

## Mentoring Philosophy Statement

Patricia Weisensee, June 2021

### General philosophy

As a mentor of students and trainees in independent research, my goal is to make a contribution to the development of the person as a whole. This includes understanding my mentee's (career) goals and helping them acquire the necessary skill sets – both scientific (*e.g.*, asking questions and developing hypotheses, designing experiments, analyzing data, writing scientific publications) and non-scientific (*e.g.*, communication and interactions with others, “soft skills”, self-reflection, seeking help, and taking advantage of other professional development opportunities, such as outreach or teaching). Harmony in the lab is very important to me, but that does not mean that everything is rosy and *laissez-faire*: I want to create a sense of community that helps and supports each other, a safe zone, while maintaining scientific rigor and productivity. I understand and value that everyone is different, comes from a different background and has different expertise and goals and strive to accommodate each individual's situation; though it is important to recognize that – just as research –mentoring is “work in progress” and that my mentees and I need to work together to find the best possible style that works for both of us.

I also recognize that I cannot, and should not, be the sole source of my mentee's personal and professional development. Mentees should expect to have other mentors with complimentary strength and expertise; these could be peers, other professors inside or outside of WashU, certainly the dissertation committee, family and friends, professional counselors, *etc.*.

### Our responsibility as a researchers

As part of my job as a professor, I am expected to teach, mentor students and trainees (*e.g.*, postdocs), write grants, and initiate research that will make tangible contributions to science, the academic community, and to society. You will be helping me carry out this research. It is imperative that we carry out good scientific methods and conduct ourselves in an ethical way. We must always keep in mind that the ultimate goal of our research is publication in scientific journals, presentation of our findings at scientific meetings, and communicating the value in our work to the public. Dissemination of the knowledge we gain is critical to the advancement of our field. I also value outreach and informal science education, both in the classroom and while engaging with the public. I expect you to participate in this component of our lab mission while you are part of the lab group.

### What you can expect from me

**I will work tirelessly for the good of the lab group and my mentees.** The success and well-being of every member of our group is my top priority, no matter their personal strengths and weaknesses or career goals. Part of my role is to providing the necessary financial support to successfully carry out the research projects so that you, my mentee, can focus on the research itself.

**I will meet regularly with you** to discuss your scientific and academic progress and help you navigate professional and personal challenges and opportunities during your research program. We will have weekly standing meetings; these will be typically one-on-one, except for collaborative projects, where it makes more sense to meet as a small group. Occasionally these meetings will need to get cancelled or rescheduled due to travel or other university or community service obligations. Sometimes we might also meet more often if there are deadlines coming up or a project is particularly challenging

and you need more advice and guidance.

In addition to the regularly scheduled meetings, I also typically have an “open door” policy: if the door to my office is open (which it is most of the time), feel free to just stop by to have a conversation or ask a question. Furthermore, I am available *via* email and typically respond within a few hours (except for when I am travelling or during my “me”-time; see more under “work-life balance” below).

In our meetings, it is important to have discussions and conversations as colleagues, not in a hierarchical “top-down” manner. This means that I encourage you to speak up, challenge and/or criticize my own view, ask questions. It is in the nature of research that more often than not I do not have an answer to a scientific quest (maybe an educated guess, but sometimes not even that). Especially at later times during your research project (senior PhD or postdoc), you’ll likely know more than I do – and that’s OK (just be patient with me and teach me new things)!

**I will help you navigate your graduate program of study.** As I will discuss in more detail below, you are responsible for keeping up with deadlines and being knowledgeable about requirements for your specific program. However, I am available to help interpret these requirements, select appropriate coursework, and select committee members. Generally, I view the PhD process as a ~5 year time commitment (including rotation), though there might be special circumstances that can lead to an earlier or later graduation.

**I will try to match your interests and goals to your research project.** We will work together to define your research project that is based on your career goals, interests, and skills while fitting within the scope and scientific trajectory of the lab (all of which might be evolving over time). It is important to note, though, that especially for PhD students and postdocs, the freedom of choosing and defining the project might be limited based on the funding and might pivot throughout the PhD program (funding often lasts for only 3 years, so to accommodate 5 years of research within the PhD program, a shift in focus might be necessary, though I will try to make the shift as seamless and well-aligned as possible). It is also not unusual for a project to be changed if we realize that it is not bound for success. Undergraduate and masters students have more freedom in actively participating in the definition of their research projects. I recognize that externally funded research projects can be quite restrictive. I will work with you to seek out opportunities for some side research projects outside of the funded work, if you wish (while not neglecting the funded project).

