

Checklist for a well-rounded, balanced PhD experience (Stat+ML)

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I have listed some personal suggestions via accumulated wisdom, intended to add structure to self-reflection. Each aspect below can take years to develop with thought, planning, deliberate practice, constructive feedback.

Professional skills checklist. Do not equate professional satisfaction with publishing papers, or getting citations, or comparing yourself with peers. Instead, develop yourself on the following complementary angles.

- **Independence:** Can you carve out your own compelling research agenda, independent of your mentor/advisor? (this is about asking the right questions, at the intersection of “interesting to you” and “useful to the world”)
- **Calibration:** Can you gauge if a problem or research direction is likely too easy or too hard/ambitious? (this is useful to accurately estimate potential timelines and breaking harder problems into baby steps)
- **Mastery:** Do you have the technical/mathematical sophistication to tackle progressively harder problems? (this is both a function of depth in your area, and breadth by borrowing tools/ideas from different areas)
- **Experiments:** Do you have (hopefully multiple) programming languages at your fingertips that enable you to run large-scale simulations or experiments efficiently? (this is about closing the theory-practice gap and trying out your ideas quickly to iterate between brainstorming, proving and testing)
- **Creativity:** Can you come up with novel ideas, which are not directly convex combinations of other people’s ideas? (this may happen rarely, but usually happens after a deeper understanding of the problem subtleties)
- **Writing:** This has many angles: correct, fluent English (grammar+spelling); explaining complex ideas; gauging your target reader and writing at their level; mastering different lengths: half pg abstracts, 1-4 pg research summaries, 15-30 pg conference papers, 25-45 pg journal papers, 15-20 pg proposals, etc.
- **Speaking:** This has many angles: correct, fluent English (grammar+pronunciation); (black/white) board talks; verbally explaining your work to colleagues; 1-2 minute elevator pitch; 5 min spotlight talk with slides, 15-30 min conference talk with slides, 50 min seminar talk with slides, 1hr 20 min class room lecture, etc.

Personal life checklist. It takes conscious effort to lead a balanced life inside the PhD bubble:

- **Mental health.** Are you happy/satisfied with how your life and PhD are going? Many people have the “impostor syndrome”, and if yours is occupying your mind too much, then talk to someone about it.
- **Sleep/rest.** Get as much sleep/rest as you need to feel fresh/energetic. Synchronize your day with the sun.
- **Exercise.** Improving physical fitness (strength, flexibility, stamina) has immediate benefits for being effective at work (better concentration, less distraction due to back/neck pain). However, scientific consensus exists that exercise provides many psychological benefits (relieves stress, improves mood). Incorporate some physical activity multiple times per week, but definitely do at least one thing every single week.
- **Diet.** Diet also affects energy levels, mood, immunity, etc. Do you have a healthy, balanced diet?
- **Hygiene.** Keep your surroundings clean, take regular showers and minimize office sleepovers.
- **Take breaks,** don’t burn out. Develop no-screen hobbies (Music? Knit? Dance? Swim? Boardgames?).
- **Relationships.** Spend sufficient time catching up with friends, family, partners, pets, etc.
- **Finances.** Are you saving a little bit for a rainy day, or for the occasional treat or travel?

Ask for advice. If you want help in improving one or more of the above aspects, ask for advice from friends, family, colleagues or mentor(s). All of these skills can be improved over time by identifying weak points and seeking constructive feedback. Obviously, in the end, figure out what works best for you; there is no single correct answer for everyone, but be open to what has worked for others (especially if your current plan doesn’t work). A highly motivated, high-intensity and high-energy lifestyle can also be relaxed, balanced and fulfilling.