Constructive and Destructive Group Behaviors*

Choose your single most constructive group behavior and your single most destructive group behavior from the list below. Share your choices with the members of your group so they may draw on your constructive behavior and minimize your destructive behavior as you work together.

Constructive Group Behaviors

Cooperating: Is interested in the views and perspectives of other group members and willing to adapt for the good of the group.

Clarifying: Makes issues clear for the group by listening, summarizing, and focusing discussions.

Inspiring: Enlivens the group, encourages participation and progress.

Harmonizing: Encourages group cohesion and collaboration. For example, uses humor as relief after a particularly difficult discussion.

Risk Taking: Is willing to risk possible personal loss or embarrassment for the success of the overall group or project.

Process Checking: Questions the group on process issues, such as agenda, time frames, discussion topics, decision methods, and use of information.

Destructive Group Behaviors

Dominating: Uses most of the meeting time to express personal views and opinions. Tries to take control by use of power, time, and so on.

Rushing: Encourages the group to move on before the task is complete. Gets tired of listening to others and working with the group.

Withdrawing: Removes self from discussions or decision making. Refuses to participate.

Discounting: Disregards or minimizes group or individual ideas or suggestions. Severe discounting behavior includes insults, which are often in the form of jokes.

Digressing: Rambles, tells stories, and takes group away from primary purpose.

Blocking: Impedes group progress by obstructing all ideas and suggestions ("That will never work because . . . ").

* Adapted from Brunt (1993). "Facilitation Skills for Quality Improvement." *Quality Enhancement Strategies*. 1008 Fish Hatchery Road. Madison WI 53715.

Learning Objective:

Provide constructive feedback

Case Study

Putting in Enough Time

An undergraduate was working hard at her first semester of research, but nobody seemed to notice. Her mentor said she could come in whenever she had time available; at the start of the semester she was spending about ten hours per week in the lab, but after a few weeks of solo work with little feedback, her motivation declined and she started to cut her weekly hours progressively shorter. Unlike the other undergraduates in the lab, she also had a part-time job to juggle. Nobody commented to her about the change, so she assumed that everything was going okay.

One day toward the end of the semester, a fellow mentee approached the undergraduate to tell her about a conversation she'd overheard at lunch between their mentor and a postdoc. According to the student, the mentor was complaining that nothing seemed to have gotten done in the lab this semester. “She made a really snide comment about part- time jobs getting in the way of research,” the other mentee said. “I think you'd better start trying to look busy.”

Guiding Questions:

1. What strategies have you used to assure that your mentee's time is adequately protected? How do you ensure your mentee feels useful?
2. What strategies might translate to remote work? What might you need to change or add?
3. What could have been done to avoid this situation? What should the mentee do now? Should she approach their mentor about this? If so, how?

Undergraduate Mentee Contract*

Undergraduate Mentee: _____

Graduate or Postdoc Mentor: _____

This contract outlines the parameters of our work together on this research project.

1. Our major goals are:

   A. research project goals _____

   B. mentee's personal and/or professional goals _____

   C. mentor's personal and/or professional goals _____

2. Our shared vision of success in this research project is:

3. We agree to work together on this project for at least _____ semesters.

4. The mentee will work at least _____ hours per week on the project during the academic year, and _____ hours per week in the summer.

   The mentee will propose his/her weekly schedule to the mentor by the _____ week of the semester.

   If the mentee must deviate from this schedule (e.g., to study for an upcoming exam), he or she will communicate this to the mentor at least _____ (weeks / days / hours) before the change occurs.

5. On a daily basis, our primary means of communication will be through (circle):
   face-to-face / phone / email / instant messaging / _____

6. We will meet one-on-one to discuss our progress on the project and to reaffirm or revise our goals for at least _____ minutes _____ time(s) per month.

   It will be the (mentee's / mentor's) responsibility to schedule these meetings. (circle)

   In preparation for these meetings, the mentee will:

   In preparation for these meetings, the mentor will:

* Adapted from Branchaw, J. L., Pfund, C., and Rediske, R. (2010), *Entering Research: A Facilitator's Manual: Workshops for Students Beginning Research in Science*, W.H. Freeman & Company.