**I will be your advocate.** If you have a problem or challenge, come and see me. I will do my best to listen and identify a path that will assist in resolving or moving forward. Remember, though, that I can only help if I know what is going on and/or what is bothering you (my “social antennas” are unfortunately not always the best and it’s sometimes difficult for me to read between the lines, so you’ll need to be fairly explicit with me).

Being your advocate includes representing you in front of colleagues and the university and navigating authorship challenges that might arise from collaborations with other labs. It also means that I will help you network with colleagues outside of the university, for example by introducing you at conferences, sending introductory emails, etc.

**I will facilitate your training in complementary skills needed to be a successful scientist and engineer.** No matter what your career goals are (academia (research and/or teaching), industry, not-for-profit, startup, *etc.*), there is so much we all need to learn outside of our scientific research. This includes developing excellent oral and written communication skills, possibly getting some teaching and/or grant writing experience, managing funds, mentoring, ... I will encourage you to participate in these development activities; either within the lab or through external resources (*e.g.*, Center for Teaching and Learning, Graduate Student Services, industry internship, *etc.*).

**I will provide you with feedback on your written work.** Preparing scientific presentations to different groups and in different formats and writing manuscripts, reports, and abstracts is a learned skill and requires writing and re-writing. I will make extensive notes and revisions to most of your written work, typically electronically *via* the “track change” and “comment” functions in word. However, I need time to incorporate these edits into my schedule so I expect draft work from you in a timely manner (usually a minimum of one week in advance). If you are making an argument from quantitative data or theory, prepare figures or tables that support your point. It is ever more important to practice communicating quantitative data through visual displays – be creative. While I will try not to impart my particular writing and presentation style on you and leave you as much freedom in your written and oral expression as possible, there are certain standards that have informally been agreed upon in academia; I will make sure to communicate these clearly to you.

**I will respect your own personal work habits and timetable.** One of the top priorities regarding myself and my mentees is a good mental (and physical) health and a balanced work-life relationship. For example, I seldom work in the evenings or on weekends; though sometimes it is necessary to do so when there are upcoming deadline, *etc.* I will leave it up to you to manage your daily and weekly schedule. If we face a short deadline due to unforeseen consequences, it will be your choice of whether working late is an acceptable solution.

I typically go to bed at 9/9:30pm and sleep for ~9 hours. I encourage all of my mentees to maintain a healthy sleep schedule as well. Sleep is one of the best ways to maintain a high productivity and creativity, both of which are of great importance in research.

**I am committed to maintaining a supportive and well-respected laboratory.** Trainees associated with my research program and laboratory reflect upon all members of the lab – during and after their active involvement with the research group. This means that we want to strive to maintain a supportive culture for all and a high level of professionalism and scientific and ethical standards. This will ultimately help you when looking for a job.

**I will encourage you to attend scientific/professional meetings** and will make an effort to fund such activities (for PhD students and postdocs). I will not be able to cover all requests but you can generally expect to attend at least one major conference per year, when you have material to present (typically, 1 paper = 1 conference attendance). Please use conferences as an opportunity to further your education and share that education with all in the lab. If you register for a conference, I expect you to attend the scientific sessions and participate in conference activities as a professional representative of the lab during the time you are there (this is not a vacation; you can stay longer on your own expense, if you wish, though). Upon your return from a conference, I expect you to share the excitement of conference activities and science with other members of the lab. If grant money is not available (*e.g.* typically for undergraduate researchers), I will help you identify and apply for alternate opportunities to support your participation.

**I will strive to be supportive, equitable, accessible, encouraging, and respectful.** I can be impatient and not very empathic at times, but I will try to maintain a respectful demeanor with you and not use harmful language in my interactions with you. I am mindful that each student comes from a different background and has different expectations of professional interactions and different expectations for personal and professional goals. It will help if you keep me informed about your experiences at all times. I view my role as fostering your professional confidence and encouraging your critical thinking, skepticism, and creativity. If my attempts to do this are not effective for you, I am open to talking with you about other ways to achieve these goals. As such, we should discuss any concerns that you have with respect to my role as your advisor. If you feel that you need more guidance, tell me. If you feel that I am interfering too much with your work, tell me. If you would like to meet with me

more often, tell me. At the same time, I will tell you if I am satisfied or dissatisfied with your progress and your progress towards your goal and/or degree requirement. It will be my responsibility to explain to you any deficiencies, so that you can take steps to fix them. This will be a good time for us to take care of any issues before they become major problems.

