About the program

The program offers access to resources and activities in the Academic Learning Transformation Lab and service-learning experiences through the Division of Community Engagement while providing networking opportunities with students and faculty from a wide range of disciplines, as well as discipline-specific areas of study.

Since most courses are one or two credits, students are able to easily add them into their academic program schedules. For students who complete all course requirements, the capstone course is an internship/externship experience during which the student is mentored by a senior faculty member.

PFF courses may be taken individually or as part of the Preparing Future Faculty in the Professions certification module, which places special emphasis on preparing faculty for positions in professional schools.

“I never teach my pupils, I only attempt to provide the conditions in which they can learn.”
~Albert Einstein

In This Issue

- Effective Teaching Tips
- Advice from Preparing Future Faculty professors
- Contact Us
Effective Teaching Tips: From a Train-the-Trainers Workshop, by Rayna Harris

Tip #1 Introductions set the stage for learning

It’s important to first assess whether your students are novices, intermediates, masters, or a combination of the three, because this will influence how you structure your course and how you communicate with your students.

To begin your class, give a brief introduction that will convey your: 1) capacity to teach the material, 2) accessibility/approachability, 3) desire for student success, and 4) enthusiasm. Tailor your introduction to the students’ skill level so that you convey competence (without seeming too advanced) and demonstrate that you can relate to the students. Continually demonstrate that you are interested in student progress and that you are enthusiastic about the topics.

Students should also introduce themselves. Try having the students break into small groups so they can actually meet their peers and listen to what they have to say. Encourage students to say something they’ve made or accomplished; this will reveal a unique side of their personality, evoke a sense of pride and capability, and help them get to know each other.

Tip #2 Define learning goals and develop assessment tools

Before you begin teaching, define learning goals for your students. Then, develop a series of diagnostic questions that give insight into the concepts your students do and do not yet understand and why. Even if no grades are given in your course, it’s important to incorporate both summative and formative assessment. Summative assessment is like a driver license exam, which if failed prevents you from driving a vehicle. Formative assessment is more like the feedback a track coach might give to an athlete during the season to continually improve her form and speed.

Also, why wait till the end of the term to get student feedback? If you just designed a new lesson or covered a particularly challenging topic, ask the students to tell you one good and one bad thing about the lesson or one thing they understood and one thing they didn’t. The responses will help you improve your teaching throughout the semester.

Tip #3 Use peer teaching as a tool for increased comprehension and retention

The best way to learn is to teach.

Putting students in pairs or small groups to teach each other works really well. The next time your students don’t comprehend a concept after repeated explanations, utilize peer-teaching. The student-teacher may be able to communicate a concept in a way the student-learner understands more easily.

There are a few ways to break up the groups or pairs. Letting groups self-select is not ideal because groups should have a range of knowledge/skill. One effective way is to stratify them, making sure each group has knowledgeable students paired with novices who are struggling to grasp the concepts. If this exercise required a computer or some other equipment, have the novice type/drive while the expert looks along as the co-pilot.

Tip #4 Actively keep your students engaged

Students can easily lose interest in the material you are teaching, get distracted (especially with the Internet at their fingertips), and fail to see the critical connections between topics.

To keep students engaged, break up your lecture as often as you can (every 15 min or so). Give students a chance to stop listening and do something. This will help them to see structure in the content and to see things as related pieces of information rather than just a bunch of individual, unrelated concepts.

Also, by helping students make connections or visualize patterns between concepts you will facilitate the transfer of this information to long-term memory. The next time you cover a really complex or lengthy subject, draw a concept that illustrates the relationships among key points. Use this to guide your teaching timeline for the lesson (or series of lessons).

By combining lecture time with intermittent activities, you show respect for the attention-span limits of your students AND for your own time and effort, ultimately keeping the students engaged in and excited about your lesson.
Tip #5 Watch videos of yourself teaching

“Oh no, I said “um” 100 times in 30 minutes!”

That’s what I said the first time I watched a video of myself teaching. Have you ever watched a video of yourself giving a talk or lecture and cringed at your own quirks and distracting habits?

Seeing yourself on video can really give you a new perspective, so I urge you to try it! Pay attention to where you can improve your poise and delivery. Once you are conscious of distracting mannerisms, you can begin to alter your style to something you can be proud of.

