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PROFESSOR: I'm Sanjoy Mahajan. This course is Teaching College-Level Science and Engineering. The course is intended for graduate students some towards the end of their PhD who are intending to go onto academic teaching careers. But all graduate students are welcome, and even undergraduates who have a strong interest in teaching.

The goal of the course is to give some preparation and background into the principles of teaching, so graduate students and in fact as undergraduates too, all get the same for their specific research area. For example, in physics, they'll learn the principles of conservation of momentum and energy. But in teaching, everyone is basically just thrown to the wolves and figured, well, if you know your subject, you can teach or given very little preparation.

So the idea is to actually show that teaching and thinking about teaching is a very serious intellectual activity. And there's general ideas and principles that can be used to make teaching much more successful. And therefore, students learn much more and enjoy what they're learning.

Many departments encourage their students who they know are going on to teaching careers. They say, well, you might actually find this course interesting. It's paired also with another new program at MIT, called the TA certificate program, which is a non-credit option where students do about six or seven seminars of an hour and a half each and do work for each seminar. Here, this is the sort of four-credit cousin of that course. And it's for students who want to do everything in one semester and want something on their transcript as well.

So at the end of each lecture, I give out a short sheet that has three questions on it.

One is what was most confusing today or what do you wonder about most? What example or teaching technique worked well or not well? And any other comments?

And so at the end of each session, the students have one or two minutes to fill that out. And at the end of the next session, I answer all the questions. I was just amazed at the thoughtfulness of the questions and how right on they were and how many useful suggestions I got for when I teach the class the next time.

Many students have told me they think everyone who teaches should take it. And some told me also that they wish some of their professors had taken those classes, their professors from when they were undergraduates. But on the other hand, if it were required, then it wouldn't be such a lively atmosphere as it is now, where we have students who really are fascinated by teaching and are therefore much more motivated to contribute. But the theme that I got from many, many students was, wow, this has really helped them thinking about their teaching and said oh, finally, this may be the only preparation I get in teaching and I'm really glad I had that.