Klassen Lab Mentoring Expectations for Undergraduate Students

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Welcome to the Klassen lab! You are joining a group of researchers committed to the advancement of their science and scientific careers by contributing to a common research program studying the diversity, ecology, and evolution of microbes and their molecules. As the principal investigator, it is my job to define the broad themes of our lab's research, write grant proposals to fund our work, promote our science to both the scientific community and to the broader public, and help you to grow and succeed as a scientific professional. Correspondingly, there are certain responsibilities that you as an undergraduate student have to ensure both your own and our lab's success, and reciprocal responsibilities that I have towards you. The purpose of this document is to list these responsibilities, agreed to by both you as mentee and by me as mentor, such that they govern the conduct of our relationship during your program. These relationships include research conducted in my lab for course credit, work-study, honors thesis, SURF fellowships, University Scholars, IDEA grants, CAPS/McNair programs, and any other undergraduate research program. Please discuss these expectations with me at the start of your research program in our lab.

Responsibilities of the undergraduate student mentee:

Your Coursework and Degree:

- *The completion and success of your degree is primarily your own responsibility.* This includes both your classroom and laboratory work, which must always be conducted with professionalism, self-motivation, engagement, scientific curiosity, and high ethical standards.
- *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, the MCB departmental norms, and rules related to chemical safety, biosafety, and fieldwork.
- *Work with me to develop your research project, as appropriate for your program.* Most undergraduate research in our lab requires you to develop and complete a coherent body of research representing a contribution to your scientific field. For honors, SURF, IDEA, University Scholar, etc. students, leading a unique project satisfies the requirements of these programs. Ensure that your research is ultimately proceeding towards this goal. For work-study students, even if you don't have an independent research project you should still know your responsibilities and complete them diligently.
- *Whenever possible, apply for external funding for your work.* Hosting your research in our lab costs money. This is especially true for students working during the summer, who will be paid a salary that is in line with their research experience. Multiple opportunities exist for you to help provide resources to allay these expenses, which will in turn free up additional resources that can enhance your research experience, e.g., via participation in fieldwork and/or scientific conferences. All students are expected to apply for UConn OUR Supply Awards (https://ugradresearch.uconn.edu/supply-awards/) once during their research program, and students interested in summer work are expected to apply for UConn SURF awards (https://ugradresearch.uconn.edu/surf/). You are also encouraged to take advantage of additional funding opportunities that align with your interests, e.g., conference travel awards or UConn IDEA grants (https://ugradresearch.uconn.edu/idea/). Note that your research will not typically depend on receiving these funds, but rather that these opportunities are an important part of how our lab functions and represent significant opportunities for you to bolster your resume.
- *Be responsive to advice and constructive criticism.* The feedback you get from me, your colleagues, and your course instructors is intended to further your research and professional development. Respect the wisdom of those who have gone before you.
- *Take care of your mental and physical health.* Your health is always a priority. Establish healthy eating, sleeping, and exercise patterns that will sustain you throughout your program and beyond. Pay attention to your mental health and take corrective actions as needed. Never, ever, put your colleagues at risk due to your lack of self-care; this is grounds for dismissal.

Your Career Development:

