

Ask Professor Sarah Bellum



After a much-needed sabbatical, Professor Sarah Bellum has returned to answer your questions on navigating the often-uncharted waters of early career development. Professor Bellum is communicated by Patricia L. Clark, founder of the Early Careers Committee and a member of Council. Do you have a question for Professor Bellum? Send it to sarah_bellum@biophysics.org. Your privacy is assured!

Too Many Distractions!

Q: I am a fifth-year graduate student, in the midst of finishing up the experimental work for my dissertation. I know what I need to do to finish; I just need time to do it. My advisor insists that I also attend one or two seminars a week, in addition to our weekly two-hour lab meeting! I am happy to go to seminar if the topic is relevant to my thesis project, but most of these seminars are not. How can I be expected to get my work done with all these time-wasting meetings and seminars?

Q: I have a fifth-year graduate student in my lab, in the midst of finishing up his experimental work. Lately he has been skipping our weekly departmental seminars and journal clubs, and once he even missed our weekly lab meeting. When I questioned him about this, he complained that he needed the time for his experiments. How can I help him see that seminars and lab meetings are an important part of his development as a scientist?

A: The end of graduate school can be magical in terms of experimental progress. You have survived the pitch-black period in the middle of the tunnel that is graduate school, when all experiments seem doomed to fail, hypotheses fall apart, and whole chapters of your thesis seem to go “Poof!” overnight. But you can see glimmers of light at

the end of the tunnel now, and you have every right to revel in the accompanying increase in productivity as you work out the last kinks in your experimental system. Indeed, it is becoming clear that, barring some unforeseen catastrophe, you are on track to graduate with a PhD.

However, scheduling your thesis defense date is limited by how fast you can finish your experiments, and that is limited by unglamorous realities such as how long it takes to grow cells, collect data, run simulations, construct figures, etc. You cannot work 24 hours a day, but you could get at least one more experiment started today if you skip the first 30 minutes of lab meeting.

Don't do it. Let me repeat that: Do not skip lab meeting—not even the first few minutes—so that you can set up an experiment. Your advisor will not regard this as your reasonable effort to complete your thesis project in a timely fashion. Instead, he/she will conclude that you are unable to manage your time and responsibilities appropriately. Showing up late to lab meeting or skipping it altogether demonstrates a lack of respect for your advisor's time and that of your fellow lab mates. What makes you and your experiments so special that everyone should wait for your tardy arrival, or exempt you from participating in the first part of the meeting?

Even in labs of modest size, lab meetings are valuable for everyone in the lab. It might be the only opportunity for all lab members to gather together to discuss lab-wide organizational issues like ordering, equipment problems, and planning for upcoming events. It is also a chance for younger grad students to observe senior students such as yourself, and model their own behavior accordingly. I guarantee you that your advisor does not want any student forming the impression that it is acceptable to skip lab meeting.

At any stage in your scientific career, seminars and journal clubs provide a valuable opportunity to share ideas with your colleagues and learn what is or is not cutting-edge for a given field. The introduction to a field that you listen to at a seminar can make it easier to read research articles

in that field, and can be faster even than reading a review article. Listening to a well-presented talk can help you critique your own work, challenge your assumptions about your experimental system, and design better control experiments.

But aren't you justified in skipping those seminars that are unrelated to your research area? Well, while it might seem that your path to graduation is paved exclusively by finishing up your experiments/manuscripts/thesis, you are still a student who is learning how to become an independent scientist. Clearly, your experiments are under control, so where should you now focus your learning? Students close to completing their PhD research should make a concentrated effort to polish their public speaking skills. You have some big talks coming up, including your dissertation defense and job talks. Regardless of whether you pursue a postdoc or something else, you will undoubtedly be called upon to make formal and/or informal presentations on your graduate research project as you prepare to take the next step in your career trajectory.

Besides giving as many presentations of your own as you can, the easiest way to learn how to be a good public speaker is to listen to others' presentations. As you listen to the science, notice how the speaker puts the talk together. Do you find your attention wandering during the talk? Try to pinpoint why. Did the speaker start off with so little introduction to her field, that you, an outsider, were lost after the first slide? Did the speaker rush so fast through a stack of data slides that he neglected to mention what question these experiments were designed to answer? Is the color scheme so low-contrast that you can't see half the data? Sitting through a poor talk provides you with an excellent opportunity

to analyze the mechanics of it, specifically what is or is not working to capture audience attention. Excellent talks, on the other hand, are carefully constructed to shepherd you through a scientific story. You might get so caught up in the story that you don't notice and fail to appreciate the extensive preparation that went into constructing clear, bite-sized slides and concise, carefully-selected phrases of explanation. Make an effort to analyze the mechanics of good talks,

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too, especially the introductions and endings. What strategies do the speakers use to make you care about their research areas? How do they set the stage for presenting experimental results? Excellent speakers devote time to convincing you that their research area is important, and you get caught up in the story, the take-home message, and the exciting future directions.

As you wrap up your graduate career, don't shirk your responsibilities to your advisor and your lab mates by failing to appear at or be on time to lab meetings. Attend as many seminars as possible, approaching every one, regardless of the research topic, as a learning opportunity. Take notes not just on the science you hear, but also on what works and what doesn't for the mechanics of a talk. You will be well on your way to establishing your own reputation as a good time manager and an excellent speaker.

Members in the News

Mark Schnitzer of Stanford University and Society member since 1997 was awarded a Keck Futures Initiative (NIKFI) grant by the National Academies.