At these meetings, the mentor will provide feedback on the mentee's performance and specific suggestions for how to improve or progress to the next level of responsibility through (circle):
a. a written evaluation b. a verbal evaluation c. other: _____

7. The mentor will train the mentee on new techniques and procedures using the following (e.g., written directions, hands-on demonstration, verbal direction as mentee does procedure, etc.):

8. If the mentee gets stuck while working on the project (e.g., has questions or needs help with a technique or data analysis), the procedure to follow will be:

9. The standard operating procedures for working in our research group, which all group members must follow and the mentee agrees to follow, include (e.g., wash your own glassware, attend weekly lab meeting, reorder supplies when you use the last of something, etc.):

10. Other issues not addressed above that are important to our work together:

By signing below, we agree to these goals, expectations, and working parameters for this research project.

Mentee's signature: _____ Date: _____

Mentor's signature: _____ Date: _____

Professor's signature: _____ Date: _____

Expectations for Undergraduate Mentees*

1. **Send me weekly email updates on Fridays by 5 p.m.**, 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/equipment 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.

* From Ashley Shade, University of Wisconsin–Madison research mentor

Graduate Mentee Contract*

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

* From Professor Trina McMahon, University of Wisconsin–Madison

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 Training for **Undergraduates**

Maintaining Effective Communication

Learning Objective:

Provide constructive feedback.

Case Study **The Slob**

A graduate student mentor was frustrated because her undergraduate student mentee was not running successful experiments. While the undergraduate student had great enthusiasm for the project, each experiment failed because of some sloppy error: forgetting to pH the gel buffer, forgetting to add a reagent to a reaction, or forgetting to turn down the voltage on a gel box.

After a month of discussions, and careful attempts to teach the undergraduate student habits that would compensate for forgetfulness, the graduate student mentor was ready to give up. She spoke with her faculty adviser (the PI in the lab) and asked for advice, hoping that she could fix the problem. The adviser offered to work with the undergraduate student mentee. When the undergraduate student walked into his office the next day, the faculty adviser said, “I hear you’re a slob in the lab. You gotta clean up your act if we’re going to get any data out of you.” Seeing the crushed and humiliated look on the student’s face, he quickly added, “I’m a slob too—that’s why I’m in here pushing papers around and not in the lab doing the hard stuff like you guys!”

Guiding Questions for Discussion:

1. If you were the mentee, how would you feel?
2. If you were the mentor, how would you feel?
3. If you were the faculty adviser, how would you feel?
4. If you were the adviser, how would you have handled this situation?
5. What are some strategies to instill good work habits when mentoring remotely?

From *Pfund,* C., Branchaw, J. and Handelsman, J. (2015). Entering Mentoring 2nd Edition. New York, NY: W.H. Freeman & Co.
Part of the W.H. Freeman Entering Mentoring Series, 2014.

For additional resources and complete curriculum—including information on competencies and facilitator notes—visit: CIMERProject.org

Learning Objective:

Use multiple strategies for improving communication (in person, at a distance, across multiple mentees, and within appropriate personal boundaries)

Activity **Brainstorming Communication Strategies (15 min)**

- ASK: Brainstorm a list of barriers to good communication.
- NOTE: Record the list on the whiteboard or flip chart, and then have mentors choose two or three barriers and discuss practical ways to overcome them. Mentors could generate a table such as the one presented here.

Barrier to Effective Communication	Solutions to Overcome Barrier	Indications That Communication Has Improved
Example: Lack of time to meet one-on-one	Frequent email, telecoms, or instant messaging chat time	Fewer misunderstandings and stalls in research progress

- NOTE: Alternatively, have the mentors create a list of all the forms of communication used by them and their mentee (face-to-face meetings, email, sticky notes, phone calls, etc.). Organize the resulting list by types of communication and assign each type to a group of two to three mentors. Each subgroup should then discuss ways each method can be improved. At the end, have the small groups report out. Record all ideas on the whiteboard or flip chart. You may want to send a com- piled list to the entire group.

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