- *Conduct research at the world-class standards of this institution.* I expect that you will learn how to plan, design, and conduct high quality scientific research.
- *Actively cultivate your professional development in non-research contexts.* Becoming a successful scientist requires more than just academic research. I expect you to continually develop as a teacher, as a scientific ambassador to the general public, and your scientific network, as appropriate for your program. This may include participating in lab outreach activities and presentation of your work at local symposia, as examples. At minimum, all Honors, SURF, IDEA, and University Scholar students will present their work either as a poster at the Frontiers in Undergraduate Research symposium or as a talk at the Undergraduate Biology Research Colloquium (ideally both). Other students are also encouraged (but not required) to present their research via these and other forums.
- *Read the scientific literature relevant to your project*. Your research does not happen in a vacuum; reading papers provides knowledge of your field and prevents you from wasting time on questions that have already been answered. Knowledge of the literature is also required to write proposals and reports for your research project. Participating in the bi-weekly lab journal club is an excellent way to develop skills in critically reading scientific papers.
- *As appropriate, mentor and train other students and help them with their projects.* Undergraduate projects often comprise a small part of a larger project. Because such projects are often passed on between students, I expect that senior undergraduate students will mentor junior ones and that people with unique and specialized skills will share them with the rest of the lab as teachers and/or collaborators. Mentoring junior students is a particularly valuable skill that is important for your career development.
- *Use technology responsibly and collaboratively.* Follow UConn's protocols and regulations for technology use. UConn has chosen Microsoft 365 as its standard office and cloud storage software. You must therefore ensure that your practices are compatible with this tool. Be aware of potential FOIA and FERPA implications of your being enrolled at or employed by UConn and separate your personal and professional accounts when this makes sense. Precisely record any generative AI procedures that you use and be aware of their ethical and disclosure implications (e.g., how text describing your unpublished research might be added to a tool's training model). Only use tools that keep your data within UConn (e.g., Microsoft OneDrive, Microsoft Copilot) unless cleared with me.
- *Be a good communicator.* Pay attention to messages that are sent to you and respond to them in a timely manner. Check your UConn email at least daily, as required by UConn's policies. Use your UConn email for all official work-related communications. Also pay close attention to the lab Slack workspace, which is our designated medium for rapid communication among the group.

Your Relationship with the Lab:

- *Actively participate in laboratory meetings*. Lab meetings are times when, as a lab, we constructively critique each others work, brainstorm new directions, and collaborate with each other to strengthen each other's research. Honors and University Scholar students are required to attend all lab meetings (including journal clubs) to place your work in the context of other projects in the lab and receive feedback from other lab members. All other undergraduate students are encouraged to attend lab meetings whenever possible, although this is not a strict requirement for your course grades. Beyond punctual attendance, you will offer well-thought-out and constructive suggestions and criticisms and respect those given to you. You are also expected to share your progress during each update meeting, typically your latest figures. Our lab is the first and safest crucible for forming research; it is better that deficiencies are identified here than in public.
- *Be a good lab citizen.* Recognize that our laboratory is a shared environment with shared resources. If you use the last of a common reagent, it is your responsibility to order more. Likewise, if you break something it is your responsibility to fix or replace it. Ensure that the laboratory remains clean and organized so that the work efficiency of your colleagues is not compromised. Protect samples and data that are shared with others, especially where confidentiality is protected. Be respectful and tolerant, and work collegially with all laboratory colleagues. Especially respect individual differences in values, personalities, work styles, and theoretical perspectives.

- *Be a good collaborator.* Collaborate both within and beyond our lab group, ensuring effective and frequent communication, mutual respect, trust, shared goals, and consistent acknowledgement of your collaborators' efforts.
- *Rigorously document all your methods and results.* Every experiment MUST be documented in its entirety, including EVERY result. To do otherwise is unethical and grounds for dismissal. Lab notebooks are lab property and therefore must be maintained to a standard where they can be interpreted by someone other than yourself. (You are welcome to a copy when you leave the lab.)
- *Any computer code that you generate must be properly documented and reproducible.* Expect that your code will be published alongside manuscripts. Broken code constitutes an irreproducible experiment, and as such is grounds for retraction of published work. Employ good programming practice to the best of your ability, especially commenting your code and using some form of version control.
- *Collect all necessary metadata for each of your experiments and document it properly in the lab database*. Most scientific resources that you generate (samples, cultures, DNA sequence, phenotypic data) have the potential to be used by others in the lab at some point, even after you leave. Such meta-analyses (acknowledging your original work) are impossible without complete documentation.
- *Discuss data publication plans (papers, conferences, public database deposition) with me BEFORE the data is released into the public domain.* This is for two reasons: (i) so that I can ensure that credit is allocated appropriately and ensure that omissions are rectified; and (ii) so that intellectual property can be adequately protected, either from competition or for commercial application as warranted.

