Mentor Training

FACULTY WORKSHOP ON MENTORING 2020

Facilitator:
Jeffrey Franke
University of Maryland
jfranke@umd.edu

NRMN Contact Information:

Website:
https://nrmnet.net

Email:
info@nrmnet.net
Phone: 617.552.3901

Facebook:
https://www.facebook.com/mrnmnet

Twitter:
https://twitter.com/NRMNET

LinkedIn:
https://www.linkedin.com/company/national-research-mentoring-network

CIRTL AGEP
Improved Academic Climate
for STEM Dissertators and Postdocs
to Increase Interest in Faculty Careers
National Science Foundation Grant
No: 1647021

ACKNOWLEDGEMENTS

Thanks to the Office of the Associate Dean for Faculty Affairs, College of Agriculture & Natural Resources for assistance in organizing this workshop and for the invitation to facilitate the workshop.

Thanks to the Office of Faculty Affairs in the Office of the Provost for supporting the workshop.

Thanks to the National Science Foundation funded AGEP CIRTL: Improved Academic Climate for STEM Dissertators and Postdocs to Increase Interest in Faculty Careers (NSF HRD-1647021) which covered the costs of materials for and facilitation of the training sessions.

Thanks to the National Research Mentoring Network (NRMN) and CIMER (cimerproject.org) for workshop materials.

Preface for Entering Mentoring Series

Mentoring: Learned, Not Taught

Mentoring principles, not practices, are universal

Effective mentoring can be learned, but not taught. Most faculty learn to mentor by experimenting and analyzing success and failure, and many say that the process of developing an effective method of mentoring takes years, which is a reflection of the unique qualities, needs, and challenges presented by each mentee. A skilled mentor is guided by a reflective philosophy that directs examination of the mentee's changing needs and how best to address them, creating fluidity in the relationship. No book can prescribe a single 'right' approach, but systematic analysis and discussion of mentoring generates a method for tackling the knotty challenges inherent in the job.

The goal of the curriculum outlined in this book is to accelerate the process of becoming an effective research mentor. The approach described provides mentors with an intellectual framework, an opportunity to experiment with various methods, and a forum in which to solve mentoring dilemmas with the help of their peers. The mentor training process expands each mentor's knowledge through secondhand exposure to the experiences of the entire group, enabling participants to engage with as many mentoring experiences as each of them would typically handle in a decade. This process in turn enhances their readiness to work with diverse mentees and anticipate new situations. At the completion of the training, mentors will have articulated their own approach to mentoring and have a toolbox of strategies to draw upon when confronted with mentoring challenges.

Although no one can provide formulas, practices, or behaviors that will work in every mentoring situation, certain principles guide good mentoring. The principles that shape this curriculum are founded on research that has revealed how people learn and has identified the essential elements of environments shown to be most conducive to learning, productivity, and creativity.

Mentoring diversity, not sameness, is essential

An individual's performance in any endeavor is the product of a complex interaction involving innate ability, experience, confidence, education, and the nature of the performance environment.

Professional mentors can directly influence their mentees' performance by creating an environment that is conducive to achieving excellence and that fosters confidence, even in stressful situations. Setbacks are a source of stress that everyone experiences, and the mentee's response can be modulated by a mentor's intervention. A mentor's goal is to promote a mentee's growth and achievement. People build resilience and self-reliance

through positive reinforcement coupled with the expectation of excellence. The most important message a mentor can send is faith in the mentee, a willingness to embrace diversity, and an eagerness to continually improve as a mentor. A theme implicit in this book's curriculum is that mentors may facilitate growth best when they work collaboratively with their mentees to continually re-examine and adjust to their individual needs. This process, followed by the mentee producing high-quality research, will generate self-sustaining confidence for both.

Another aspect of creating an environment that is conducive to learning is being open to other ways of doing research and seeing the world, including the world of academia. The next generation of researchers will be more diverse than the last. Working with people who are different from ourselves can at times be frustrating and baffling, though also enlightening and deeply rewarding as we learn from one another. When given the opportunity to work with mentees from different backgrounds and with distinct perspectives, who may not share the characteristics we value most in ourselves, we may struggle to imagine them fitting the academic mold. We are often surprised by the success of those who don't immediately fit in, and find that they may be the very people that bring a key new perspective or insight. Being a good mentor requires accommodating styles that differ from our own, thereby enhancing the diversity and the vibrancy of the scientific community.

Christine Pfund
Series Editor
University of Wisconsin-Madison

Jo Handelsman
Series Editor
Yale University

Theoretical Framework for Entering Mentoring

Christine Pfund, University of Wisconsin-Madison December 2018

The original seminar, known as the Wisconsin Mentoring Seminar, was developed at the University of Wisconsin-Madison using an iterative approach involving design, testing, evaluation, and revision. The materials for the original mentor training seminar were developed in collaboration with a group of faculty, staff, graduate students, and postdoctoral researchers in the biological sciences. Drawing on the literature on mentoring and business management, their own writing about mentoring, the collective experience of the group, and discussions over the course of one semester, this group of 12 identified many of the core elements in mentoring. They also provided ideas for the cases and discussion topics that shaped early versions of the seminar. In 2005, after a 2-year period of implementation, evaluation, and revision, the research mentor training curriculum was published as *Entering Mentoring*[1]. Although the *Entering Mentoring* curriculum is now a well-established research mentor training program, it was not initially designed with an explicit theoretical base in mind. Specifically, it did not capitalize on the extensive literature on the psychology of career development, and thus did not focus on important personal (e.g., race, gender) and cognitive factors.

One of the better researched cognitive factors in academic and career development literature is self-efficacy, which is confidence in one's ability to successfully perform a given task. Self-efficacy is a central construct in social cognitive career theory (SCCT)[2] and is highly correlated with choice of and persistence in a science or engineering major. [3,4] Bakken et al.[5] has illustrated how SCCT provides a valuable theoretical base for understanding and promoting biomedical and clinical research careers because it incorporates the reciprocal interactions between person, cognitive, and environmental elements in shaping career outcomes. In recent years, Drs. Byars-Winston, Branchaw, and Pfund, at the University of Wisconsin-Madison, have been studying mentoring relationships and using SCCT to delineate factors relevant to effective mentoring. These factors can be incorporated into interventions to guide mentors and mentees into highly productive and purposeful relationships.

Moving forward, new research mentor training modules will be built upon a strong theoretical base and focused on training hypothesized to impact, in particular, the persistence of underrepresented minorities (URM) in science, technology, engineering, math, and medical (STEMM) fields. We recognize that these mentoring relationships and the development of career intentions do not happen in random fashion or in a vacuum. Rather, "persistence" is constantly shaped by social and psychological influences that are described by several social science theories and models.[6-8] These theories and models reveal the "mechanisms" by which individuals persist, or not, along the pathways toward becoming a

scientist, and apply those skills to potential careers. Two selected theories, social cognitive career theory[1] and science identity development [7,9] are guiding the development of new research mentor training modules.

Finally, mentoring URM trainees toward successful research careers occurs within numerous cultural contexts that are shaped by society, academic institutions, and even scientific disciplines. Therefore, to build the capacity of research mentors to effectively mentor and respond to the needs of URM mentees, we must foster the development of their cultural competence. Building upon the extensive scholarship of multicultural training in the field of teacher education, specifically the effective practices of culturally responsive teaching, [10-12] we adopted the term "culturally responsive mentoring" (CRM).[13] We strive to achieve culturally responsive mentoring across the mentoring relationships that our National Research Mentoring Network (NRMN) will help form and support.

