at the National Institutes of Health STEP-UP research symposium at Charles Drew University in summer 2007. Every year for the past four years, we've had students win best talk or poster.

LH: Thanks for talking about education with CBE-LSE, Greg.