Your Relationship with me:

- *Update me on your research progress and plans via regular meetings.* Regular one-on-one meetings (most often weekly) enable me to help you develop your research ideas and keep you from straying too far down unproductive side roads. Be prepared for these meetings, e.g., by having data ready to present (including visuals), experiments to report, conceptual ideas to discuss (e.g., arising from papers you read), and any other items that you want my feedback on. Most undergraduates will also be assigned another lab member who will serve as a primary day-to-day mentor, especially during early project stages.
- *Set and meet deadlines.* Deadlines keep you accountable for your progress. Short-term goals will be set during your weekly meetings. Longer-term goals will be set in collaboration with me. Although there is flexibility for changes in plans and to accommodate many life circumstances, I expect that you will maintain these timelines to the best of your ability. Report on your progress toward these goals during our regular meetings.
- *Be mindful of the constraints on my time.* As a professor, I bear responsibility not only for the progress of my lab and everyone in it, but also for the students of the classes that I teach and for my commitments to the university and the broader community (not to mention my family etc.). It is therefore necessary that you allow me to organize my time efficiently, keeping the meetings that you set with me and letting me know things you need from me (e.g., comments on drafts or letters of recommendation) at least 1 week before their due date. Also use medium-term planning to understand when multiple rounds of feedback will be needed and if my availability to help you will be constrained (especially with finishing larger tasks such as thesis writing).
- *Provide feedback on my mentoring to you.* Not everyone has the same mentoring needs and personalities, so there will inevitably be places where my efforts do not line up with your preferences. I am not infallible but can only make adjustments when I know that they are needed.
- *Show good time management.* Frankly, people with poor time management are not typically successful in upper-level science. Use your work time efficiently so as to not distract yourself or your co-workers. Save recreational internet use for at home and be prompt when attending meetings and when responding to Slack and email. Keep some informal account of your time use to ensure that you are meeting expectations. I may require a more formal account if your progress is lagging.

- *Discuss your work schedule with me.* You are expected to work hours commensurate with your project type and requirements. For research credit, the expectation is that you will perform 3 hours of lab work for each course credit. Your course grade is largely based on your fulfilling this requirement. Summer students and work-study students are paid hourly unless part of a program that has different expectations (e.g., SURF). Students working hourly must submit their hours in a timely manner to facilitate payment. Overtime hours will not be paid, but time in lieu can be arranged

  How you plan to achieve your work obligations must be discussed with me each semester. I encourage you to flexibility organize your time (this is a major benefit of academia) and do not track your hours while you stay productive. Work to maintain a trusting relationship between us that will facilitate this. As part of this, you should: (1) Allocate some regular times to consistently apply to your projects. (2) Work in-person by default, because in-person attendance is typically required for collaboration and knowledge sharing with both me and others in the lab. (3) Have me approve your plans for off-site work and be accountable for the efficient use of that time. (4) Notify me when you are unexpectedly absent, ideally as soon as you know but retrospectively if required (e.g., when incapacitated by illness). (5) Do not work alone until you confirm with me that you have sufficient training and experience to do so safely.

  My hope is that these procedures will help you efficiently progress toward your degree. However, if your productivity lags we will explore specific reasons why that might be the case and ways to enforce accountability (which may include designated work hours or locations).

- *Discuss vacation plans with me.* Vacations and work-life balance are important for creative thinking and good health. However, please consult with me before making plans and understand that some activities are time-sensitive (e.g., sampling, preparing for grants, manuscripts, exams, or conferences). For undergraduates, I expect most time off to occur outside of the academic year and during officially scheduled breaks. I am also certainly willing to accommodate sick and/or parental leave as required, and will determine this on a case-by-case basis.

- *To the extent that you are willing, keep me aware of personal issues that impact your progress toward degree completion.* This is not a requirement. However, I have specific training to deal with many such issues and can help you find resources that you may not be aware of. Documenting such challenges can also help mitigate negative institutional consequences when progress toward completing your degree is limited by circumstances beyond your control. My tenured status can also allow me to pursue uncomfortable subjects on your behalf.

- *Keep the lab and I appraised of your schedule.* Teamwork within the lab requires frequent interactions. To facilitate this, use the lab calendar to indicate when you will regularly be in the lab. This will help others find you when needed.

Responsibilities of the undergraduate student mentor:
Your Degree:

- *I will help you navigate your undergraduate program of study.* As stated above, 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 (if needed). This is especially true for MCB and BIOL honors students, for whom I will be the primary academic advisor. For honors students in other programs, I will be your thesis advisor but not your primary academic advisor.

