



## Checklist for Mentoring the Undergraduate Research Student

### Laying the Foundation

- Are you (or a proxy) available to the student on a regular and consistent basis?
- Have you developed a rapport with the student beyond the subject of your research?
- Do you ask enough questions of the student to fully understand his/her perspective?
- Have you created an environment where the student can freely ask questions without fear or embarrassment?
- Do you ensure that communication with the student is clear and effective?
- Are you sure that your area of research is best for and of interest to the student?
- Have you developed a mentoring philosophy and does it inform your actions as a mentor?
- Do you come to the relationship with no judgment or preconceived ideas about the student?
- Are you aware of the possibility of unconscious assumptions or biases?
- Did the student participate in setting the goals and objectives they are expected to meet?
- Do you address problems or issues that arise quickly and fairly?
- Is the feedback provided to the student honest and constructive?
- Do you seek the advice and support of more experienced mentors?

### Research and Professional Development

- Is the research project reasonable in scope and feasible?
- Can the project generate data that the student can present?
- Does the project have built-in challenges designed to develop critical thinking and problem solving skills?
- Have you provided the student a clear and thorough orientation to the research environment, including safety, personnel and culture?
- Does the student have the opportunity to engage in scientific writing?
- Have you set clear, reasonable and high expectations for the student and informed him/her of what he/she should expect from you?
- Is there a forum where the student can present the results of his/her research?

For more information, please contact Tiera Coston at [tcoston@xula.edu](mailto:tcoston@xula.edu) or 504.520.5070.

## Expectations for Undergraduate Mentees

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(Ashley Shade, UW–Madison research mentor)

1. **Send me weekly email updates on Fridays by 5 pm**, describing briefly what you've been working on, what you plan to do the following week, and any questions or troubles you had. Important things to include: project you've worked on, broken equipment, storage/equip conflicts, if your data look weird.
2. **Attend lab meeting.** The entire lab assembles approximately once a week to discuss our research. Generally, the person leading lab meeting will distribute reading materials in advance. You should read these materials and come prepared to participate actively in the discussion
3. **Be organized.** There is a lot of overlap in projects, and it is essential that you keep track of all the samples in the way that I specify. This includes updating the data spreadsheets and lab notebooks immediately.
4. **Read background information and protocols about our projects, and about our lab's research.** This includes the protocol handout, the Wiki, and related journal articles from the lab that I've suggested. I'd love to discuss any journal article or protocol, so just say the word and we'll grab some coffee and chat.
5. **Be consistent with your lab schedule.** Email/call me if you are going to be very late or unable to make your scheduled lab time.
6. **Be independent.** I am periodically away, and I expect you to get things done well without me. Ask questions when I am around, but don't be afraid to try to do detective work on your own if I am not. We have a helpful, experienced lab, so know that folks other than me may be excellent resources.
7. **Respect the lab area and your colleagues.** Keep it neat and ask if you have questions on equipment use, cleaning, etc. It is very important that you tell me if a piece of equipment breaks. Do not be worried that I will be angry. These things happen all the time in labs, and the important thing is that I know it is broken and can arrange to have it fixed.
8. **Let me know if you need anything from me as a mentor, or if you have questions.** Be up front and I will do the same.
9. **I have an "open door" policy.** Let me know if you are having troubles or concerns that you want to talk about with me, work related or not. My phone number is XXXXXX.

# Graduate Mentee Contract

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(Professor Trina McMahon, University of Wisconsin–Madison)

## **The broad goals of my research program**

As part of my job as a professor, I am expected to write grants and initiate research that will make tangible contributions to science, the academic community, and society. You will be helping me carry out this research. It is imperative that we carry out good scientific method, 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. 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 I expect from you**

Another part of my job as a professor is to train and advise students. I must contribute to your professional development and progress in your degree. I will help you set goals and hopefully achieve them. However, I cannot do the work for you. 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 at least two programs on campus
- Treat your lab mates, lab funds, equipment, and microbes with respect
- Take advantage of professional development opportunities
- Obtain your degree
- Work hard—don't give up!