References

1. Handelsman J, Pfund C, Lauffer S, Pribbenow C. (2005). Entering mentoring: A seminar to train a new generation of scientists. Madison, WI: University of Wisconsin Press.
2. Lent RW, Brown SD, Hackett G. (1994). Toward a unified social cognitive theory of career/academic interest, choice, and performance. *Journal of Vocational Behavior*. *45*:79-122.
3. Lent RW, Brown SD, Larkin KC. (1986). Self-efficacy in the prediction of academic performance and perceived career options. *Journal of Counseling Psychology*. 33, 165-169.
4. Lent RW, Brown SD, Brenner B, Chopra SB, Davis T, Talleyrand R, Suthakaran V. (2001). The role of contextual supports and barriers in the choice of math/science educational options: A test of social cognitive hypotheses. *Journal of Counseling Psychology*. 48, 474-483.
5. Bakken LL, Byars-Winston A, Gundermann DM, Ward EC, Slattery A, King A, Scott D, Taylor R. (2010). Effects of an educational intervention on female biomedical scientists' research self-efficacy. Adv Health Sci Educ. 15(2):167-183. PMCID: PMC2848695.
6. Laursen S, Hunter AB, Seymour E, Thiry H, Melton G. (2010). *Undergraduate research in the sciences: Engaging students in real science*: Jossey-Bass.
7. Estrada M, Woodcock A, Hernandez PR, Schultz PW. (2011). Toward a model of social influence that explains minority student integration into scientific community. *Journal of Educational Psychology*. 103:206–222. PMCID: PMC3087606.
8. Carlone H, Johnson A. (2007). Understanding the science experiences of successful women of color: Science identity as an analytic lens. *Journal of Research in Science Teaching*. 44(8):1187-1218.
9. Fiske AP, Kitayama S, Markus HR, Nisbett RE. (1998). The cultural matrix of social psychology. In D. T. Gilbert, S. T. Fiske, & G. Lindzey (Eds.), *The Handbook of Social Psychology*. 2:915-981. McGraw-Hill.
10. National Center for Cultural Competence. Cultural Awareness. Georg. Univ. Cent. Child Hum. Dev. Available at: http://www.nccccurricula.info/awareness/.
11. Gay G. Preparing for culturally responsive teaching. (2002). *Journal of Teacher Education.* 53(2):106-116.

12. Siwatu KO. (2007). Preservice teachers' culturally responsive teaching self-efficacy and outcome beliefs. *Teaching and Teacher Education.* 23(7):1086-1101.
13. Byars-Winston A. (2014). The research mentoring relationship: A case for culturally responsive mentoring. Unpublished manuscript.

Constructive and Destructive Group Behaviors[1]

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…"

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

Working Together: Group Agreements

What expectations or ground rules should we hold ourselves to in order to create and open and safe environment?

1. Stories stay, lessons leave
2. Challenge the idea, not the person
3.
4.
5.
6.
7.

Questions to Consider When Writing a Mentoring Philosophy

1. Why might it be useful to your own development as a research mentor to write a mentoring philosophy?
2. Why might a mentoring philosophy be useful for your mentee(s)?
3. For whom (what audiences) will you write your mentoring philosophy?
4. If you were a member of a review committee, what topics would you look for or expect to be addressed in a mentoring philosophy?
5. What would make your mentoring philosophy stand out (positively or negatively) among the 20, or 200, a review committee may have already read?
6. How should a mentoring philosophy relate to and/or incorporate into a teaching philosophy?

Self-Efficacy[2]

Introduction

Self-efficacy is the perceived confidence people have in their ability to perform a given task or skill. Self-efficacy has a tremendous impact on behavior; people who lack self-efficacy in relation to a certain skill are less likely to perform tasks relating to that skill set. Mentors play a critical role in shaping the research and teaching experiences to increase mentees' self-efficacy and, ultimately, mentee performance. Making explicit efforts to strengthen mentees' self-efficacy, like being explicit about how they are making important contributions to the team or telling them you believe they can pursue a faculty career, can increase the likelihood that they will perform the tasks that lead to these outcomes. There are four factors that build self-efficacy beliefs: past accomplishments, vicarious modeling, social persuasion, and positive affective states. These factors, or sources, provide mentors direction for strategies to enhance and sustain mentees' self-efficacy.

Learning Objectives

Mentors will:

1. Define and articulate what self-efficacy is and its four sources.
2. Identify signs of self-efficacy in relation to research related tasks.
3. Articulate their role in fostering mentees' research self-efficacy.
4. Practice strategies for building mentees' self-efficacy in research.

[2] Taken from curricula developed by Byars-Winston, A., Leveritt,P., Branchaw, J., and Pfund, C. (2013), University of Wisconsin.

“Magical Research or Teaching Moment”

Think of one “magical moment” in your career thus far, a time when you had an outstanding experience or achievement in teaching or research you conducted.

Discussion Questions:

- How did that magical moment happen? What were the events, people and experiences that contributed to the success?

- What factors contributed to your sense of efficacy?

- Were some efficacy sources more common than others in your success story? If so, what are they?

The Self-Efficacy Toolbox – What Can You Do?

(From: http://psychology.about.com/od/theoriesofpersonality/a/self_efficacy.htm?p=1)

Remember:

Self-efficacy: belief in one's ability to achieve a specific goal or task. Self-efficacy is situation-specific self-confidence. Simply put, *"Can I do this?"*

Strong self-efficacy beliefs create interest, persistence, actual college degree completion, and career pursuits in higher education.

Here are some efficacy-building strategies to try with your mentees:

Past successes

- Reinforce your mentees' past successes (have them recall and highlight a personal "magical moment" to understand what contributed to their success and recreate that in the present)
- Encourage mentees to reference past success during a research or teaching experience ("you did it before you can do it now")
- Help mentees adopt success strategies (match strategies to situation—e.g., reinforce effective behaviors that contributed to their past success)

Learning Vicariously (modeling)

- Talk about your own experience: How did you know when you were doing a good job? What are the things that increase your confidence in the field?
- Consider who your mentees' role models are and what skills and attitudes are being modeled for them by you and others?
- Be aware of what skills and behaviors mentees are observing about coping with setbacks and challenges; share strategies for what you would do when you hit a wall and how you encourage yourself to get over challenges/setbacks
- Offer time to practice skills that are strong as well as ones that need more development

Verbal Persuasion

- Foster a "you can do it" attitude
- Be attuned to ways that you can acknowledge mentees' current successes
- Reinforce mentees' abilities by giving specific, credible feedback about technique and less evaluation of the outcome
- Let them know that they belong
- Be aware of signs that mentees may feel that they do not fit in the unit/organization ("I don't belong here")
- Talk about the positive things mentees are doing and give clear steps for how they can improve challenge areas

- Be aware of positive (enjoyment) or negative moods (anxiety) mentees may have related to research or teaching
- Attend to negative, anxiety-related feelings (e.g., negative self-talk that they are not as smart as other mentees)
- Acknowledge and normalize when things are difficult; “It’s supposed to be hard, new things usually are”
- Give examples of students who struggled but made it

Case Study of William: To Be or Not to Be in Research

William Oberwein has been doing research with Professor Garcia's research team for a year as part of the McNair Scholars program. The McNair program prepares high potential students from disadvantaged backgrounds for graduate school. William is the eldest of eight children in his family and grew up on a dairy farm in norther Wisconsin. He started his undergraduate career majoring in Dairy Science, but switched to biochemistry after earning A grades in his introductory chemistry and biology courses. He is a natural in the lab, very detail oriented, productive and a team player. He seems to really enjoy doing research.

As William begins his senior year, his graduate student research mentor, Ruth, asks him how he did on the GRE and to which graduate training programs he is applying. In response, he says, "Oh. I haven't taken the GRE yet. I'm still thinking about it." She is surprised, but doesn't push the issue. Later, she asks Jorge, a post-doc in the lab with whom William occasionally works, whether he has spoken with William about graduate school. Jorge shares that he has overheard William tell his peers in the McNair program that graduate school is not for him and that he is planning to return to the family farm when he graduates. "I'm just a dairy farmer," says William. Ruth wonders whether she should respect his plans to return to the farm or try to convince him to consider graduate school.

Questions for discussion:

- What might be some signs that the mentee is not feeling efficacious?
- What do you think is one important thing that the mentee might want to hear to keep him engaged in the research?
- How do you know when a student is feeling efficacious or confident?
- In the research experience/lab structure, what are some potential threats to efficacy besides the research task itself?
- What are the three ways from the reading that you could help build the mentee's research self-efficacy? That is, what might you say or do that could help the mentee believe in his ability to successfully do research and go to graduate school?

