

Statement of Teaching Objectives

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What goals do I have for my students?

I set four goals for my students:

- 1) mastery of the fundamental content of the courses
- 2) acquisition of analytical skills that transfer across disciplines
- 3) ability to construct and evaluate logical arguments
- 4) appreciation for climatic sciences via personal awareness of weather events, climate phenomena, and principles at work in the “everyday” world

How can I facilitate the teaching process?

To make my teaching effective, I research my students' backgrounds and then define an appropriate prospectus that outlines the theme and contents of the course. While teaching *Physical Climatology*, a joint course for undergraduate and graduate students, for instance, I give a diagnostic exam in the first class to assess the students' knowledge of climate sciences. I find this has been well received by my students who normally come from several different colleges. The students can find the course materials on the course web page. They can also use the online Blackboard to access lecture slides and engage in discussions in which I participate on a daily basis. In addition to these resources, I hold regular office hours, and I make myself available to them through emails over weekends and holidays, especially before an exam is given. The Blackboard discussion has been really effective for *Climate: Past, Present and Future*, an introductory-level course to non-major students. To make lectures interesting, I use various teaching aids, including demonstrations, videos, and plays. Recognizing that each student learns in a different way, I evaluate students using different techniques (e.g., exams, lab projects, essays or works that demonstrate their critical thinking).

In graduate teaching, I help graduate students establish a sound scientific background in climate system sciences and acquire skills in mathematical analysis, numerical modeling and interpretation. Students learn more through the completion of complex projects that consolidate large areas of the material being covered. I also want my students to understand how climatic variables are measured; for example, taking them to an eddy-covariance flux tower site is a good way for them to gain first-hand observational experience of the biosphere–atmosphere exchanges.

In graduate supervision, I nurture the students in order for them to become the leaders in their fields. I hold regular research meetings for graduate students to discuss their research, to improve presentation skills, and to share news, announcements and items of general interest. I also regularly sit down with each student and review her or his degree goals and discuss the next steps in the research project. I encourage and help them to apply for federal fellowships (~50% of my students have received national fellowships). I encourage and assist them to publish before their dissertations or theses are written; most of my students have two or more refereed papers before graduation. Because female and minority students are under-represented in earth sciences, recruiting them and bringing them to successful graduation have been one of my top priorities in the past eight years at UT-Austin; well over 80% of my graduate students are female or minority.

I received teaching excellence award in 2004. I will not only continue pursuing excellence, but also look to innovate more.