## ***You will take ownership over your educational experience***

✓ **Acknowledge that you have the primary responsibility for the successful completion of your degree.** This includes commitment to your work in classrooms and the laboratory. You should maintain a high level of professionalism, self-motivation, engagement, scientific curiosity, and ethical standards.

✓ **Ensure that you meet regularly with me and provide me with updates on the progress and results of your activities and experiments.** Make sure that you also use this time to communicate new ideas that you have about your work and challenges that you are facing. Remember: I cannot address or advise about issues that you do not bring to my attention.

✓ **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 related to chemical safety, biosafety, and fieldwork.

✓ **Actively cultivate your professional development.** UW–Madison has outstanding resources in place to support professional development for students. 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. The graduate

school has a regular seminar series related to professional development. The Delta program offers formalized training in the integration of research, teaching, and learning. All graduate degree programs require attendance at a weekly seminar. Various organizations on campus engage in science outreach and informal education activities. Attendance at conferences and workshops will also provide professional development opportunities. When you attend a conference, I expect you to seek out these opportunities to make the most of your attendance. You should become a member of one or more professional societies, such as the Water Environment Federation, the American Society for Microbiology, or the American Society for Limnology and Oceanography.

***You will be a team player***

✓ **Attend and actively participate in all group meetings, as well as seminars that are part of your educational program.** Participation in group meetings does not mean only presenting your own work, but providing support to others in the lab through shared insight. You should refrain from using your computer, Blackberry, or iPhone during research meetings. Even if you are using the device to augment the discussion, it is disrespectful to the larger group to have your attention distracted by the device. Do your part to create a climate of engagement and mutual respect.

✓ **Strive to be the very best lab citizen.** Take part in shared laboratory responsibilities and use laboratory resources carefully and frugally. Maintain a safe and clean laboratory space where data and research participant confidentiality are protected. Be respectful to, tolerant of, and work collegially with all laboratory colleagues: respect individual differences in values, personalities, work styles, and theoretical perspectives.

✓ **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.

✓ **Leave no trace.** As part of our collaborations with the Center for Limnology and other research groups, you will often be using equipment that does not belong to our lab. I ask that you respect this equipment and treat it even more carefully than our own equipment. 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.

✓ **Acknowledge the efforts of collaborators.** This includes other members of the lab as well as those outside the lab.

***You will develop strong research skills***

✓ **Take advantage of your opportunity to work at a world-class university by developing and refining stellar research skills.** I expect that you will learn how to plan, design, and conduct high-quality scientific research.

✓ **Challenge yourself by presenting your work at meetings and seminars as early as you can and by preparing scientific articles that effectively present your work to others in the field.** The "currency" in science is published papers: they drive a lot of what we do. And because our lab is supported by taxpayer dollars, we have an obligation to complete and disseminate our findings. I will push you to publish your research as you move through your training program, not only at the end. Students pursuing a master's degree will be expected to author or make major contributions to at least one

journal paper submission. Students pursuing a doctoral degree will be expected to be lead author on at least two journal paper submissions, preferably three or four.

✓ **Keep up with the literature so that you can have a hand in guiding your own research.** Block at least 1 hour per week to peruse current tables of contents for journals or do literature searches. Participate in journal clubs. Better yet, organize one!

✓ **Maintain detailed, organized, and accurate laboratory records.** 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 with you. But one full set of all data must stay in the lab, with appropriate and accessible documentation. Regularly back up your computer data to the server (see the wiki for more instructions).

✓ **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.

### ***You will work to meet deadlines***

✓ **Strive to meet deadlines: this is the only way to manage your progress.** Deadlines can be managed in a number of ways, but I expect you to do your best to maintain these goals. We will establish mutually agreed upon deadlines for each phase of your work during one-on-one meetings at the beginning of each term. For graduate students, there is to be a balance between time spent in class and time spent on research and perhaps on outreach or teaching. As long as you are meeting expectations, you can largely set your own schedule. It is your responsibility to talk with me if you are having difficulty completing your work, and I will consider your progress unsatisfactory if I need to follow up with you about completion of your lab or coursework.

