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Oof. And here I was thinking it was just the pandemic.

Tough words aside, Connelly and Ghodsee do a magnificent job providing concrete tips for getting through the tenure track years with young children around. They cover childcare options, strategies for squeezing more working hours into the middle of the night, networking, what to put in your tenure packet, how to account for gaps due to maternity leave, how to manage your time at home and be fully present with your children, and much more.

The final chapters focus on the post-tenure years, promotion to full professor, and juggling the (usually lighter) needs of older children in these years. Having nodded along with the chapters on graduate school, and having been glued to the page during the discussion on the early tenure track (my current stage), I appreciated reading this part of the book to get a sense of what might lie ahead. It was again an encouraging but honest read, and particularly focused on how to avoid being completely overloaded with service responsibilities in these years.

The authors conclude with a list of five main points that sum up their book well:

1. Academia is hard.
2. Academia is hard for everyone, both men and women, with or without children.
3. Although times have changed considerably and things are improving, it is still a proven empirical reality that it is harder for women with children to achieve tenure compared to men and women without children and men with children.
4. Although it is difficult to be both a successful academic and a mother, it is absolutely possible. Knowing what you are getting into will help you beat the odds.
5. Although it will require a lot of hard work, it is worth it. You get to read what you want, write about what interests you, and influence a new generation of students and scholars. And then you come home to someone who calls you Mommy.

It is worth noting that this book was published in 2011, and the landscape of academia has arguably changed significantly in the last decade. I would be interested to see an update at some point from the authors, whether as a new version of the book or as an addendum in the form of a blog post or article, to see their perspective on what has changed and whether the changes were for the better.

Indeed, the COVID-19 pandemic alone radically changed academia and childcare, possibly for the long term, and many of these changes have made life particularly difficult for academic parents of young children. Housing prices and college tuition have generally gone up since 2011, making the financial considerations of when to have children a potentially different calculation than the simple choice that the book laid out at the time it was written. Infertility is on the rise, potentially due to environmental pollutants, and the ongoing climate change crisis is causing many young people to rethink how many children, if any, they might want to have. It is worth keeping such factors in mind when reading through *Professor Mommy*.

All in all, the book is an excellent tour through the challenges and stages that one will encounter when pursuing both motherhood and academia. As the authors say in their introduction:

The truth is that many of the women who are successful professors and mothers simply do not have the extra time to write about their experiences, and so their voices are not heard.

It is indeed remarkable—and appreciated—that these two women wrote such a detailed exposition amid all of their other responsibilities, both to those who call them Professor, and to those who call them Mommy.

Review of *The Unwritten Rules of Professional Etiquette*

Catherine M. Hsu and Allison N. Miller

Instead of saying "The book is not very good," say "I am having a hard time relating to the author's way of presenting the material." —Ryan Sharma

Given the acute need for transparency in professional expectations during graduate school, we were intrigued by the potential of clinical psychologist Ryan Sharma’s guidebook, a resource that aims to help students navigate “the complex world of academic relationships.” Unfortunately, we hesitate to recommend this book to current or prospective graduate students due to its rigid perspective and consistently harsh tone. We also warn graduate students in...
mathematics that some of the advice is inconsistent with disciplinary norms in our field.

“Unwritten rules.” The book’s layout is straightforward and direct, with Sharma first highlighting the importance of professionalism in graduate school and then methodically sharing his opinions on professionalism in class, research, job applications, and so on. We found nuggets of helpful advice scattered throughout, especially in the chapters on best practices for sending professional emails, asking for letters of recommendation, and interviewing. His advice in these chapters, summarized below, is consistent with standards that we have seen in a range of academic institutions, and students may find it helpful to see these expectations laid out so clearly.