I recognize everyone prefers and thrives in a different environment and with a different mentoring style. Generally, as mentioned above, I will try to adapt and co-develop with you a style that allows you to be productive and successful. However, I believe that for graduate and post-graduate students the path towards academic independence is one of the core principle of the program. As students progress in their program, I will be more and more hands-off and encourage (and require) mentees to show progressive levels of self-initiative.

**I am committed to mentoring you, even after you leave my lab.** I am committed to your education and training while you are in my lab, and to advising and guiding your career development – to the degree you wish – long after you leave. I will be available for you to ask questions, bounce off ideas, and request honest letters of evaluation (recommendation).

**I will encourage you to apply for awards, fellowships, and similar opportunities** – both during your stay in the lab and afterwards. If you commit to applying for an award or fellowship, I will work closely with you to insure that it is competitive for the opportunity. Similarly, I will notice and recommend job opportunities and opportunities for networking or collaboration. In the latter cases, I will arrange an introduction if desired. To the extent that you aspire to leadership, service, and other opportunities, I will help support your aspirations with advice, letters of recommendation and more as you request.

## What I expect from you

Despite my commitment to all of my mentees, it is of utmost importance that you recognize that YOU have the primary responsibility for a successful outcome of your research and student experience! This includes commitment to your work in the classroom and the laboratory. You should maintain a high level of professionalism, self-motivation, engagement, scientific curiosity, and ethical standards.

In general, I expect you to:

- Learn how to plan, design, and conduct high quality scientific research
- Learn how to present and document your scientific findings
- Be honest, ethical, and enthusiastic
- Be engaged within the research group and other programs on campus and support your peers
- Treat your lab mates, our collaborators, our lab funds, equipment, and materials with respect
- Take advantage of professional development opportunities
- Maintain a healthy life-style, which will help you excel in the lab
- Work hard – don't give up – and enjoy the work

**Ensure that you meet regularly with me and provide me with updates on the progress and results of your activities and experiments.** For our weekly meetings, I expect you to prepare ppt slides or other documents to provide me with an update on your progress, struggles, and new ideas. These weekly updates can include (raw) data, graphs, schematics, plots, images, videos, thoughts in bullet-points, etc.. Ideally, you also include a brief section on self-reflection: what went well, what didn't, why did it go well or not, etc.. Over time, you will build a repository of approaches and techniques that work for you and which don't and allow you to improve your skills.

I recognize that different cultures have different ground rules for communication with a supervisor. It is my goal for you not so much to view me as your supervisor in term of “boss”, but rather a colleague who you can have eye-level conversations and discussions with. Don’t hesitate to ask questions (that’s one of the best ways to learn), to be proactive, and to challenge my own views. Also remember: I cannot address or advise about issues that you do not bring to my attention. If something is timely or urgent, you should email me or come by my office.

**Be mindful of the constraints on my time.** When we set a meeting or a deadline, I will block off time just for you. If you need to reschedule a meeting with me, I expect you to give me as much advance notice as possible (ideally 1 week, though I recognize there might be last-minute emergencies that require more short-hand cancellations). If we set a deadline for material (*e.g.* a manuscript or abstract), I expect you to send it to me by the specified time, so that I can read and respond to your work. If I do not receive your materials, I will move your project to the end of my queue. Allow a minimum of one week prior to submission deadlines for me to read and respond to short materials such as conference abstracts and three weeks for me to work on manuscripts. Please do not assume I can read materials within a day or two, unless we talked about it previously.

That being said, I want you to never feel intimidated to reach out to me for whatever reason. There is a work-around for almost everything. But as I mentioned multiple times in this document: I can only help if I am aware of what is happening, bothering you, or posing a particular challenge (and, as also mentioned above, I often have a hard time reading between lines).

**Be prompt.** Respond promptly (in most cases, within 48 hours) to emails from anyone in our lab group and show up on time and prepared for meetings. If you need time to gather information in response to an email, please acknowledge the receipt of the message and indicate when you will be able to provide the requested information.