✓ **Be mindful of the constraints on my time.** When we set a deadline, I will block off time to 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 1 week prior to submission deadlines for me to read and respond to short materials, such as conference abstracts, and 3 weeks for me to work on manuscripts or grant proposals. Please do not assume I can read materials within a day or two, especially when I am traveling.

### ***You will communicate clearly***

✓ **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.

✓ **Let me know the style of communication or schedule of meetings that you prefer.** If there is something about my mentoring style that is proving difficult for you, please tell me so that you give me an opportunity to find an approach that works for you. No single style works for everyone; no one style is expected to work all the time. Do not cancel meetings with me if you feel that you have not made adequate progress on your research; these might be the most critical times to meet with a mentor.

✓ **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 receipt of the message and indicate when you will be able to provide the requested information.

✓ **Discuss policies on work hours, sick leave, and vacation with me directly.** Consult with me and notify fellow lab members in advance of any planned absences. Graduate students can expect to work an

average of 50 hours per week in the lab; postdocs and staff at least 40 hours per week. I expect that most lab members will not exceed 2 weeks of personal travel away from the lab in any given year. Most research participants are available during university holidays, so all travel plans, even at the major holidays, must be approved by me before any firm plans are made. I believe that work-life balance and vacation time are essential for creative thinking and good health and encourage you to take regular vacations. Be aware, however, that there will necessarily be epochs—especially early in your training—when more effort will need to be devoted to work and it may not be ideal to schedule time away. This includes the field season, for students/postdocs working on the lakes.

✓ **Discuss policies on authorship and attendance at professional meetings with me before beginning any projects to ensure that we are in agreement.** I expect you to submit relevant research results in a timely manner. Barring unusual circumstances, it is my policy that students are first author on all work for which they took the lead on data collection and preparation of the initial draft of the manuscript.

✓ **Help other students with their projects and mentor/train other students.** This is a valuable experience! Undergraduates working in the lab should be encouraged to contribute to the writing of manuscripts. If 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 coauthors.

### **What you should expect from me**

✓ **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 and weaknesses, or career goals.

✓ **I will be available for regular meetings and informal conversations.** My busy schedule requires that we plan in advance for meetings to discuss your research and any professional or personal concerns you have. Although I will try to be available as much as possible for “drop-in business,” keep in mind that I am often running to teach a class or to a faculty meeting and will have limited time.

✓ **I will help you navigate your graduate program of study.** As stated previously, 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 for your oral exams.

✓ **I will discuss data ownership and authorship policies regarding papers with you.** These can create unnecessary conflict within the lab and among collaborators. It is important that we communicate openly and regularly about them. Do not hesitate to voice concerns when you have them.

✓ **I will be your advocate.** If you have a problem, come and see me. I will do my best to help you solve it.

✓ **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 provide honest letters of evaluation for you when you request them.

✓ **I will lead by example and facilitate your training in complementary skills needed to be a successful scientist, such as oral and written communication, grant writing, lab management, mentoring, and scientific professionalism.** I will encourage you to seek opportunities in teaching, even if not required for your degree program. I will also strongly encourage you to gain practice in mentoring undergraduate and/or high school students, and to seek formal training in this activity through the Delta program.

✓ **I will encourage you to attend scientific/professional meetings and will make an effort to fund such activities.** 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. Please use conferences as an opportunity to further your education, and not as a vacation. If you register for a conference, I expect you to attend the scientific sessions and participate in conference activities during the time you are there. Travel fellowships are available through the environmental engineering program, the Bacteriology Department, and the university if grant money is not available. I will help you identify and apply for these opportunities.