Chapter 5: Emailing. Sharma outlines how to write a professional email, suggesting that all emails should begin with a descriptive subject line and a greeting, include a brief pleasantries with the main body of the email, and conclude with “a sign-off appropriate to the body of the email.” For example, an email including a paper draft for comments might have subject line “Pythagorean Theorem Paper Draft,” begin with “I enjoyed speaking with you at the recent Right Triangle Conference,” and conclude with “I appreciate your willingness to review this draft, and look forward to receiving your comments.” Sharma also gives some general best practices for email—use bcc for mass emails and announcements, check your own email on a regular basis, read the entire email before replying, make sure you spell the recipient’s name correctly, pay attention to tone—that we happily endorse.

Chapter 8: How to Ask for a Letter of Recommendation. This chapter is similarly straightforward. Sharma gives advice on who to ask for letters, writing that they “should be people with whom you have worked closely and who will be able to speak to your specific strengths and areas of growth.” He also recommends to “give them plenty of time” (at least three weeks) and “provide them with the information that they need,” including details of deadlines and how letters should be submitted; CVs and transcripts; and application materials such as personal statements or cover letters. Finally, we emphatically agree with his last point: polite reminders to your letter writers as deadlines approach are not just acceptable but strongly recommended!

Chapter 9: Showing Your Professionalism in Interviews. As Sharma discusses in this chapter, interviewing is an important skill to learn and practice during graduate school. We agree with Sharma’s recommendation to “do your homework” by researching the opportunity for which you’re interviewing, bring copies of your application materials, and “never leave an interview without asking questions.” In fact, Sharma provides some useful examples of how to transform “canned” questions into more personal ones that demonstrate you are “thoughtful and deliberate.” In the end, Sharma’s biggest piece of advice is to remember that you will be evaluated on your behavior “at all contact points of the process,” including less formal moments such as scheduling an appointment, greeting an administrative assistant, or wandering around campus during a short break.

“Building a positive reputation.” Beyond these chapters, we found much of the book to be problematic in both delivery and content. Sharma fails to acknowledge the ways in which professional etiquette can vary by field, school, and even classroom, in both obvious and subtle ways. For example, he writes that one should never ask to change thesis advisors for reasons other than expertise. He says, “It may be the case that you get matched up with someone who is difficult to work with. Perhaps you find their communication style abrasive, their standards unnecessarily high, or their support unhelpful. It is unprofessional to shop around for an easier experience.” Given that advisor-student matching is a mutual and studentled process in every PhD program in mathematics that we know, we assume that most current graduate students will recognize this part of the advice as irrelevant. In addition, though, both of the authors believe whole-heartedly—based on advice from many senior mentors as well as their own experiences in graduate school—that a good match in working style is at least as important as a precise area fit of the process,” including less formal moments such as scheduling an appointment, greeting an administrative assistant, or wandering around campus during a short break.
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power differential, the professor will always have the final determination simply because their job is to deliver the educational experience. It does not make sense to struggle against this reality. We certainly acknowledge that there is a power differential between faculty and students and that professors have the ability and responsibility to establish certain parameters of their courses. But in many situations, asking for modifications to or pushing back against unrealistic “expectations, requirements, or due dates” is the most professional thing a person can do: life happens, and an authentically supportive environment must be flexible enough to support students during difficulties.

We would add that, at least in our experiences, it is a rare department whose faculty members are themselves universal paragons of timeliness in meeting administrative deadlines: while promptness is a worthy skill to cultivate, so is enough humility to avoid asking students to meet stricter standards than your peers. Of course, it is very possible that Sharma would make exceptions for students with a death in the family or a newborn child or a financial crisis, but labeling requests for accommodation as unprofessional ensures that many fewer students will even be willing to ask. Similarly, when Sharma warns against “speak(ing) on behalf of others… (by presenting a problem) as one that others in your class are also having,” he implicitly refuses the possibility that there really may be a widespread concern.

To his credit, Sharma does devote a chapter to how to handle abusive or otherwise inappropriate professors, writing that “(students) should never feel as though they have to put up with intimidation, abuse, discrimination, sexual harassment, retaliation, exploitation, or unethical or illegal conduct. You should not tolerate circumstances that may be unhealthy or harmful to you.” Nonetheless, even here he warns against using the system repeatedly, and given the tone and content of the majority of the book we feel that students will primarily take away the impression that compliance is key.