**Contribute to scientific writing and publication of journal articles.** Peer-reviewed publication is a standard of academic accomplishment and one upon which my laboratory’s success, funding and reputation is based. For this reason, I will expect you to contribute to the generation of and/or to take a leading role on generation of peer-reviewed publications. While it is difficult to pin-point an exact number of scientific publications, a general rule of thumb is: postdocs: 1-2 papers per year, PhD students: 3-4 first-author publications (minimum 2 published and 2 submitted) prior to graduation, MS students: significant contribution to 1 paper, undergrads: it’s great if you can get a paper out of your research, but it is not expected nor required. Barring unusual circumstances, it is my policy that students are first-author on all work for which they took the lead on data collection & analysis and preparation of the initial draft of the manuscript; including undergraduate students.

Before you send me any written drafts & documents I expect you to carefully proofread the text, captions, and figure legends. If your native language it not English and you struggle with grammar and the “flow” of writing in English, I highly encourage you to work with the Engineering communications & writing center to edit your documents before you send them to me for review. I expect that we will have to go through numerous iterations between you and me before manuscripts are ready to submit, but these should focus on the scientific content and storytelling, not English. A good preparation to writing is to “dissect” others’ papers for style, format, and storytelling (flow).

I recognize that the impact of your contributions to science, engineering, and society can be broader than merely journal publications and support your in enhancing your impact as an investigator, for example through teaching, outreach and service, patent and invention development, and mentoring.

**Take ownership in your work.** In addition to disseminating your work through paper publications, I encourage you to communicate about your research at as many opportunities as possible. This includes

conferences, colloquia and seminars, poster sessions, *etc.*. In addition to explaining your research to the wider (research) community, these activities are critical for your networking and might spur new ideas and collaborations.

**Be responsive to advice and constructive criticism.** The feedback you get from me, your colleagues, your committee members, and your course instructors is intended to improve your scientific work, not to question you as a person. It is normal to feel taken aback when receiving criticism. Of course, feedback and criticism should always be non-offensive (which is different from the statement that it won't hurt emotionally). Take a deep breath, let it sit, and after a few hours or days go back to it (with less emotions) and analyze the feedback and criticism – sometimes this means ignoring it, but most often than not there is quite a bit of truth in well-meant and constructive feedback. In parallel, I will also work to be responsive to your advice and constructive criticism in all I do.

**Actively cultivate your professional development.** Our institution has outstanding resources in place to support professional development for students and postdocs. I expect you to take full advantage of these resources, since part of becoming a successful engineer or scientist involves more than just doing academic research. You are expected to make continued progress in your development as a teacher, as an ambassador to the general public representing the University and your discipline, with respect to your networking skills, and as an engaged member of broader professional organizations. I will support your participation in these broader activities, even when they appear to take time away from our research mission.

All graduate degree programs require attendance at a weekly seminar. I expect you to actively participate in these seminars and learn from them; even if they are not in your area of interest, you can learn a lot about approaches, how to ask scientific questions, how to design experiments, how to present results, how to (or how not to) communicate the research. Various organizations on campus engage in science outreach and informal education activities. Attendance at conferences and workshops will also provide professional development opportunities.

**Be knowledgeable of the policies, deadlines, and requirements of the graduate program, the graduate school, and the university.** Comply with all institutional policies, including academic program milestones, laboratory practices and rules, and chemical and environmental safety practices. Where my experience or knowledge can help you, you can count on me. EHS and senior lab members are also a good resource.

I place a strong emphasis on tidiness and cleanliness of the lab: this provides a safer research environment and reduces frustration for other lab members. I expect you to clean up your work area before you leave the lab for the evening, including labeling all liquids/chemicals, putting back shared tools and equipment, throwing away trash, *etc.*.

**Attend and actively participate in all group meetings.** Participation in group meetings does not mean only presenting your own work, but also showing interest in and helping others in the lab through shared insight. Be curious and inquisitive. Do your part to create a climate of engagement and mutual respect. Out of respect to other lab members, I expect you to refrain from using your mobile device (except for looking up a translation once in a while, if necessary) during the meetings and actively listen to the presentations and give feedback.

**Strive to be the very best lab citizen.** Take part in shared laboratory responsibilities and use laboratory resources carefully. Be proactive about it. Maintain a safe and clean laboratory space. Senior lab members will participate in training new lab members on use of equipment, general lab practices and procedures, lab safety, *etc.* Be respectful, tolerant of, and work collegially with all laboratory colleagues and particularly when working in our collaborators' labs: respect individual differences in

values, personalities, work styles, and theoretical perspectives. To provide the most inclusive environment in the lab, I expect everyone to communicate in English while in the lab, office space, or in other lab group settings. This has an added benefit of becoming more comfortable communicating in English (if it is not your mother tongue), which is crucial to modern-day science.