SOURCES OF EFFICACY

Write down what you can do as a research mentor to foster your mentee's research self-efficacy.

Vicarious Learning	***Success Experience***
Social/Verbal Persuasion	***Emotional Associations***

Case Study: The **Case of 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 here pushing papers around and not in the lab doing the hard stuff like you guys!"

Directions

- Form groups of 3, with one of you being the undergraduate, one being the graduate student and one being the observer.
- Role play a meeting that takes place two days after the initial case study in which you, the graduate student mentor, are meeting with the student.
- Focus on what you, as the graduate student mentor, would do to build and strengthen the mentee's research self-efficacy using the four factors that build self-efficacy in today's session.

Aligning Expectations

Introduction

One critical element of an effective mentor-mentee relationship is a shared understanding of what each person expects from the relationship. Problems between mentors and mentees often arise from misunderstandings about expectations. Importantly, expectations change over time so frequent reflection and clear communication is needed to maintain a collaborative relationship.

Learning Objectives

Mentors will have the knowledge and skills to:

1. Effectively establish mutually beneficial expectations for the mentoring relationship
2. Clearly communicate expectations for the mentoring relationship
3. Align mentee and mentor expectations
4. Consider how personal and professional differences may influence expectations, including differences across disciplines when working in multidisciplinary teams

Case Study: The Slow Writer

A third year graduate student in my group is adept at performing experiments and analyzing data, but is a very slow writer. Last fall, I set multiple deadlines that this graduate student missed, while another student in my group wrote an entire thesis chapter, submitted a paper, and did experiments. Over winter break, the slow writer had a breakthrough and produced a fairly reasonable draft of a prelim proposal. However, because she produced it so close to the (planned) prelim date and did not have the presentation ready either, I delayed the exam. To avoid delays in publications, I have taken the lead in writing manuscripts based on her work. However, to graduate with a PhD, I realize that she must write the dissertation, as well as the next manuscripts, herself. Setting deadlines for detailed outlines, manuscripts/thesis sections, figures, etc. hasn't worked. Veiled threats don't seem professional. Other than being patient, what should I do?

Guiding Questions for Discussion:

1. What are the main themes raised in this case study?
2. What could have been done to avoid this situation? What should the mentor do now? What should the mentee do now?
3. How do you find out what expectations your mentee has of you and for their research experience?

Case Study: The Second Year Blues

Dr. Bento is beginning the second year of her appointment as a research scholar in clinical and translational research at BIG U Academic Health Center. To date, she has enjoyed working on her mentor's research project but is becoming anxious that she has not yet started for an independent research project. She wants to bring up her concerns, but it seems her mentor never has enough time to have a discussion focused on Dr. Bento's research goals. This situation is becoming frustrating for her, as she likes her mentor and she understands that the past few months have been extremely busy for her mentor due to a host of factors, e.g., budget constraints, preparing applications for the NIH funds, adoption of a new family member, etc. Being politically astute assistant professor, Dr. Bento is reluctant to make a misstep with her well-established, senior mentor, yet she knows the clock is ticking. Dr. Bento is also concerned that her strong interests in translational research are too divergent from her mentor's basic research program. She wants to stop feeling stuck.

Guiding Questions for Discussion:

1. What are the main themes raised in this case study?

2. What could have been done to avoid this situation? What should the mentor do now? What should the mentee do now?

3. How do you find out what expectations your mentee has of you and for their research experience?

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 ____ semester(s)

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 the 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 demonstrations, verbal direction as mentee does procedures, 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 meetings, 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 5pm**, 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 meetings**. The entire lab assembles approximately once a week to discuss our research. Generally, the person leading the 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 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 XXX-XXX-XXXX.

*From Ashley Shade, UW-Madison research mentor

Graduate Mentee Contract*

(*From Professor Trina MacMahon, 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 this 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 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 advice about these 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 field work.
- **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 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 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, and 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 take 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 needs**. 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 the completion or your lab or course work.
- **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 travelling.

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 as for it. I welcome these conversations and view them as necessary.
- **Let me know 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 and 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 should you 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 programs 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 you 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 to 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 encourage 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 mete 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 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.

Junior Faculty Mentee Compact Example[3]

Clinical Research Scholars Program (CSRP) Team Mentoring Expectations

A critical element of the CSRP is the use of team mentoring. For this program, team mentoring means more than having multiple mentors working with the mentee; it means having mentors working together as a team to contribute to the mentee's career development. The concept was developed through the NIH Roadmap Initiative, which found that "the scale and complexity of today's biomedical research programs increasingly demands that scientists move beyond the confines of their own discipline and explore new organizational models for team science." Today's research requires bringing together the perspective of multiple disciplines to examine a research question right from the beginning. This multidisciplinary approach allows us to develop and conduct research projects that are new and innovative and that would not be possible using a traditional single discipline or multiple disciplines come together that will result in the development of new scientific approaches. It is the synergy created when investigators from multiple disciplines come together that will result in the development of new scientific approaches. The team mentoring model provides benefits for the mentee as he/she learns multidisciplinary methods of discovery and the mentors as they have the opportunity to bring fresh perspectives to the research question they are examining. The CSRP is promoting the development of this team science through the conduct of multidisciplinary research and the use of team mentoring for mentees.

Team Mentoring Goals

1. To enhance the supportive academic environment for team science for the mentee.
2. Working as a team and providing multiple perspectives, to facilitate the entry of the mentee into the University culture, including the structures, processes, and interpersonal climate of the University.
3. To facilitate the development of appropriate clinical research skills and team science approaches related to the balance and evaluation of research, scholarship, and service.
4. To provide opportunities for developing and working on mentored and independent multidisciplinary research projects with a multi-disciplinary research team.
5. To enhance decision-making and other skills involved in working with a team related to the mentee's career development and advancement.

[3] From the University of Pittsburgh. Pfund, C., House, S., Spencer, K., Silet, K., and Sorkness, C. (2012). *Mentor Training for Clinical and Transactional Researchers*. New York, NY: W.H. Freeman & Company. Other examples can be found on the UMD Postdoctoral Office website and on various professional society websites.

Expectations of Mentors

1. The mentoring team must conduct regular and frequent team meetings with the mentee. There should be a minimum of one hourly meeting of the primary mentors and the mentee per week, and at least one hourly meetings per month of the entire mentoring team and the mentee. Consultants contributing to the specific research issues should meet with the team when these issues are being discussed or decisions regarding these issues are being made.
2. The mentoring team must participate in the one-day team mentoring training retreat to obtain or enhance skills in team mentoring.
3. The mentoring team will develop, with the mentee, clearly delineated specific expectations of the substantive learning/skills to be achieved through the use of team mentoring in the program.
4. The mentoring team will develop, with the mentee, clearly delineated specific milestones and timelines for achieving program goals.
5. The mentoring team will attend meetings and seminars in which the mentee is presenting.
6. The mentoring team will participate in biannual evaluations and assessments of the team mentoring relationships. The Multidisciplinary Advisory Committee (MAC) reserves the right to change the mentoring team should difficulties continue for a sustained period of time.
7. The content of all exchanges between the team mentors and the mentee are subject to the expectations of professional confidentiality. Although this confidentiality is legally limited, the contents should not be discussed with anyone else without written permission for the mentee.

