

Feature Educator Highlight

Carol Hurney

Interviewed by Laura L. Mays Hoopes

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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: Do you have a favorite course?

HURNEY: The course I can't imagine not teaching is for nonmajors. It was my first assignment and I've taught Contemporary Biology every year now for 11 years.

LH: What do you especially like about that course?

HURNEY: It's the wonder and amazement when the subject matter is actually intelligible to them and the students find that they're good at it. They say things like, "I'm actually smart—and this isn't rocket science after all!"

LH: How do you get them so interested?

HURNEY: I've tried to make it a learner-centered class, even beyond active teaching and just-in-time teaching. It's topical, current material and we do warm-ups before class to get the students involved. The students collaborate in groups on most of the work. And most importantly, they make decisions about the course topics and other aspects of the course, like which assignments are worth more points than others.

LH: Do you set the topics in advance?

HURNEY: Sort of. They choose from my list. I give the class supporting materials from BioNews (www.biologynews.net/rss.php). I point them to five articles about biology. They get so excited that they can choose biology topics from the news to work on in the course.

LH: How do you prepare them to learn about things in the news, like shark cartilage therapy for cancer treatment?

HURNEY: I discuss with them how to find reliable science information on the Internet. I tell them to look in what they're reading for evidence of someone having done experiments. Most importantly, I have them DO this. They go out and find *reliable* resources to address current issues that influence their lives.

LH: How does this course compare with what you'd find in a nonscience major's textbook?

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HURNEY: I teach the same basic biology—how DNA codes for proteins—it's just explained relative to the topic they have chosen. I don't think lectures are evil. For example, if the topic they've chosen is colony collapse disorder in bees, I'll give background readings and then lecture on bee biology, microbiology, and chemical pollution, then have them apply the material. They are willing to spend extra hours on it because it relates to something they chose.

LH: How else is your course learner-centered?

HURNEY: Well, I let the students assign point values to the different graded parts of the course. I thought it would be hard to manage, but I've found it is not. Some chose to emphasize exams, others put most of the credit on projects. Those who choose to emphasize examinations study harder for them. With spreadsheets, it's not hard to figure at all; I just use a different formula for each student.

LH: What do you want to do in the future?

HURNEY: I just started using clickers in my class for biology majors (organisms) about a year ago, so one thing I want to do in the future is assess the impact this technology has on student learning. Easier said than done, but with my position as the Assistant Director for Faculty Innovation, James Madison University (JMU) encourages me to experiment with different methods of teaching and share the results with my colleagues.

LH: Tell me how you use assessment.

HURNEY: JMU has really been trying to do assessment right. The biology department redesigned its curriculum in 2001 and has followed the results via assessment. We have used a JMU-based instrument (The Natural World, www.jmu.edu/gened/cluster3.shtml) to assess scientific and quantitative literacy in the bio majors. We have found that biology majors develop similar higher-level skills. We have a manuscript in preparation on our results. We also use the National Content: Major Field Assessment Examination (www.ets.org/portal/site/ets/menuitem.1488512ecfd5b8849a77b13bc3921509/?vgnextoid=f119af5e44df4010VgnVCM10000022f95190RCRD&vgnextchannel=86f346f1674f4010VgnVCM10000022f95190RCRD). It's not perfect, but it contributes to a student's portfolio or senior-level achievement record. It won't allow direct comparison with known colleges elsewhere, but it's useful for longitudinal self-assessment. When we improved the molecular and evolutionary biology in lower-level courses, the students' performance in these areas improved noticeably.

LH: How about self-reporting?

HURNEY: We do an academic skills inventory, asking the students questions about their degree of agreement with statements such as, "I feel confident giving class presentations," and "I feel comfortable giving a poster on my results." We also do some focus groups with seniors, asking

"Why did you do undergraduate research? Why did you take these particular courses? Did they fulfill your expectations?"

LH: Any other assessment-related activities?

HURNEY: We have an Assessment Day. All classes are cancelled. In biology, we get pizza and all the faculty show up to thank the students for participating. The big question for us is, "What do we do with the data?" It's a large time-investment, and it seems like we just say things like, "Okay, this worked, so let's keep doing it." I'd like to see us use Bloom's Taxonomy more in devising teaching strategies and assess its effectiveness, and then adjust what we're doing.

LH: How did you prepare for this interesting combination of tasks?

HURNEY: I was an eighth-grade teacher, and I took a few education courses as an undergraduate. I taught, then went to the University of Virginia for a Ph.D. to increase my content knowledge. Now I get to do both biology and teaching, both of my favorite things.

LH: What do you do with your faculty innovation position? What are your responsibilities?

HURNEY: I run workshops and plan events where faculty can talk about effective ways to increase student learning. We try to create a variety of environments where faculty can spend time exploring ways to enhance their teaching, research, and service commitments.

LH: How about the biology position?

HURNEY: I have a research laboratory and involve undergraduate research students. We're working on how salamanders continue to add segments to their tails throughout their lives. We collect *Hemidactylium scutatum* embryos to study how their tails develop. We've cloned a gene that's important in this process. We are preparing two manuscripts—it's very exciting work!

LH: Is your department supportive of both your biology and your teaching-related activities?

HURNEY: Yes, they value everything I do. I received tenure in 2006 and I hope I am on track to go up for full professor in a few years.

LH: Thanks for telling CBE-LSE about your teaching!