**Be a good collaborator.** Engage in collaborations within and beyond our lab group. Collaborations are more than just publishing papers together. They demand effective and frequent communication, mutual respect, trust, and shared goals. Effective collaboration is an extremely important component of the mission of our lab. I expect all group members to help each other; for example through consultation, suggestions, scientific discussions, help with sample preparation or instrument use, *etc.*. More substantial tasks and collaborations should be coordinated with me to make sure they don't take away too much time and energy from your own projects.

**Acknowledge the efforts of collaborators.** This includes other members of the lab as well as those outside the lab. Always keep me informed if someone is particularly helpful to you intellectually or materially, even when they are not in our or a current collaborator's lab, so that I can interact with that lab's PI to achieve a productive outcome. This can include copying me on emails and copying other PIs on emails when expertise, experience or equipment is shared. At the same time, please let me know if certain collaborations are not working out at all, for example because of different work ethics, different project definitions or goals, *etc.*. Only if you let me know what's going on can I help with finding a solution.

**Help other students with their projects and mentor/train other students.** This is a valuable experience! I encourage all senior students to mentor other students, for example undergraduate researchers and incoming graduate students. If, as a result of their contribution, you wish to add other individuals as authors to your papers, please discuss this with me early on and before discussing the situation with the potential co-authors.

**Leave no trace.** You will frequently use shared equipment; within the lab, in collaborators' labs, or shared university facilities. You should respect this equipment and treat it carefully. Always return it as soon as possible in the same condition you found it. If something breaks, tell me right away so that we can arrange to fix or replace it. Don't panic over broken equipment. Mistakes happen. But it is not acceptable to return something broken or damaged without taking the steps necessary to fix it.

Some experimental setups will be entirely "yours", while most likely some part of the setup will require the use of shared lab equipment. Always be cognizant of other people's setups, and never disassemble a setup that is not yours (this refers especially to the placement of rail, posts, mirrors, etc). If you need a piece of a setup that is currently in use, ask if you can borrow it. Cameras should always be incorporated in your setup such that they can be taken by others without special permission! Coordinate with your peers the use of shared equipment (especially cameras, the microscope, *etc.*).

**Maintain detailed, organized, and accurate laboratory records.** It is important that you keep an accurate and detailed account of all of your research activities: this could either be in the form of a paper-based notebook, notes taken on the computer, or a combination there-of. Be aware that your notes, records and all tangible research data are my property as the lab director. When you leave the lab, I encourage you to take copies of your data and notes with you. But one full set of all data must stay in the lab (*e.g.* on the hard drive I handed you when you first started), with appropriate and accessible documentation. Regularly back-up your computer data to Box, the hard drive I gave you, and/or the larger lab-based hard drives.

**Remember that all of us are "new" at various points in our careers.** If you feel uncertain, overwhelmed, or want additional support, please overtly ask for it. I welcome these conversations and

view them as necessary.

**Discuss policies on work hours, sick leave and vacation with me directly.** Consult with me any planned absences (and let your peer know if your absence influences their work, *e.g.* through collaborations, shared equipment use, *etc.*). As stated above, a healthy work-life balance is important, which includes time to travel, explore new places, recharge the batteries, visit family and friends, *etc.*. I will not keep track of your travel away from the lab and time away from work, unless it seems to be interfering with research progress. I generally ask that most lab members not exceed three weeks of personal travel away from the lab in any given year; however, exceptions will be made if discussed with me in advance. In any case, please discuss with me any travel plans well ahead of time (*i.e.*, obtain my permission – typically, I will say “yes, of course, no problem”, but I want to be aware of what’s going on), since there might necessarily be periods – especially before conferences, grant deadlines, reporting deadlines – when more effort will need to be devoted to work and it may not be ideal to schedule time away.

As mentioned above, I leave it up to you how you structure your work day and work week. As a guideline, permanent full-time trainees, *i.e.*, post-rotation PhD students and postdocs are expected to devote an average of 40-45 hours per week on their research, although physical presence in the lab may not be a part of this hourly recommendation. Rotation PhD and Masters students are expected to spend ~20 hours on research. The time commitment for undergraduates varies strongly and will be discussed on an individual basis.

**Have fun and work hard!** A PhD, or any research, can be daunting and frustrating at times, but also extremely rewarding. I want you to enjoy your research; not every hour or every day will be fun, but overall you should be enjoying the process – if not, it’s time for us to get together and re-evaluate your career goals and/or research project.