Moving forward. Sharma does one thing right where many others fall short: articulating expectations directly to students, rather than expecting them to somehow intuit the local professional norms. Since this is the Early Career section, we would encourage every mathematician, regardless of their rank, to reflect upon their implicit assumptions about how students should behave, decide which of said expectations actually align with your values rather than coming from a sense of “this is how things have always been done,” and communicate these to your students and mentees. Neglecting to do this sets students up for failure, especially those who are neurodivergent or who come from a different racial, socio-economic, or cultural background from the white, upper middle class American background that still predominates in US academia. There can be space here to acknowledge and educate your students about existing professional norms that you do not think serve the community well; see the Hidden Norms series organized by Kimberly P. Hadaway, Pamela E. Harris, Daniel C. Qin, Vanessa Rivera-Quiñones, and Dwight Anderson Williams II with the American Institute for Mathematics for an example of this in practice.

We take this opportunity to offer some questions that may generate discussion among individuals, groups, and departments about how to make their own community’s “hidden norms” more transparent and equitable.

- What should students do if and when they need to miss class?
- What are departmental norms around asking for extensions on homework?
- How are students expected to find advisors?
- What questions should they ask during this process?
- When and how should students ask advisors for funding to attend conferences, support summer research, or access other professional opportunities?
- What types of interactions should graduate students expect when they attend conferences?
- What resources are available to students who are struggling to work with, in conflict with, or facing abuse from their peers, professors, or advisors?
- How are the above norms clearly and explicitly communicated to students?
- What other areas of professionalism are important to a student’s success in academia but might not be evident, such as finding and maintaining collaborations or communicating with journals?

At a higher level, we urge you to consider whether the answers to these questions serve all students in your department well. The recent publication A Conversation on Professional Norms in Mathematics, edited by Mathilde Gerbelli-Gauthier, Pamela E. Harris, Michael A. Hill, Dagan Karp, and Emily Riehl, may be a useful resource.

We also encourage students not to get so caught up in meeting others’ standards that they forget to prioritize what’s important to them. Graduate school is certainly a time to think about navigating new professional norms and expectations, but it can also offer the opportunity to develop your own approach to academic life, rooted in your values and priorities. We hope the following questions can provide a starting place for reflection.

- What do you hope for in terms of environment in a program?
  
  Your answer might explore: amount of collaboration among students, what interactions between professors and students look like in and outside of the classroom, and culture around early year coursework and examinations.

- What is important to you in terms of communication and relationship style with advisor?
Your answer might explore: degree of formality, structure and frequency of meetings, and expectations around how you will find a thesis problem.

- How will you elicit feedback on your progress in a way that is both effective and sustainable? Note that this question might have different answers depending on what aspect of professional life you’re considering!
  
Your answer might explore: if you prefer written or verbal feedback, what level of detail you’re seeking in various situations, and how to articulate that you’re in need of support.

- What are your own professional boundaries and non-negotiables as a student, researcher, and colleague?
  
Your answer might explore: finding a balance between timely replies and carving out email-free space in your schedule, how to let collaborators know when you will and won’t be focusing on that project, and what aspects of your nonmathematical life are important to protect.

Finally, as you transition into more of a leadership role in your own communities, continue to ask yourself what values you want to uphold as a teacher, researcher, and mathematician.

Credits

Photos of Catherine M. Hsu and Allison N. Miller are courtesy of Laurence Kesterston/Swarthmore College.

Sampling in Combinatorial and Geometric Set Systems

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Understanding the behavior of basic sampling techniques and intrinsic geometric attributes of data is an invaluable skill that is in high demand for both graduate students and researchers in mathematics, machine learning, and theoretical computer science. The last ten years have seen significant progress in this area, with many open problems having been resolved during this time. These include optimal lower bounds for epsilon-nets for many geometric set systems, the use of shallow-cell complexity to unify proofs, simpler and more efficient algorithms, and the use of epsilon-approximations for construction of coresets, to name a few.

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