Expectations of the Mentee

1. The mentee must conduct regular and frequent team meetings with the mentoring team. There should be a minimum of one hourly meeting with the primary mentors per week and at least one hourly meeting per month with the entire mentoring team. Consultants contributing to the specific research issues should meet with the team when these issues are being discussed or decisions regarding these issues are being made.
2. The mentee must participate in the one-day team mentoring training retreat to obtain skills in working in a team science environment.
3. The mentee will develop, with the mentoring team, clearly delineated specific expectations of the substantive learning/skills to be achieved through team mentoring in the program.
4. The mentee will develop, with the mentoring team, clearly delineated specific milestones and timelines for achieving program goals.
5. The mentee will share career plans, recount initiatives on behalf of his/her professional development; ask for advice; reflect on the mentoring team's observations and inform the mentoring team about the results of the mentee's efforts.
6. The mentee must present his/her work to the MAC and at seminars with the mentoring team in attendance.
7. The mentee will participate in biannual evaluations and assessments of the mentoring team relationships. The MAC reserves the right to change the mentoring team should difficulties continue for a sustained period of time.
8. The mentee will keep the content of the team mentoring relationship confidential; the mentoring team may share personal information that they wish to be honored as confidential.

We, acting as team mentors and mentee, agree to enter into a team mentoring relationship based on the criteria described above, which sets for the expectations, parameters, and process for the mentoring relationship.

_____ (mentor's signature) date_____

_____ (mentor's signature) date_____

_____ (mentee's signature) date_____

_____ (CRSP director's signature) date_____

Additional mentors as applicable

_____ (mentor's signature) date_____

_____ (mentor's signature) date_____

_____ (mentor's signature) date_____

Mentoring Tools

Questions to help determine mentee research expectations:

1. Why do you want to do research?
2. What are your academic and personal goals for your research experience?
3. What values, experiences, and/or perspectives will you bring to your research team?
4. What is your greatest concern about doing research?
5. What most excites you about doing research?

Questions to help mentee reflect on the research experience:

1. Was your research experience what you expected it to be? Why or why not?
2. What academic and personal goals did you achieve in your research experience? How do they compare to the goals you outlined at the beginning of your experience?
3. What values, experiences, and/or perspectives did you contribute to the research team? Were you able to contribute in ways that you did not predict? How?
4. How did you overcome your greatest concern about doing research? What was the most challenging aspect of your research experience?
5. What was the best part about your research experience? Are you planning to continue doing research? Why or why not?

Maintaining Effective Communication

Introduction

Good communication is a key element of any relationship and a mentoring relationship is no exception. As research mentors, it is not enough to say that we know good communication when we see it. Rather, it is critical that mentors reflect upon and identify characteristics of effective communication and take time to practice communication skills in the session and with their mentees.

Learning Objectives

Mentors will have the knowledge and skills to:

1. Provide constructive feedback
2. Communicate effectively across diverse dimensions including various backgrounds, disciplines, generations, ethnicities, positions of power, etc.
3. Identify different communication styles
4. Engage in active listening
5. Use multiple strategies for improving communication (in person, at a distance, across multiple mentors, and within proper personal boundaries)

Case Study: "Giving Constructive Feedback" (BMR)[4]

As he leaves the crowded conference room, Dr. Tariq tells his post-doc, Dr. Timms, that he'll see her in a few minutes. When Dr. Timms arrives in his office, he meets her gaze and smiles and says with a heavy accent "Thanks for coming by. I wanted to make sure we could review your talk since the conference is in a week and I know you're busy all day tomorrow—and then I'm out of town," he says. Dr. Timms continues to stare without comment, a blank expression on her face. "Well, as you know, I think your research is really important and I'm glad that we have this opportunity to share it. I think this conference will be a great opportunity for you to meet some key colleagues in our field." She nods slightly, and shifts in her seat. "I do think there are a few things that could tighten your presentation."

She continues to stare and Dr. Tariq keeps his focus on his notes as he continues. "For example, you had some long sentences, and even whole paragraphs on your slides. While they were well written,"—his computer chimes as a new email arrives, and he glances over to see who it's from. *Oh, not again*....

"As I was saying, while they were well written—I mean, you know your writing is strong—it is really too much text for a slide. You could try to shorten some to bullet points. Then you can still make those points without just reading your slides to the audience." He looks up and sees that she is now looking at the floor. "It would also allow you to increase the font size a bit. I think it might have been hard to read from the back of the room." He looks up again and sees she is taking some notes. "To cut back on the time, I think you could cut the four slides on the background and just briefly summarize those." He waits for comment, and the silence drags on a few moments. "What do you think?"

"I can look at it." Her face remains expressionless as she glances up and briefly meets his eye.

"That might allow you to slow down a bit," he continues. "Of course it's natural to get nervous and then one tends to talk faster. Perhaps you could practice it a bit at home and focus on slowing the pace and not looking at your notes as much. Have you tried practicing out loud to yourself at home?"

"Yes."

The phone rings. He checks caller ID. *I'll have to call her back when this is over*. "Ok then. I can send you a link to some tips on slide composition and oral presentation and hopefully that will be helpful."

There is another long moment of silence. "Well, do you have any questions for me?"

"No, not right now."

"Ok then, well, good luck!" He forces another smile and reaches out to shake her hand as she rises to leave. She takes it and smiles feebly back.

"Thanks."

[4] Pfund, C., Brace, C., Branchaw, J., Handelsman, J., Masters, K., Nanney, L. (2014). *Mentor Training for Biomedical Researchers*. New York, NY: W.H. Freeman & Company.

Guiding Questions for Discussion:

1. What are the main issues raised in this case study?
2. How could this situation have been handled differently? What should the mentor do now?
3. How do you interpret silence or minimal response from a mentee?

Effective Communication Styles Inventory
Scoring Form A

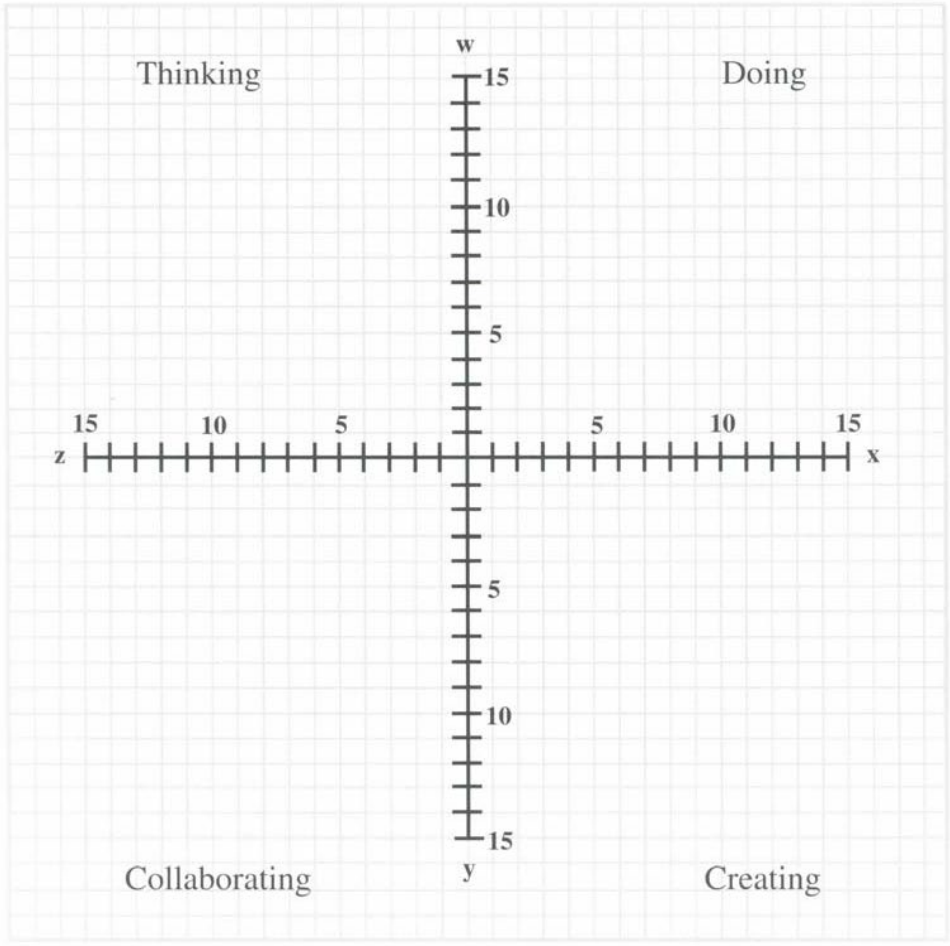
DIRECTIONS: Print and complete this scoring form to determine your communication style.

