

■ Andrew Berger, 2007

When Andrew Berger got his first taste of teaching—as a volunteer tutor in the New Haven, Conn., public schools—he was hooked. As a graduate student, he sought out teaching opportunities in a program that didn't require them.

Now, as an associate professor of optics, Berger helps students to navigate their way through electromagnetic theory and to tackle advanced lab courses devoted to building lasers and studying how to manipulate light.

"I'm always energized by the thought of how I can reach students, how I can help them wrestle with this material," he says.

Advisor to alternate-year incoming optics freshmen and chair of the Institute of Optics undergraduate committee, Berger is captivated by the college experience.

"Everyone's transformative process is fascinating," he says. "How do you guide people to what's best for them" as they consider possible fields to pursue?

A specialist in biomedical optics, particularly spectroscopic diagnostic techniques, Berger admits to being an actor on the side. And in the optics classroom, his emphasis is on pulling back the curtain so that students can look carefully at what's happening "backstage."

"In optics, the challenge of teaching to undergraduates is not to be too abstract—to put your energy not into presenting a seamless train of thought but into chopping it up," he says. So he uses peer-led workshops, and in lectures checks in with students frequently, using questions, hypothetical scenarios, and other techniques to engage them.

"If the students don't understand most of the content of what's discussed, you've wasted very precious time in the classroom."

Berger thinks of himself as the students' guide in working with difficult material, always explaining explicitly what he's trying to teach them and keeping their questions at the forefront of the course. The biggest challenge, he says, is building in the time to listen during class.

"As long as I'm prepared, I love being up in front of people. I'm as happy as the next guy to hear myself talk," he says.

"But I try to fight that temptation. I strive to talk as little as I can."

