



Dr. Bassam Z. Shakhshiri

Once dubbed the “coolest UW professor,” he brings a love of science to the masses

One of the most fascinating things about studying science is that “aha” moment: A concept that was previously unintelligible is suddenly clear as day, and another of the universe’s mysteries is within your grasp. For the science-challenged among us, however, these epiphanies can be a bit out of reach. Complicated articles and intimidatingly thick textbooks can turn off the most eager student. But thanks to University of Wisconsin-Madison chemistry professor Dr. Bassam Z. Shakhshiri, those who hold “seeing is believing” as a personal mantra have someone on their side.

Shakhshiri travels the world delivering “aha” moments to lucky audiences of all sizes and ages, and is well known for his annual “Once Upon a Christmas Cheery in the Lab of Shakhshiri” presentation. His accolades are too many to list here, but include the 2007 National Science Board Public Service Award and the first ever William T. Evjue Distinguished

Chair for the Wisconsin Idea in 2001. His has been a life driven by curiosity and a need to share what he’s learned with others.

Cayce Osborne: Let’s start at the beginning. How did you end up in Madison?

Dr. Bassam Z. Shakhshiri: I was born in Lebanon and came to the United States in 1957 with my parents and two younger sisters. My dad came on a sabbatical leave to Harvard. He was a physician who came for a one-year visit and never went back. I completed my high school and freshman year of college at the American University of Beirut, then finished my undergraduate degree at Boston University and taught at Bowdoin College in Maine before going to graduate school at the University of Maryland. Then I got my master’s degree and Ph.D., and did post-doctoral research at the University of Illinois. I taught there for two years, and in 1970 I came to Madison.

CO: When did your interest in science begin?

BS: When I was a little kid, I was fascinated by colors. My mother knitted a sweater for me that was yellow and I wanted to know what yellow was — what causes things to be colors. I received a lot of encouragement from my parents and teachers. When I went to college, I had to decide what to major in. I have lots of interests: philosophy, religion, political affairs and science. I decided to major in chemistry, so that it would help me answer questions that I was dealing with [about how our world works].

CO: Where did your desire to be a teacher come from?

BS: I had some very good teachers, both in high school and college, but I also had some teachers who weren’t so great. I wanted to show that I could do better. I decided to become a university professor because it would give me the opportunity to learn more, and also share what I learned with other people. It’s a beautiful career and a

fantastic opportunity to continue personal advancement, but also to share and teach others. The three things that keep me going are learning, teaching and public service.

CO: Has your teaching style always been demonstration-based, or has it evolved?

BS: That's what I wanted to do [from the beginning]. I wanted to go into teaching because I was overjoyed with what I learned and I wanted to share that with others. I found that using demonstrations and communicating with people in a variety of ways is very effective.

CO: Do parents come to you for advice on how to get their child interested in science?

BS: I get all kinds of questions, including this one. Kids are curious, and what I'm interested in is promoting the nurturing of that curiosity for kids of all ages. The programs that I do are, of course, aimed at kids, but the truth is, they are a conduit to the adults. When I get questions from parents on behalf of their offspring, they are really [also] asking those same questions, and this interaction is not only fascinating, but also very rewarding. It's a rather comprehensive goal that we have, to try and raise the level of science literacy.

CO: I know you feel that the confusion between scientific literacy and science literacy is important to define. Would you explain the difference?

BS: Scientific literacy applies to the practitioners of science: the approaches they use, the skills they have, the way that they conduct their research. Science literacy refers to the appreciation of science, without necessarily a deep understanding of chemistry, physics or biology.

I'll give you an analogy: We have professional athletes in all kinds of sports. But we also have sports fans, and without them, the entire professional sports enterprise would be nothing. And that's not an exaggeration. So that's what we need — we need scientists *and* we need science fans.

CO: How do you think it benefits the general public to be literate in science?

BS: We live in a very advanced scientific and technological society. [These things] are the engines that drive our economy, and that's why we need everyone to appreciate and

learn what advances in science can do for us. But we need to be careful that we not only advance knowledge but also control the potential hazards and damages. Once an invention is made, you cannot dis-invent it — like the gun. But you can decide in a rational way whether or not to use it. We face so many issues, economically, environmentally — even human issues. Part of the solution is based on what we learn from science.

CO: One way you try to increase the level of science literacy locally is through your annual Christmas lecture. What first inspired it?

BS: I learned about a tradition that the great British scientist Michael Faraday used to do around Christmastime 160 years ago. He would gather young people and their families at the Royal Institution in London to present what he called "The Christmas Lecture." When I came to Madison in 1970, I decided to do my own.

Originally it was called "Once Upon a Midnight Dreary In the Lab of Shkhashiri," borrowed from Edgar Allen Poe, but of course nothing is dreary in my lab, it's all cheery! So we changed it. I did it for the first time in my class [at UW]. Word got out that this was fun, so the following year we moved it to the evening. Word got further out, and people from the city started coming, so we ended up doing four shows each year. In 1973 Wisconsin Public Television first broadcast it, and now every year PBS shows it.

Faraday did his Christmas lecture for 19 years, and I'm proud to tell you that this year will be my 39th. We'll see how many more — I'm not ready yet to think about not doing it!

CO: Does your program change each year?

BS: There are some signature experiments, that if I don't do them, I will hear loudly about it. So I do those, and I also have guests. Santa Claus is a guest, and so is Bucky Badger. There are others — young, talented people who not only do science experiments but also play music.

CO: You do many of your demonstrations over and over, like these "signature experiments." Do you ever get bored?

BS: Some of them I've done not only hundreds but thousands of times, and

every time I learn from them, especially in front of an audience. I watch the facial expressions, I react to their reactions, and frankly, I feed on it.

CO: What are your feelings on women in science, and the progress they've made?

BS: Women have made great strides. The talent in our society resides with the majority, and that's women. One of our programs in the Wisconsin Initiative for Science Literacy (WISL) is aimed at helping women break down barriers that have traditionally existed, removing prejudice and trying to demonstrate that if you really put your mind to excelling at whatever you want to do ... you can do it. It's really a privilege for me to have the participation of women in these programs, young women as well as accomplished researchers and scientists in a variety of areas. The fact is that we live in a society where everyone's contribution *should* be valued.

CO: If you had not chosen science, what do you think you would be doing now?

BS: Science is fun; why would I do anything else? Actually, I probably would have gone into politics. I like public service — that's why I went to work in Washington, D.C. [as chief education officer for the National Science Foundation, an independent federal agency that reports directly to the President]. It was my patriotic duty.

If I were to do it all again, I would do the same things, but some I would try to do a little bit earlier [in my career], like linking science, the arts and humanities and promoting dialogue among scientists, engineers, artists, humanists and performers. That's something we've been doing since the establishment of WISL [in 2001]. Also, I would have done more to emphasize the importance of public discourse about science and religion. People say those two disciplines are at odds with each other, but they aren't. Science is a human endeavor, one that can advance or destroy society, which is why we must promote discourse on such very important issues. ☀

Professor Shkhashiri's free Christmas lecture will take place this year on December 6 and 7 on the UW campus. For tickets and information on programs, experiments you can do at home and more, visit www.scifun.org.