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Some more things I have learned about being a Professor-Teaching

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in **terms**

Have fun teaching: I hate the advice to new faculty to do the minimum because teaching does not count much in promotion in R1 universities. It is true that teaching is downplayed in most promotion decisions, but you should still take pride in what you do, and that means trying to teach well. Plus, if you teach well, you will get the best students to volunteer for you in your lab, and you will learn a lot about your field. And if you are having fun, the class will know this immediately and will work harder for you.

Get to know your students, they are usually neat people! I photograph everyone (with their permission) and make a mug shot collection that I post in the lab and use to learn everyone's names. Everyone appreciates it if you try to learn who they are. I address students as much as possible by name. I also encourage students in a lab to learn each other's names. And I explain why I make mug shot collections to the whole class so they know that I care about their experience.

Always engage your students in class: Ask them questions, pass around specimens, and develop in-class demonstrations for EVERY lecture. If at all possible, get the students to do stuff—like talk to each other, examine objects, dance or sing, and walk around. Dress up students, or give them balloons, donuts, or other items that demonstrate a principle being discussed in class.

Teach a few classes well: When you are starting off in the professor-game, don't atomize your time developing a whole lot of classes. Instead, develop one new class at a time, do a good job researching your lectures, designing labs and field trips, and then don't make more than peripheral changes in the next years until you make tenure. Resist the urge to teach more than the 2 or 3 classes you have designed. You can be more exploratory once you have tenure.

Teach seminars run by the students: These classes consist of 2 lectures you give at the beginning (once each week), and then the rest of the class consists of students presenting research papers and researching topics thematically linked by the class. You just have to come up with the topics, assign them to students, and comment sagely on their eventual presentations. I once took a class like this on "Unusual lithologies" where students researched ironstones, cherts, uranium ores, greensands and so on and presented their findings, list of literature, and key figures to the class. This style of instruction is excellent experience in literature research and presentation skills. And, it could be linked to a field trip at the end of the class.

Research Themes

Biodiversity and Conservation (https://scripps.ucsd.edu/node/3637), Earth and Planetary Chemistry (https://scripps.ucsd.edu/node/4163), Earth Through Space and Time (https://scripps.ucsd.edu/node/3630), Global Change (https://scripps.ucsd.edu/node/3626), Marine Life (https://scripps.ucsd.edu/node/3636)

Primary Research Topic

Research Topics

Biological Impacts of Climate Change (https://scripps.ucsd.edu/research-topics/Biological-Impacts-of-Climate-Change), Coral Reef Biology and Ecology (https://scripps.ucsd.edu/research-topics/Coral-Reef-Biology-and-Ecology), Marine Chemistry (https://scripps.ucsd.edu/research-topics/Marine-Chemistry), Paleoceanography and Paleoecology (https://scripps.ucsd.edu/research-topics/Paleoceanography-and-Paleoecology), Climate Sciences (https://scripps.ucsd.edu/research-topics/Climate-Sciences)

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Teach field classes: A simple design is a class that takes the students into the field and has them do some kind of observation, mapping, measuring sections and so on. There are variants in which you design a seminar linked to a field trip where the students are researching things they will later see on the trip. Alternatively, the trip is the whole activity and there are field exercises and presentations by students during the trip.

Pack your teaching into the minimum time: Instead of economizing on the quality of your teaching, save your personal economy by minimizing the amount of teaching you do or by packing all the teaching into one quarter. The quarter you teach will be lost to any other activities, but you are then free the rest of the year for research.

Use the chalk board (or white board), and avoid Powerpoint. Certainly there are times when slides are useful, but for many subjects, a simple drawing on a black board does a better job of conveying a principle than a graphic. Drawing on a black board also forces you to slow down your delivery, pick out the most essential points, and simplify your story.

Break up the lecture: Ok, I am bad at this and tend to have too much to say, but I think four effective approaches to waking up students who are dozing in class is to: (1) show short, 30 sec topical videos (one of my volcanology colleagues calls these "volcano videos" of exploding mountains), (2) do a demonstration in the middle of class, (3) start the class by playing a relevant song as the students file in, (4) tell personal anecdotes.

Tell personal anecdotes: This is important enough to bear repeating. Students usually are interested in you, your history, what it is like to be in your shoes, and what adventures you have had. Don't hold back. You are teaching them about what it is like to be a researcher at the same time that you are telling them about the class material. Also, most of us are just interested in other people. So let your students know who you are.

Never talk down to students. They may have just told you something wrong, but look for why they came up with that answer and then show how the response was flawed as you correct them. Actually, answers are hardly ever wrong, they are usually based on either incomplete information, or incorrect assumptions.

Read their work out loud to illustrate what you want: If you have writing assignments, take time to read a few choice bits that illustrate effective writing, neat answers or other clever things your students came up with. Do this without identifying the writer since you are not trying to embarrass anyone. But students will love it if you read their stuff and will work harder next time.

Grade hard: I am actually a fairly easy grader, I think, but the one area I am tough is with good writing. I spend a lot of time trying to point out flaws in student writing and I give them lots and lots of feedback on what I liked and did not like. This is a huge amount of work at the beginning, particularly if the class is more than 15-20 students. But, if you are explicit about what you like, what is effective, and what is well stated, most students will try to match your

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expectations. Conversely, almost nobody will work hard if the assignment is 'junk work' and has no real consequence or obvious value.

Make up assignments, projects or activities that have real-world consequences—everyone will work harder if they think their work will see the light of day beyond the class. Posters, websites, blogs, op-eds, videos, and so on can all be placed in public venues where other people can see the hard work your students did. Conversely, most of us are embarrassed if our bad work is posted for all to see.