✓ **I will strive to be supportive, equitable, accessible, encouraging, and respectful. I will try my best to understand your unique situation, and mentor you accordingly.** I am mindful that each student comes from a different background and has different professional goals. It will help if you keep me informed about your experiences and remember that graduate school is a job with very high expectations. 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.

### **Yearly evaluation**

Each year we will sit down to discuss progress and goals. At that time, you should be sure to tell me if you are unhappy with any aspect of your experience as a graduate student here. Remember that I am your advocate, as well as your adviser. I will be able to help you with any problems you might have with other students, professors, or staff.

Similarly, we should discuss any concerns that you have with respect to my role as your adviser. 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 with your progress, and if I think you are on track to graduate by your target date. 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.

# MENTOR/MENTEE AGREEMENT

A successful mentee/mentor relationship requires a commitment on the part of both partners. The following agreement is intended to provide a starting framework for the partnership. Either party should understand that they might withdraw from the relationship at any time. Each party should keep a copy of this agreement and make every effort to fulfill the terms of the agreement.

**Mentor** \_\_\_\_\_

**Employed by:** \_\_\_\_\_ **Job Title** \_\_\_\_\_

**Mentee** \_\_\_\_\_

## Research goals

As a tenured faculty member at Xavier University of Louisiana, I am required to write grants, maintain a research active laboratory and initiate research that will make contributions to science, the academic community, and society. Being a member of the Payton-Stewart research laboratory, you will be assisting me to carry out my research efforts or project. It is important that we carry out good scientific method, and conduct ourselves in an ethical way. We must always keep in mind that the ultimate goal of our research is to disseminate our research finding through publications in scientific journals. Without publications, we are not sharing our findings with the larger scientific community, thus not contributing to our field. It also becomes very difficult to obtain the funding necessary to keep our research going if we do not have a track record.

## My Expectations

As a tenured faculty member at Xavier University of Louisiana, one major aspect of my job is to train and advise students and technicians. I will contribute to your professional development and progress in your degree or career. I will help you set goals and hopefully achieve them. However, I cannot do the work for you. In general, I expect you comply with the contract agreement below:

## CONTRACT AGREEMENT

- 1. Be consistent with lab schedule.** Initially, you are asked for your work schedule during the academic year. Please comply with your schedule and come to lab at your scheduled times. Students are expected to work 10-20 hours per week during the semester and 40 hours a week during the summer (hours can be adjusted in the summer to accommodate classes and program requirements). Technicians are expected to work at least 40 hours a week.
  - If you need time off, please let me know as **far in advance** as possible and email me the dates you will be gone. This applies to vacation (technicians) as well as to time needed to study for final exams (students).
  - If you will be late or will not be in due to illness, **always call or email** to let us know where you are and if any of your experiments need attention.
  - Before any University closures, be sure that all experiments are at a stage to be stopped and all samples are properly labeled and stored.
- 2. Complete the annual departmental safety training.** Training is offered in Fall, Spring, and Summer. Date safety training was completed: \_\_\_\_\_.
- 3. Make sure to wear a lab coat, goggles, and proper laboratory attire when entering the lab.** You should not work in the research laboratory without proper laboratory attire. If you do not have the proper attire, please ask.