1. Reflect on your personal characteristics as you read across each of the 15 lines below and circle two descriptive words that best describe you on each line. This is a forced choice, so sometimes all four words will describe you, but you MUST select only two. Sometime none of the four words "best" describes you, however, you MUST select two words on each line.
2. After completing line 15, count the number of words circled on each line, (as you read across from left to right) there must only be 2 words circled on each line.
3. In each column (x, z, w, and y), count the number of words circled and indicate the "total" circled in the box provided.
4. Your "total" scores for each column represent four "points" (w, x, y, z), take these four points and graph them on the scoring grid which follows. When plotting your points, remember zero is in the middle of the graph no matter which direction you are plotting (left, right, up, or down).
5. Draw a four sided figure to connect the four points (in other words when you connect your four points they MUST make a square, rectangle, in other words a four sided figure. **DO NOT DRAW A KITE.** The largest area (length x width) of the four sided figure drawn represents your dominant communication style as indicated by the words you selected. If you disagree about your style, go back and review the words you selected.
6. Read the summary page for information about your style.

X	Z	W	Y
1. disputes the issue	**unruffled**	**focused**	**sociable**
2. will take a chance	flexible	rational	sympathetic
3. spur-of-the-moment	**prudent**	**composed**	**extraverted**
4. directs others	asks	pensive	lively
5. decisive	**ponders**	**diligent**	**gregarious**
6. takes control	collaborates	independent	amicable
7. self-assured	**noncommittal**	**orderly**	**demonstrative**
8. convincing	open-minded	thorough	free-thinking
9. will fight for	**will defend**	**effective**	**good-hearted**
10. wants to win	hopeful	pragmatic	young-at-heart
11. eager	**diplomatic**	**systematic**	**innovative**
12. confident	accepting	pains taking	high-strung
13. dominant	**mild**	**plans**	**talkative**
14. insistent	sensible	exact	helpful
15. urgent	**constant**	**conventional**	**good-natured**
			=30

Scoring Grid

Effective Communication Styles
Scoring Grid



Effective Communication Styles Inventory *Summary*

THINKING/PLANNING

ASK FOR:
* data
* information
* facts

FOCUSED ON:
* process
* task
* goal
* doing things the right way

UNDER STRESS:
* avoid

NEED/Like:
* logical thinking
* documentation
* rational approach
* careful planning

DOING/DIRECTING

TELL ABOUT:
* progress to goals
* actions required
* solutions to problems

FOCUSED ON:
* task
* goal
* winning/being successful
* making things happen

UNDER STRESS:
* become autocratic and tell

NEED/Like:
* options
* flexibility
* directness
*conciseness

SUPPORTING/COLLABORATING

ASK FOR:
* information re: others' skills/interests
* input
* feedback

FOCUSED ON:
* people
* relationships
* collaborations
* how situations "feel"

UNDER STRESS:
* acquiesce or yield

NEED/Like:
* friendliness
* participation
* inclusion
* involvement

VISIONING/CREATING

TELL:
* visions
* ideas
* stories, analogies

FOCUSED ON:
* big picture
* models/theories/concepts
* bringing visions into reality

UNDER STRESS:
* blame others

NEED/Like:
* to understand how details fit their picture
* innovation and creativity
* others to handle the details

Transform Differences into Opportunities

DEBATE	***DIALOGUE***
Assuming that there is a right answer, and that you have it.	*Assuming that many people have pieces of the answer.*
Combative: participants attempt to prove the other side wrong.	*Collaborative: participants work together toward a common understanding.*
About winning.	*About exploring common ground,*
Listening to find flaws and make counter-arguments.	*Listening to understand, find meaning and agreement.*
Defending our own assumptions as truth.	*Revealing our assumptions for reevaluation.*
Seeing two sides of an issue.	*Seeing all sides of an issue.*
Defending one's views against those of others.	*Admitting that others' thinking can improve one's own.*
Searching for flaws and weaknesses in others' positions.	*Searching for strengths and value in others' positions.*
By creating a winner and loser, discouraging further discussion.	*Keeping the topic even after the discussion formally ends.*
Seeking a conclusion or vote that ratifies your position.	*Discovering new options, not seeking closure.*

Brainstorming Communications Strategies

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

Building a Relationship with a Mentee

Building an effective relationship of mutual understanding and trust with the mentee is a critical component of effective mentoring. Mentees can establish rapport with their mentees by using effective interpersonal communication skills, actively building trust, and maintaining confidentiality. This document contains information and advice to help mentors build rapport and create positive relationships with mentees so both parties can achieve the greatest benefit from the mentoring experience.

INTERPERSONAL COMMUNICATION

Interpersonal communication is a person-to-person, two-way, verbal and nonverbal sharing of information between two or more persons. Good communication helps to develop a positive working relationship between the mentor and mentee by helping the mentee to better understand directions and feedback from the mentor, feel respected and understood, and be motivated to learn from the mentor. Mentees learn best from mentors who are sincere, approachable, and nonjudgmental. These qualities are communicated primarily by facial expressions, and to a limited extent, by words. People often remember more about how a subject is communicated that the speaker's knowledge of the subject.

There are two types of communication: verbal and nonverbal. Verbal communication is communication that occurs through the spoken words. Nonverbal communication is communication that occurs through unspoken mediums, such as gestures, posture, facial expressions, silence, and eye contact. It is important for mentors to remember they are communicating with mentees both when they are speaking and when they are not speaking. Up to 93% of human communication s nonverbal. Body language tells those with whom we are communicating a great deal about what we are thinking and feeling. Examples of positive or open body language include:

- Eye contact (depending on the culture)
- Open or relaxed posture
- Nodding or other affirmation
- Pleasant facial expressions

Examples of negative or closed body language include crossed arms, averted eyes, and pointing fingers. The mentor needs to be aware of what he or she is communicating nonverbally as well as what the mentee is communicating nonverbally.

When mentoring, effective communication involves more than providing information or giving advice; it requires asking questions, listening carefully, trying to understand a mentee's concerns or needs, demonstrating a caring attitude, remaining open-minded, and helping solve problems. There are many communication skills that mentors can utilize to effectively communicate with mentees, including the following:

- *Active Listening:* Be sure to really listen to what a mentee is saying. Often, instead of truly listening to the mentee, the mentor is thinking about his or her spouse, what to say next, or something else entirely. It is important to quiet these thoughts and remain fully engaged in the task of listening.
- *Attending:* Listen while observing, and communicate attentiveness. This can include verbal follow-up (saying "yes" or "Isee") or nonverbal cues (making eye contact and nodding the

head).

- *Reflective Listening:* Verbally reflect back what the mentee has just said. This helps the mentor to check whether or not he or she understands the mentee, and helps the mentee fee understood. Examples:
  - *"So it seems that you're overwhelmed with your workload.*"
  - *"It seems that you are concerned about that experiment.*"
- *Paraphrasing:* Determine the basic message of the mentee's previous statement and rephrase it in your own words to check for understanding. Examples:
  - *"You're interested in developing a system for improving that.*"
  - *"It sounds like you're concerned about the design of the experiment.*"
- *Summarizing:* Select main points from a conversation and bring them together in a complete statement. This helps ensure the message is received correctly. For example, "Let me tell you what I heard, so I can be sure that I understand you. You said that the main challenge right now is balancing your clinical load and writing the research proposal."
- *Asking open-ended questions:* Ask mentees questions that cannot be answered with a simple yes or no. Open-ended questions encourage a full, meaningful answer using the mentee's own knowledge and feelings, whereas closed-ended questions encourage a short or single-word answer. Examples:
  - *Closed ended question:* "You didn't think the experiment would work?"
  - *Open ended question:* "What factors led you to your decision to change the protocol?"
  - *Closed ended question:* "Did you understand what we discussed today?"
  - *Open ended question:* "Can you summarize what we discussed today?"
- *Probing:* Identify a subject or topic that needs further discussion or clarification and use open-ended questions to examine the situation in greater depth. For example, "I heard you say you are overwhelmed; please tell me more about that."
- *Self-disclosure:* Share appropriate personal feelings, attitudes, opinions, and experiences to increase the intimacy of communication. For example, "I can relate to your difficult situation, I have experienced something similar and recall being very frustrated. Hopefully I can assist you to figure out how to move forward."
- *Interpreting:* Add to the mentee's ideas to present alternate ways of looking at circumstances. When using this technique, it is important to check back in with the mentee and be sure you are interpreting correctly before assigning additional meaning to their words. For example, "So you are saying that the reason the interpretation is flawed is because of the statistical test used to analyze the data? That is likely one reason, but have you also considered that the design may be wrong as well?"
- *Confrontation:* Use questions or statements to encourage mentees to face difficult issues without accusing, judging, or devaluing them. This can include gently pointing out contradictions in mentees' behavior or statements, as well as guiding mentees to face an issue that is being avoided. For example, "It's great that you are so committed to mentoring the younger researcher in the group. However, I am concerned that you are not dedicating enough time to your own research."

