

**Boulder Faculty Assembly
2007 Excellence in Teaching Award Citation**

Noah Finkelstein

In the short span of four years, Noah Finkelstein, an Assistant Professor in the Department of Physics, has changed the landscape of science education in the classroom, on our campus, and beyond. At this early stage in his career, Noah has already made a mark—on students, to be sure, but also on our best faculty. The list of faculty who wrote nominating and supporting letters reads like a who's who of teaching excellence on our campus: John Cumalat, Steve Pollock, Jamie Nagle, Clayton Lewis, Paul Beale, Michael Dubson, Lorrie Shepard. Student letters were likewise effusive, with some signed by as many as seven students.

Noah's research focus is Physics Education Research. But as Steve Pollock and Jamie Nagle are quick to point out, that does not automatically guarantee good teaching. In Noah's case, however, they note that the combination has been "extraordinarily productive." Clayton Lewis observes how powerful and beneficial that synergy has become: "It is one thing to be a fine classroom teacher. It is another thing to be an innovator in teaching. It is still another thing to back up one's innovative ideas with persuasive data, and to bring the ideas and data to an international audience."

Members of the Physics Department writing on Noah's behalf note the impact he has made on teaching innovations and curricular reform. He has led efforts to specify and assess learning objectives and outcomes, and has introduced numerous innovations into the classroom, among them undergraduate learning assistants, computer simulations, and tutorial methods. As John Cumalat stresses, "Noah contributes in the full range of teaching activities." He goes on to note that, from the department's perspective, "Noah's greatest strength is his ability to teach well at all levels: from elementary, large enrollment lecture-plus-lab courses provided for students not majoring in a science to our special topics graduate physics courses." Beyond the Physics Department, Noah has made a profound impact on campus, from Engineering to Education.

Although international in its reach, Noah's impact is most impressive in the classroom itself. As Steve Pollock and Jamie Nagle observe: "Noah's classes are consistent models of modern teaching: highly interactive, student-centered, frequently collaborative environments with informed use of technology both in and out of the classroom." Michael Dubson gives us a visceral sense of the energy and excitement: "Noah's real genius in the classroom is his remarkable ability to engage the audience and make them participants in the lecture. Noah lays out the basic physics of the lesson and then asks the audience to try to make sense of it all, to try to poke holes in his arguments, to try to understand the concepts deeply." For the first days, to get the conversation going, he will often dip into a pocket full of candies so he can throw treats to any student who asks or answers a question. But the candies quickly become superfluous as students learn that their thoughts and questions shape the very essence of his lectures.

My own classroom visit to a course on quantum physics confirmed just how deserving Noah is of this award. The course focused on a physics that, in a Newtonian world, would be judged as "classically forbidden." What impressed me was the quantum leap I witnessed in science instruction: I saw learner-centered teaching in action, with students eagerly collaborating with each other and with Noah, and with computer simulations providing a hands-on sense of the concepts. What's "classically forbidden" in Noah's classroom is old-school science education. And for that, we and Noah's students are in his debt.

Rolf Norgaard, Program for Writing and Rhetoric
Chair, BFA Teaching Award Selection Committee