4. **Make sure to review the Material Safety Data Sheet (MSDS) for all chemicals you are planning to work with in advance.** The MSDS information can be found on your **Standard Operating Procedure (SOP)** form.
5. **Learn how to plan, design, and conduct high quality scientific research/ Be independent.** During the summer months, I will have more on-hands approach; however, during the academic year my teaching duties may require more of my time. I expect you to get things accomplished well and in an independent manner in the laboratory (you should definitely work with each other). **Ask** if you have questions, when I am around, but don't be afraid to become a researcher. The laboratory is an environment where safety comes first and you must work effectively and independently. We have other experienced researchers available if you have questions or if you are confused.
6. **Be Organized.** The projects in our research laboratory have related synthetic schemes; therefore, it is important that you keep track and understand the objective and method of synthesis. This includes maintaining a well-kept notebook. **Notebooks** should have a **table of contents** at the beginning and each entry should have a title. Please make sure you understand how to keep your notebook. Notebook should be updated daily with your progress.
  - Save a copy of all images and data on the lab computer: such as NMR, GC
  - Keep an inventory of all chemicals and supplies you need for your experiments so that you do not run out unexpectedly (MASTER PAYTON-STEWART CHEMICAL LIST IN GOOGLEDRIVE AND ON COMPUTER).
  - Label all chemical/sample containers and vials clearly with the content, your initials, and date.
  - Discard any unneeded samples on a regular basis using the proper disposal procedures.
  - Keep your work area clean and organized.
  - Clean up any glassware you have used.
7. **Read background information and standard operating procedures (SOP) about projects and our laboratory research.** This includes the SOP for all synthetic procedures that pertain to your project. Student will have to revise and/or implement new SOP's for the laboratory. Prepare to perform literature search using SciFinder and obtain articles from our research lab and other research laboratories. We will discuss any journal articles or SOP's during group meeting or during daily chats.
8. **Learn how to document and present your scientific findings.** Make PowerPoint slides of all data and images with the appropriate labels and update this file on regular basis to have ready for your presentations. This file should be labeled with your name and saved on the lab computer.
  - Present at local and at least one national meeting.
9. **Be respectful of the lab area and your colleagues.** Keep the laboratory neat and ask if you have questions on equipment use, cleaning, storage, etc. If glassware is broken, please inform me. Please do not worry about me being upset; things happen all the time in labs. Accidents happen in labs, so please let me know so that we can arrange to have it fixed or replaced. Please note if you have any low inventory of supplies.
  - Be honest, ethical, and enthusiastic.
  - Be engaged within the research group.
10. **Participate in all required activities for your program if you are a student (i.e. BUILD, MARC, RISE, USSP).**

11. **Attend lab meetings.** The entire lab will assemble once a week to discuss our research (problems, success and issues). We will assign one person per week to lead the discussion. We will have articles to read and discuss. The articles will be provided in a timely manner, so please come prepared and ready to participate.
12. **Send me weekly email updates on Friday by 5 pm** describing briefly what you've been working on, what you plan to do the following week, and any questions or problems you encountered during the week. Please included the following:
  - a. status of your current project
  - b. problems with current project
  - c. storage/equipment conflicts, if your data is not consistent or awkward.
  - d. If we need to order supplies, please let me know in your weekly update and also inform the lab technician.
13. **Publication and Presentations.** I would like to see all students and technicians present their work at Xavier events (Festival of Scholars, ACS local poster session, summer research series, etc.). You should seek out opportunities to present and should always sign up for these events if you see them advertised. I will try to notify you of these events as they occur, but I sometimes do not see the advertisements until very close to the deadline.

I will let you know when I feel you are ready to present at national meetings. I will ask you to write an abstract of your work. I will give you several weeks to complete the abstract so we can edit as necessary. I will also give you the date of the meeting, and you should have an outline of your poster completed at least 1 month prior to the meeting, even if I forget to remind you.

If one of your completed experiments is included in a publication, then you can be listed as an author on that publication.

For any presentations or written work that I need to proofread, please give me a draft at least **3 weeks** before the due date. If you are presenting as part of **CHEM 4083**, we will work out a writing schedule at the beginning of the semester in which you will present. If you turn in drafts late, I cannot guarantee that I will be able to give your work my full attention.

14. **Open door policy.** If you have any troubles or concerns that you want to discuss please do not hesitate to come see me, work related or not.

**Let me know if you need anything from me or have any questions.** Please do not be afraid to come and talk to me. Open-communication is a strict practice open in the lab.

Please note if you violate this agreement or any of the requirements of your research program, you may be asked to leave the research laboratory.

We will work together to ensure you understand all materials, and remember, we learn from each other.

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Mentee Signature and Date

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Mentor Signature and Date