A number of attitudes and/or behaviors can serve as barriers to communication – these can be verbal or nonverbal. Verbal barriers to communication that should be avoided include the following:

- *Moralizing:* Making judgments about a mentee's behavior, including calling it right or wrong, or telling them what they should or should not do.
- *Arguing:* Disagreeing with instead of encouraging the mentee.

- *Preaching:* Telling the mentee what to do in a self-righteous way.
- *Storytelling:* Relating long-winded personal narratives that are not relevant or helpful the mentee.
- *Blocking communications:* Speaking without listening to the mentee's responses, using an aggressive voice, showing impatience, showing annoyance when interrupted, or having an authoritative manner. These behaviors often lead to the mentee feeling down, humiliated, scared, and insecure. As a result, the mentee may remain passive and refrain from asking questions, or distrust the mentor and disregard his or her recommendations.
- *Talking too much:* Talking so much that the mentee does not have time to express themselves. As a mentor, it is important not to dominate the interaction.

Examples of nonverbal barriers to communication include shuffling papers, not looking directly at the mentee when he or she is speaking, and allowing interruptions or distractions. These barriers may have consequences for both the mentor and the mentee. They may lead to a poor sharing of information, fewer questions being asked by the mentee, difficulty in understanding problems, uncomfortable situations, and a lack of motivation on the part of the mentee.

ESTABLISHING TRUST

Establishing trust is an essential component in building rapport with a mentee. Trust is the trait of believing in the honesty and reliability of others. Some mentees may be nervous about working with a mentor. To put them at ease, create a trusting relationship by empathizing with their challenges, share knowledge without being patronizing, and remain nonjudgmental. Along with the other communication skills listed above, establishing a trusting dynamic is essential for a productive and positive mentor/mentee relationship.

The following list provides some ideas for how the mentor can build trust with the mentee:

- Share appropriate personal experiences from a time when they were being mentored.
- Acknowledge mentee strengths and accomplishments from the outset of the mentoring process.
- Encourage questions of any type and tell the mentee that there is no such thing as a bad question.
- Take time to learn culturally appropriate ways of interacting with your mentee and helping your mentee to interact appropriately with their peers.
- When appropriate, consider how local knowledge can be incorporated in the mentoring experience.
- Acknowledge the mentee's existing knowledge and incorporate new knowledge into existing knowledge.
- Ask for and be open to receiving feedback from the mentees, apply constructive feedback to improve mentoring skills.
- Eat a meal with the mentee to get to know him or her in a non-work setting.

Education Center for Health (I-TECH)/University of Washington with funding from the US Health Resources and Services Administration. For more information, visit www.go2itech.org.

Activity: Active Listening

Role	Step 1: Share/Listen (2 min)	Step 2: Discuss (3 min)	Step 3: Debrief (5 min)
Speaker	Share a current mentoring relationship challenge.	Develop a plan to resolve the situation.	Listen to feedback from observer, ask questions, provide reflections on experience.
Listener	Practice active listening skills.	Ask clarifying questions and help the speaker develop a plan.	Listen to feedback from observer, ask questions, provide reflections on experience.
Observer	Observe and note tone, body language, facial expression, etc.	Observe and note tone, body language, facial expression, etc.	Report on observations. Did the listener actually understand the problem the speaker described?

Fostering Equity and Inclusion

Introduction

Diversity, along a range of dimensions, offers both challenges and opportunities to any relationship. Learning to identify, reflect upon and learn from, and engage with diverse perspectives is critical to forming and maintaining both an effective mentoring relationship as well as a vibrant learning environment.

In the last session we discussed the importance of aligning expectations. Today we will consider how to foster an inclusive environment where everyone can do their best learning and create the highest quality of research, both because of and in spite of their diverse perspectives.

Learning Objectives

Mentors will have the knowledge and skills to:

1. Increase understanding of equity and inclusion and their influence on mentor-mentee relationships
2. Identify resources to enhance success of culturally diverse mentoring relationships and research teams
3. Identify concrete strategies for learning about and addressing issues of equity and inclusion in research teams
4. Identify elements of their own research context (physical space, research process, scholarship production, etc.) that may be more or less inclusive depending upon decisions made by research mentors and team leaders

Reflecting on Unconscious Assumptions

I will say a word that is a type of person. Focus on the first image that comes to mind. Quickly jot down three words that describe the person you pictured.

PERSON	Word 1	Word 2	Word 3

Challenges of Diversity

Studies report that women and minority faculty members are considerably less satisfied with many aspects of their jobs than are majority of male faculty members:

Teaching and committee commitments

Involvement in decision making

Professional relations with colleagues

Promotion and tenure

Salary inequities

Overall job satisfaction

A study of 8 Midwestern states showed that faculty of color experience exclusion, isolation, alienation, and racism in predominantly white universities

Minority students often feel isolated and unwelcome in predominantly white institutions and that many experience discrimination and differential treatment

Benefits of Diversity for Teaching and Research

Research shows that diverse working groups are more productive, creative and innovative than homogeneous groups.

- In brainstorming sessions, no difference in number of ideas generated by groups but when assessed for feasibility and effectiveness, ideas generated by diverse groups were deemed to be of higher quality.

- The level of critical analysis of decisions and alternatives were higher in groups exposed to minority viewpoints than in groups that were not.

- Women and faculty of color more frequently employed active learning in the classroom, encouraged student input, and included perspectives of women and minorities in their coursework.

- Studies provide extensive evidence that diversity has a positive impact on all students, minority and majority.

Benefits and Challenges of Diversity[15]

By Jo Handelsman and Eve Fine

The diversity of a university's faculty, staff, and students influences its strength, productivity, and intellectual personality. Diversity of experience, age, physical ability, religion, race, ethnicity, gender, and many other attributes contributes to the richness of the environment for teaching and research. We also need diversity in discipline, intellectual outlook, cognitive style, and personality to offer students the breadth of ideas that constitute a dynamic intellectual community.

A vast and growing body of research provides evidence that a diverse student body, faculty, and staff benefits our joint missions of teaching and research by increasing creativity, innovation, and problem solving. Yet diversity of faculty, staff, and students also brings challenges. Increasing diversity can lead to less cohesiveness, less effective communication, increased anxiety, and greater discomfort for many members of a community.[1] Learning to respect and appreciate each other's cultural and stylistic differences and becoming aware of unconscious assumptions and behaviors that may influence our interactions will enable us to minimize the challenges and derive maximum benefits from diversity.

This article summarizes research on the benefits and challenges of diversity and provides suggestions for realizing the benefits. Its goal is to help create a climate in which all individuals feel *personally safe, listened to, valued, and treated fairly and with respect.*[2]

> *It is time to renew the promise of American higher education in advancing social progress, end America's discomfort with race and social difference, and deal directly with many of the issues of inequality present in everyday life.*
>
> – Sylvia Hurtado

Benefits for Teaching and Research

Research shows that diverse working groups are more productive, creative, and innovative than homogeneous groups, and suggests that developing a diverse faculty will enhance teaching and research.[3] Here are some of the findings.

