

Distance learning a losing tactic for advanced physics

I was very dismayed to learn that some US universities are putting such a low priority on fundamental science that they are pooling students into “distance learning” for upper-level physics coursework. Now is the time to put resources into undergraduate physics programs, not to withdraw them. This country is at an all-time low for US citizens earning PhDs from its own graduate programs in physics and engineering.

Physics is the most difficult academic subject to study, and few students have both the skills and the willingness to work hard enough to succeed in it. Getting through freshman-level physics, although challenging, is a walk in the park compared with passing upper-level physics, let alone doing well in it.

Those students who make it into upper-level coursework have earned the right to a solid program. According to “Small Programs Survive by Pooling Students” (PHYSICS TODAY, September 2005, page 31), it is at this point when the most basic resources, such as professors to speak with in person and lectures to attend in person, are being cast off. The apparent reason for the pooling of students, from the bean-counters’ perspective, is to save money, since some states will not fund courses whose enrollment drops below a certain threshold.

Distance learning is a prescription for the death of high-level science and technology, for the following reasons: Students need the physical presence of professors; professors need to observe students directly in order to judge their needs and their understanding of the material; and faculty need to keep their teaching skills honed through regular opportunities to teach upper-level physics courses. If upper-level courses are shared among institutions, professors will be teaching their specialties only once every four or more years; without practice, professors will see the deterioration of their skills and their effectiveness as teachers.

Administrators must understand that many fewer students have the ability to learn physics compared with those who do well in the humanities. If we want to retain the few students who can—and choose to—study physics, then we must provide them with at least the minimum resources, including professors in the flesh, real instead of virtual lectures, and all the help they need to succeed.

Since the US has a great need to bolster science, we should be putting every-

thing we can into making programs better, not worse. It is my opinion and that of the colleagues I’ve spoken to that upper-level distance learning courses will end up destroying our programs in physics, not saving them. If our nation wants to improve science academics, universities have to bite the bullet, hire the best faculty, and see the lean times through. Otherwise, the world will see no new science and technology coming from the US during this century.

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Phillips’s death marks the end of an era

With the passing of Melba Newell Phillips in November 2004, an era of three great women in physics came to an end. They are Lise Meitner, Maria Goeppert Mayer, and Phillips.

These three physicists contributed immensely to research and education in physics, yet they faced a tremendous amount of discrimination and difficulty in securing decent university positions. As a result, they were not able to guide graduate students toward their PhDs and stay active in their respective fields.

I strongly feel that the younger generation of our physics community, in particular women physicists, must be made aware of the achievements of these three physicists.

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Editor’s note: See the obituaries in PHYSICS TODAY for these three women: Lise Meitner in December 1968, page 101; Maria Goeppert Mayer in May 1972, page 77; and Melba Phillips in July 2005, page 80. All three obituaries are available online with this letter at <http://www.physicstoday.org>.

Memories of Philip Morrison

I was saddened to read in the March 2006 issue of PHYSICS TODAY (page 83) of the death of Philip Morrison. As a graduate student in chemistry at Cornell University (1950–54) with minors in math and physics, I was fortunate that Morrison was the teacher of my first graduate physics class, Theoretical Mechanics. What a teacher he was! At the end of a class, his face often running with sweat from his exertions, he would beam at the

class with a smile I remember vividly still.

I was also fortunate that Morrison agreed to represent the physics department on my doctoral committee, and at my oral qualifying exam, he demonstrated both his sense of humor and his quickness of mind. I arrived for my oral at Baker Laboratory to find that a final doctoral exam for an organic chemist had also been scheduled for the same room and time. The organic chemist had been working with an obscure and complex organic compound, a molecular model of which was lying on the lecture-room table. While my major professor, Frank Long, and the other professor were discussing which exam would be moved, Morrison entered.

He stopped by the table, gazed at the complicated molecular model, and then remarked, “Ah, I see you have been studying ____” and gave the correct chemical name of the compound. A profound silence followed as the assembled chemists marveled at the chemical erudition of this physics professor. I did not know then, nor do I remember now, what the compound was, and I suspect that Long, a physical chemist, was equally unsure.

As department chairman, Long won the argument as to which group would leave. After the organic chemistry student and his committee had departed, Long turned to Morrison and asked how in the world he had recognized that obscure chemical compound. Morrison flashed his charming smile and explained that as he had walked over to the lab, the organic chemistry student had passed by, carrying his thesis, and Morrison had glimpsed the thesis title in which the compound was named. He deduced that the molecular model on the table most probably represented the compound named in the thesis title and was thus able to astound the assembled chemists.

It was a great privilege to have known Philip Morrison.

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The obituary for Philip Morrison, written by Leo Sartori and Kosta Tsipis, is lovely. Readers may be interested to know of an online memorial site dedicated to Philip and Phylis Morrison: <http://www.memoriesofmorrison.org>. The site contains many personal memories of Phil and Phylis, and readers may send contributions they wish to share to stories@memoriesofmorrison.org.

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