

Ask Professor Sarah Bellum

Professor Sarah Bellum answers your questions on navigating the often-uncharted waters of early career development. Professor Bellum was inspired by Ms. Mentor, a column by *Emily Toth* appearing in *The Chronicle of Higher Education*, and is written by *Patricia L. Clark*, chair of the Early Careers Committee. Do you have a question for Professor Bellum? Send it to sarah_bellum@biophysics.org. Your privacy is assured!

Q: *I've just finished my first year of graduate school at a well-known research university. I am looking forward to working in the lab full-time this summer, getting a taste for research and getting my project off the ground. But I am having a hard time adjusting my schedule. The other grad students and postdocs in the lab work at least twelve (often more!) hours a day, every day, including weekends. I really want to get started quickly, so I am trying to work as much as they do, but after a few days of keeping those hours, I find I am completely exhausted, and fall asleep whenever I sit down! Also, my wife (who has a 'real job') is upset that I am always in lab; she complains we never do anything fun together anymore. Truth be told, this bothers me, too. Maybe I am not cut out for the demands of graduate school, or academic research. Should I think about leaving graduate school??*

— No Time Left

A: Ah, yes: it is time once again for a crop of enthusiastic new graduate students to fuse fully with their chosen laboratory, and quickly offer up the cry, "How hard am I supposed to be working???" This is a delicate subject, on many fronts. Certainly, you would like to work as hard as possible, in order to make fast progress on your project. And you'll do anything to avoid being perceived as a 'slacker' by your PI. But you can't work twenty-four hours a day, right? And unlike 'real jobs' that almost always have a well-defined 'start' and 'end' time to the daily grind, lab work is much more fluid. Your experiments may demand weird hours: you may be at the mercy of your tissue culture samples, for example, or monitoring a reaction with excruciatingly slow kinetics. But how, then, do you get a feel for when the workday should begin and end? Rest assured: while there are no firm answers, there are good guidelines.

First, take a closer look at those lab-mates of yours, the ones 'working'

marathon hours each and every day. Observe how they structure their workday, and how much they accomplish each day. Are they designing, planning, performing, and analyzing experiments constantly? Probably not; no one can operate continually with the highest possible productivity. Remember, playing "Doom" on the Internet for hours straight is not the same as working in the lab, even if the game playing takes place in the lab. Nor is playing "Doom" while dialyzing a protein preparation; there are more effective uses of your time. Similarly, you are not working effectively if you need to repeat an experiment three extra times because you did not take the time to plan the controls carefully, or find the right piece of apparatus, or reserve time to use a shared piece of instrumentation, or dropped a rack of tubes at the end of

a particularly grueling day. I heard a report of a remarkable architecture professor (now retired), who, upon hearing a student complain that a low grade on a project was undeserved because the student spent weeks straight in the design studio, responded, "We are not collecting buckets of sweat!" Work leaner, not longer.

Are your lab-mates married? Do they have families, children, or dogs? If not, they may view the lab not just as a place to work hard for the joy of scientific discovery, but also as a place to relax, to be with

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friends, or to use a computer with a faster Internet connection than their 28.8 kbps modem at home. There may not be much pulling them out of the lab, but that is no reason why you should follow the same pattern. If you find your mate during graduate school or your postdoc-

toral training, and definitely if you have children during these years, you will find your schedule suddenly constrained in ways you might never have thought possible. See if there are other married graduate students in your department, and ask them how they balance their work and family commitments. Many are able to manage both only because they use their time efficiently. This means careful

planning, to maximize the value for both lab work and family time.

Some personal self-assessment can serve you well through the demanding days of graduate research: figure out your daily 'productivity cycle', and try to make best use of the times of day that you are most productive. Are you naturally a night owl, not reaching your full potential till after lunch (and three or four caffeinated drinks)? Or are you an early bird, most productive when your eyes first open in the morning, and it's all downhill from there? Try to plan your most demanding tasks (writing and revising manuscripts, analyzing data, or planning experiments, for example) for the most productive portion of the day, and

move more mindless stuff (autoclaving, backing up data, etc.) to the times when your productivity is ebbing.

Also, whether you have started a family of your own or not, it is very important to maintain outside (non-science) interests throughout graduate school and beyond.

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First of all, nothing will help your sanity more than doing something completely un-lab-like when lab work has you down: it can be a great stress-reliever to go home

and bake a perfect soufflé, or grow prize petunias, for example, when you can't get your western blots to work. Second, you will be shocked to find that activities that seem completely disconnected from your science have a way of helping you become a better scientist: learning to draw, for example, had a profound effect on my scientific writing. Third: it's a cliché, but it's true: when you go looking for a job, you will find that employers have a much easier time remembering you if you can be identified as, "John Jones: nice graduate work in solid-state NMR, several good publications, and an avid sailor/watercolorist/weaver/etc.", rather than "John Jones: nice graduate work...what was it that he worked on again?!"

Finally, watch out for PIs who are unable to distinguish between 'being in the lab all day' and 'working hard all day.' It's true: PIs like to see their lab members in the lab when the PI is in the lab (and hopefully, long after they have left). Sadly, some PIs are known for swinging by campus in the evening, stopping by lab to 'pick something up', and coincidentally checking on who is around at that hour (shocking and deplorable, but true). If you are still deciding which lab to join, ask the lab's current members about what kind of work structure is encouraged by the PI. If you have already joined a lab and only now realize that productivity is computed as being present at all hours, take active steps to change this culture. Start writing up monthly progress/planning reports, even if your lab does not require it. Give a copy to your PI, and ask for a few minutes to review the most important points. This is an excellent habit no matter what your lab's work culture, but in a lab that values visibility, a written record of your progress can go a long way towards convincing your boss that you are moving forward just as fast as everyone else, even if the oil you burn is at noon and not at midnight.

Help the Biophysical Society Demystify the Graduate and Postdoc Lab Selection Process!

Remember how nerve-racking it was to choose a postdoc lab, project, and/or advisor? Or a graduate project/advisor? Remember trying to imagine how it was going to be to work with that advisor, those lab mates, that project? How it often felt like there wasn't enough time, or a chance to hear enough comments from current members of that interesting lab?

Now you can help other people facing these tough questions! The Biophysical Society Early Careers Committee is looking for volunteers to serve as contact-points in academic, industrial, and government labs. Contact-points will provide contact information to help connect people interested in working in one lab with current members of the lab, and/or provide some informal impressions about the lab, if requested. Contact-points will be assembled into a searchable database on the Biophysical Society web site. To register, please go to <http://www.biophysics.org/committees/ecvdb.asp>