- A controlled experimental study of performance during a brainstorming session compared ideas generated by ethnically diverse groups composed of Asians, blacks, whites, and Latinos to those generated by ethnically homogenous groups composed of whites only. Evaluators who were unaware of the source of the ideas found no significant difference in the number of ideas generated by the two types of groups. However, when applying measures of feasibility and effectiveness, they rated the ideas generated by diverse groups as being of higher quality.[4]

- The level of critical analysis of decisions and alternatives was higher in groups exposed to minority viewpoints than in groups that were not. Minority viewpoints stimulated discussion of multiple perspectives and previously unconsidered alternatives, whether or not the minority opinion was correct or ultimately prevailed.[5]

- A study of corporate innovation found that the most innovative companies deliberately established diverse work teams.[6]

[15] Handelsman, J., Pfund, C., Miller Lauffer S., and Pribbenow, C. M. (2005). *Entering Mentoring: A Seminar to Train a New Generation of Scientists,* Madison, WI: University of Wisconsin Press.

- Data from the 1995 Faculty Survey conducted by UCLA's Higher Education Research Institute (HERI) demonstrated that scholars from minority groups have expanded and enriched scholarship and teaching in many academic disciplines by offering new perspectives and by raising new questions, challenges, and concerns.[7]

- Several investigators found that women and faculty of color more frequently employed active learning in the classroom, encouraged student input, and included perspectives of women and minorities in their coursework.[8]

Benefits for Students

Numerous research studies have examined the impact of diversity on students and educational outcomes. Cumulatively, these studies provide extensive evidence that diversity has a positive impact on all students, minority and majority.[9] Here are some examples.

- A national longitudinal study of 25,000 undergraduates at 217 four-year colleges and universities showed that institutional policies fostering diversity of the campus community had positive effects on students' cognitive development, satisfaction with the college experience, and leadership abilities. These policies encouraged faculty to include themes relating to diversity in their research and teaching, and provided students with opportunities to confront racial and multicultural issues in the classroom and in extracurricular settings.[10]

- Two longitudinal studies, one conducted by HERI in 1985 and 1989 with over 11,000 students from 184 institutions and another in 1990 and 1994 with approximately 1,500 students at the University of Michigan, showed that students who interacted with racially and ethnically diverse peers both informally and within the classroom showed the greatest "engagement in active thinking, growth in intellectual engagement and motivation, and growth in intellectual and academic skills."[11] A more recent study of 9,000 students at 10 selective colleges reported that meaningful engagement rather than casual and superficial interactions led to greater benefit from interaction with racially diverse peers.[12]

- Data from the National Study of Student Learning indicated that both in-class and out-of-class interactions and involvement with diverse peers fostered critical thinking. This study also found a strong correlation between "the extent to which an institution's environment is perceived as racially nondiscriminatory" and students' willingness to accept both diversity and intellectual challenge.[13]

- A survey of 1,215 faculty members in departments granting doctoral degrees in computer science, chemistry, electrical engineering, microbiology, and physics showed that women faculty played important roles in fostering the education and success of women graduate students.[14]

Challenges of Diversity

Despite the benefits that a diverse faculty, staff, and student body provide to a campus, diversity also presents considerable challenges that must be addressed and overcome. Here are some examples.

- Numerous studies have reported that women and minority faculty members are considerably less satisfied with many aspects of their jobs than are majority male faculty members. These aspects include teaching and committee assignments, involvement in decision making,

professional relations with colleagues, promotion and tenure, salary inequities, and overall job satisfaction.[15]

- A study of minority faculty at universities and colleges in eight midwestern states showed that faculty of color experience exclusion, isolation, alienation, and racism in predominantly white universities.[16]

- Multiple studies demonstrate that minority students often feel isolated and unwelcome in predominantly white institutions and that many experience discrimination and differential treatment. Minority status can result from race, ethnicity, national origin, sexual orientation, disability, and other factors.[17]

- Women students, particularly when they are minorities in their classes, may experience unwelcoming climates that can include sexist use of language, presentation of stereotypic or disparaging views of women, differential treatment from professors, and/or sexual harassment.[18]

- When a negative stereotype relevant to their identity exists in a field of interest, women and members of minority groups often experience "stereotype threat"—the fear that they will confirm or be judged in accordance with the stereotype. Such stereotype threat exists both for entry into a new field and for individuals already excelling in a specific arena. Situations or behaviors that heighten awareness of one's minority status can activate stereotype threat.[19] Research demonstrates that once activated, stereotype threat leads to stress and anxiety, which decreases memory capacity, impairs performance, and reduces aspirations and motivation.[20] Human brain imaging, which shows that activating stereotype threat causes blood to move from the cognitive to the affective centers of the brain, indicates how situational cues reduce cognitive abilities.[21]

- Research has demonstrated that a lack of previous positive experiences with "outgroup members" (minorities) causes "ingroup members" (majority members) to feel anxious about interactions with minorities. This anxiety can cause majority members to respond with hostility or to avoid interactions with minorities.[22]

Influence of Unconscious Assumptions and Biases

Research studies show that people who have strong egalitarian values and believe that they are not biased may unconsciously behave in discriminatory ways.[23] A first step toward improving climate is to recognize that unconscious biases, attitudes, and other influences unrelated to the qualifications, contributions, behaviors, and personalities of our colleagues can influence our interactions, *even if we are committed to egalitarian views*. Although we all like to think that we are objective scholars who judge people on merit, the quality of their work, and the nature of their achievements, copious research shows that a lifetime of experience and cultural history shapes every one of us and our judgments of others.

> *People confident in their own objectivity may overestimate their invulnerability to bias.*
> − Eric Uhlmann and Geoffrey Cohen

The results from controlled research studies demonstrate that people often hold unconscious, implicit assumptions that influence their judgments and interactions with others. Examples range from expectations or assumptions about physical or social characteristics associated with race, gender, age,

and ethnicity to those associated with certain job descriptions, academic institutions, and fields of study. Let's start with some examples of common social assumptions or expectations.

- When shown photographs of people of the same height, evaluators overestimated the heights of male subjects and underestimated the heights of female subjects, even though a reference point, such as a doorway, was provided.[24]

- When shown photographs of men of similar height and build, evaluators rated the athletic ability of black men higher than that of white men.[25]

- When asked to choose counselors from a group of equally competent applicants who were neither exceptionally qualified nor unqualified for the position, college students chose white candidates more often than African American candidates, exhibiting a tendency to give members of the majority group the benefit of the doubt.[26]

These studies show that we often apply generalizations about groups that may or may not be valid to the evaluation of individuals.[27] In the study on height, evaluators applied the statistically accurate generalization that men are usually taller than women to estimate the height of individuals who did not necessarily conform to the generalization. If we can inaccurately apply generalizations to objective characteristics as easily measured as height, what happens when the qualities we are evaluating are not as objective or as easily measured? What happens when, as in the studies of athletic ability and choice of counselor, the generalizations are not valid? What happens when such generalizations unconsciously influence the ways we interact with other people? Here are some examples of assumptions or biases that can influence interactions.