Tip #6 Seek critical feedback from colleagues

We are intimately familiar with peer review for publications and grant proposals, but can you remember the last time your peers gave critical feedback on your teaching style?

Invite a colleague to sit in on one of your classes and give feedback on delivery and student engagement. Or, write a blog about your teaching experiences and ask for comments and feedback (or post it on twitter and just wait for them). While your colleagues may not have an hour to sit in your class, many will read a short blog.

Tip #7 Stay in touch with your community

I recently wrote a blog called “Tips for Thriving in Research”, and the first two tips were about mentor-mentee relationships. I think that in order to get better at teaching, it’s important to surround yourself with mentors and mentees who are also passionate about teaching.

Read, write, blog, and talk about your teaching experiences with like-minded scientists. Here are two really good blogs on student evaluations written by my colleagues Olga Botvinnik and April Wright.

Before creating a lesson or exam from scratch (possibly reinventing the wheel) first see if you can find tried-and-tested syllabi from your community. Online resources like Code Academy’s Python Coding for Beginner’s, the Rosalind platform for learning bioinformatics, and Software Carpentry’s open access teaching materials are excellent tools for teaching Big Data concepts and skills to trainees.

Hopefully, with a continued community focus on training, the next generation of neuroscientists will be better adept to deal with the challenges that still remain for Big Data research.

Thanks to:

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The views expressed are my own, not necessarily those of PLOS.

Rayna Harris studies the neuromolecular basis of social behavior and is involved in several initiatives to enhance training in the life sciences. Follow her on twitter @raynamharris.


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We reached out to some of the Preparing Future Faculty professors for advice to pass on to aspiring professors.

Dr. Enoch Hale provided the following insight:

1. What do you find most rewarding as a professor?

I actually reflect on this regularly. It's difficult to choose one that is the most rewarding because it shifts. Generally speaking, I find it rewarding when I have genuine and intellectually challenging conversations with students as co-explorers or as equal thought partners. There are implied power structures that often position students as passive consumers of knowledge that is distributed to them without input. Similarly, students often expect it. When we can challenge these notions of education successfully, we can re-characterize the classroom environment as one where minds meet to collectively think through interesting and significant ideas, solve problems, propose actions, and imagine. That moment is tremendously rewarding. I work to make what is often one moment into the modus operandi.

2. What is one thing that you could not live without as a professor?

Well, literally speaking, I can't live without students. Professors without students can't profess. Personally speaking, I can't live without my colleagues. They provide the sounding boards necessary for thinking through new ideas. Professors are disciplinary experts, but they rarely receive formal opportunities to develop expertise within instruction related domains. This includes course design, pedagogy, assessment, work-life balance, scholarly teaching, and so forth. To develop expertise takes time. I rely heavily on my colleagues to help the time I spend on instruction related tasks to be more efficient and effective. So, my colleagues are essential to my development, success, and happiness as a professor.

Dr. Leila Christenbury and students from her GRAD 601 course offered the following words of wisdom:

1. What advice would you give to students aspiring to have a career as a professor?

Understand expectations of the career, especially the expectations of research, teaching, and service at the different types of universities. Also, get experience with research, teaching, and service as soon as you can because the earlier you have the full picture of what the job entails, the better you can prepare yourself. One way to do this is to take opportunities to explore other career options—such as internships—while still a student. This can be crucial, as the further along your academic training you go, the less time you have to see what other careers you may be interested in. And, on a higher plane, remember that you yourself are the constant to see your vision come true. Thus, you must maintain the courage and steadfastness to maneuver the power and politics of academia.

2. What do you think are the most important qualities of an effective professor?

An effective professor takes equal pride in fostering learning in their students while also committing to building on the general knowledge of research in their perspective discipline. Humility is also a very important quality. Most importantly, an effective professor needs to be able to engage their students with the material. A professor can be an exceptional scholar, but if they can't make the intellectual material accessible, then they will lose most of those students. Finally, effective professors also are people who demonstrate:

Content curation - sifting, sorting and arranging information in context for students to understand and transfer their knowledge;

Authenticity - being transparent and true to who you are;

Care - having sensitivity and respect for others.