- *I will be committed to your research project*. I will help you design a project within the scope of my lab's research for your thesis. The degree to which your project is independent of other research in the lab will depend on your project type and your experience, e.g., honors students will have more independence than non-honors students due to their need to write a thesis. I will be intellectually committed to your research, including when you extend the research interests of my lab. This includes helping you to generate experimental and theoretical ideas, interpreting and constructively criticizing your data and contextualizing it within a broader context, and supporting you in presenting your ideas and results to the scientific community. I will help you set reasonable goals and keep you accountable for reaching them.

- *I will be committed to providing financial resources to you as appropriate and/or according to my institution's guidelines to allow you to conduct your thesis research*. To the best of my ability, I will provide the resources that you need to conduct your experiments. Depending on funding, I will also attempt to support your participatation in fieldwork and external conferences, as your progress warrants. I will support you in trying to obtain external funding for your degree program.
- *To the extent that I can, I will help you overcome personal challenges that hinder your progress.* I will guide you to resources and mentoring to help you overcome roadblocks and provide you with sufficient flexibility to engage with these resources. I will engage in professional development to support this and be clear about what accommodations can be offered and how to access them.

Your Career Development:

- *I will ensure that you receive world-class training.* I will provide resources and mentorship from both myself and senior lab members so that you have the technical skills that you need to accomplish your research.
- *I will lead by example and facilitate your training in complementary skills needed to be a successful scientist, such as oral and written communication, applying for grants, lab management, mentoring, and scientific ethics and professionalism.* I will include you where appropriate in grant and manuscript writing, and I will provide opportunities for you to mentor junior researchers. I will enforce high standards of scientific ethics and professionalism.
- *I will provide career advice and assist you in finding a position following your graduation.* I will give advice and feedback on your career goals and encourage you to explore opportunities both outside and within academia that suit your interests and progress. I will promptly provide honest letters of recommendation whenever they are requested of me. (Please send me all of your application materials and ideally allow me 1 week of lead time for each request.)

Your Relationship with the Lab:

- *I will work tirelessly for the good of the lab group*. The success of every member of our group is my top priority, no matter their personal strengths, weaknesses, and career goals.
- *I will provide everyone that I supervise with an environment that is intellectually stimulating, emotionally supportive, safe, and free of harassment.* I will enforce a culture governed by collegiality that values differences in personalities and opinions.
- *I will enforce standards for communal behavior in our lab group.* I will ensure that you are not disadvantaged by others' poor stewardship of lab supplies, samples, and data, e.g., care of lab equipment and archival of samples, metadata, and computer code.
- *I will discuss issues relating to authorship and intellectual property with you and ensure that credit is allocated fairly*. This includes mediating a consensus between collaborators inside and outside of the lab, and making any expectations of confidentiality clear at the start of a project.

Your Relationship with Me:

- *I will be available for both regular one-on-one meetings and informal conversations.* Despite my busy schedule, meeting with you is always a priority. When I am in my office or the lab, you should always feel free to interrupt me whenever you need something or can benefit from my feedback. As noted above, please schedule longer meetings and understand that other obligations may mean that I am sometimes running off for things like meetings and classes.
- *I will both trust you to organize your time appropriately but also keep you accountable for your progress.* I will work to maintain a trusting relationship with you that maximizes your productivity and allows you to maintain an appropriate work-life balance. At the same time, I will keep track of your progress and initiate any conversations needed to keep this from lagging.
- *I am committed to mentoring you, even after you leave my lab.* My ultimate goal is for your success. I will advise you and guide your career development for as long as you wish. I am happy to have many former mentees as friends and colleagues.

- *To the best of my abilities, I will be supportive, fair, accessible, encouraging, and respectful*. I will work hard to understand your unique situation and mentor you accordingly. Everyone comes from different backgrounds and has different goals and constraints, and I will work hard to help you balance your unique situation with the high expectations of your graduate program. If there are ways that you think I can better strengthen your confidence, critical thinking, skepticism, and creativity, please discuss them with me. Your success is my ultimate goal.

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