- When rating the quality of verbal skills as indicated by vocabulary definitions, evaluators rated the skills lower if told that an African American provided the definitions than if told that a white person provided them.[28]

- When asked to assess the contribution of skill versus luck to successful performance of a task, evaluators more frequently attributed success to skill for males and to luck for females, even though males and females performed the task identically.[29]

- Evaluators who were busy, distracted by other tasks, and under time pressure gave women lower ratings than men for the same written evaluation of job performance. Sex bias decreased when they took their time and focused attention on their judgments, which rarely occurs in actual work settings.[30]

- Research has shown that incongruities between perceptions of female gender roles and leadership roles can cause evaluators to assume that women will be less competent leaders. When women leaders provided clear evidence of their competence, thus violating traditional gender norms, evaluators perceived them to be less likable and were less likely to recommend them for hiring or promotion.[31]

- A study of nonverbal communication found that white interviewers maintained higher levels of visual contact, reflecting greater attraction, intimacy, and respect, when talking with white interviewees and higher rates of blinking, indicating greater negative arousal and tension, when talking with black interviewees.[32]

Several research studies conclude that implicit biases and assumptions can affect evaluation and hiring of candidates for academic positions. These studies show that the gender of the person being evaluated significantly influences the assessment of résumés and postdoctoral applications, evaluation of journal articles, and the language and structure of letters of recommendation. As we attempt to enhance campus and department climate, the influence of such biases and assumptions may also affect selection of invited speakers and conference presenters, committee membership, interaction and collaboration with colleagues, and promotion to tenure and full professorships. Here are some examples of assumptions or biases in academic contexts.

A study of over 300 recommendation letters for medical faculty hired by a large American medical school found that letters for female applicants differed systematically from those for males. Letters written for women were shorter, provided "minimal assurance" rather than solid recommendations, raised more doubts, and included fewer superlative adjectives.[33]

- In a national study, 238 academic psychologists (118 male, 120 female) evaluated a junior-level or a senior-level curriculum vitae randomly assigned a male or a female name. These were actual vitae from an academic psychologist who successfully competed for an assistant professorship and then received tenure early. For the junior-level applicant, both male and female evaluators gave the male applicant better ratings for teaching, research, and service and were more likely to hire the male than the female applicant. Gender did not influence evaluators' decisions to tenure the senior-level applicant, but evaluators did voice more doubts about the female applicant's qualifications.[34]

- A study of postdoctoral fellowships awarded by the Medical Research Council of Sweden found that women candidates needed substantially more publications to achieve the same rating as men, unless they personally knew someone on the selection panel.[35]

- A 2008 study showed that when the journal *Behavioral Ecology* introduced a double-blind review process that concealed the identities of reviewers and authors, there was a significant increase in the publication of articles with a woman as the first author.[36]

Reaping the Benefits and Minimizing the Challenges of Diversity

To reap the benefits and minimize the challenges of diversity, we need to overcome the powerful human tendency to feel more comfortable when surrounded by people we resemble. We need to learn how to understand, value, and appreciate difference. Here is some advice for doing so.

Become aware of unconscious biases that may undermine your conscious commitment to egalitarian principles.

One way of doing this is to take the Implicit Association Test (IAT) offered by Project Implicit, a research collaborative at the University of Virginia, Harvard University, and the University of Washington (https://implicit.harvard.edu/implicit/demo).

Consciously strive to minimize the influence of unintentional bias.

Question your judgments and decisions and consider whether unintentional bias may have

played a role. One way to do so is to perform a thought experiment: ask yourself if your opinions or conclusions would change if the person was of a different race, sex, religion, and so forth. Some questions to consider include the following:

- Are women or minority colleagues/students subject to higher expectations in areas such as number and quality of publications, name recognition, or personal acquaintance with influential colleagues?
- Are colleagues or students who received degrees from institutions other than major research universities undervalued? Are we missing opportunities to benefit from the innovative, diverse, and valuable perspectives and expertise of colleagues or students from other institutions such as historically black universities, four-year colleges, community colleges, government, or industry?
- Are ideas and opinions voiced by women or minorities ignored? Are their achievements and contributions undervalued or unfairly attributed to collaborators, despite evidence to the contrary in their publications or letters of reference?
- Is the ability of women or minorities to lead groups, raise funds, and/or supervise students and staff underestimated? Are such assumptions influencing committee and/or course assignments?
- Are assumptions about whether women or minorities will "fit in" to an existing environment influencing decisions?
- Are assumptions about family obligations inappropriately influencing appointments and other decisions?

Seek out opportunities for greater interaction with women and minority colleagues.

Get to know women and minority colleagues in your department, your campus, and your professional associations. Pursue meaningful discussions with them about research, teaching methodologies, and ideas about the direction of your department, college, and profession. Listen actively to any concerns they express and try to understand and learn from their perspectives and experiences.

Focus on the individual and on their personality, qualifications, merit, and interests.

Consciously avoid the tendency to make assumptions about an individual based on the characteristics (accurate or not) of their group membership. Likewise, avoid the tendency to make assumptions about groups based on the behavior, personality, or qualifications of an individual group member. Instead, concentrate on the individual and their qualities.

Treat all individuals—regardless of race, sex, or status—with respect, consideration, and politeness.

- Greet faculty, staff, and students pleasantly in hallways or in other chance encounters.
- Make requests to faculty, staff, and students politely—even when the work you are asking for is part of their obligations.
- Acknowledge and appreciate the work, assistance, and contributions of faculty colleagues, staff, and students. Do so in public forums as well as privately.
- Address individuals by their appropriate titles or by their preferred forms of address.

Actively promote inclusive communities.

- In classroom, committee, laboratory, and departmental settings, work to ensure that everyone has a chance to voice opinions, concerns, or questions. Acknowledge and attribute ideas, suggestions, and comments accurately. Women and minorities often report that their remarks or contributions are ignored or unheard.
- Support efforts to ensure that leadership and membership of departmental and professional committees are diverse with respect to age, gender, nationality, race, ethnicity, and so on.
- Support efforts to ensure that departmental events such as seminar series and sponsored conferences include presenters of various ages, genders, nationalities, races, and ethnicities.
- Promote inclusive language by example. Avoid using only male pronouns when referring to groups of both sexes. Avoid language that makes assumptions about marital status and or/sexual orientation; for example, consider using "partner" rather than "spouse."
- Welcome new departmental members by initiating conversations or meetings with them. Attend social events hosted by your department and make efforts to interact with new members and others who are not part of your usual social circle.

Avoid activating stereotype threat.

In addition to the preceding advice for actively promoting inclusive communities, the following suggestions can prevent the activation of stereotype threat or counteract its effects:

- Teach students and colleagues about stereotype threat.[37]
- Counter common stereotypes by increasing the visibility of successful women and minority members of your discipline. Ensure that the posters and/or photographs of members of your department or discipline displayed in hallways, conference rooms, and classrooms reflect the diversity you wish to achieve. Choose textbooks that include the contributions and images of diverse members of your discipline.[38]
- Support and encourage your students by providing positive feedback as well as constructive criticism to ensure that they know their strengths and develop confidence in their abilities. Save your harshest criticism for private settings so that you do not humiliate or embarrass students in front of either their peers or more senior colleagues. Such respectful practices are important for all students, but are likely to be more important for women and members of minority groups, who may have received less encouragement and may be at greater risk of being discouraged due to the influence of stereotype threat. Demonstrate similar respect and encouragement for your colleagues.
- For more suggestions, see http://reducingstereotypethreat.org/reduce.html.

Conclusion

Diversity is not an end in itself. Diversity is a means of achieving our educational and institutional goals. As such, merely adding diverse people to a homogeneous environment does not automatically create a more welcoming and intellectually stimulating campus.

Long-term efforts, engagement, and substantial attention are essential for realizing the benefits that diversity has to offer and for ensuring that all members of the academic community are respected, listened to, and valued.

References

1. Manzoni, J.-F., P. Strebel, and J.-L. Barsoux. "Why diversity can backfire on company boards." *MIT Sloan Management Review—Business Insight*, January 22, 2010.

   Herring, C. "Does diversity pay? Race, gender, and the business case for diversity." *American Sociological Review* 74 (2009): 208–224.

   Page, S. E. (2007). *The Difference: How the Power of Diversity Creates Better Groups, Firms, Schools, and Societies.* Princeton, NJ: Princeton University Press.

   Putnam, R. D. "*E Pluribus Unum*: Diversity and community in the twenty-first century—The 2006 Johan Skytte Prize Lecture." *Scandinavian Political Studies* 30 (2007): 137–174.

   van Knippenberg, D., and M. C. Schippers. "Work group diversity." *Annual Review of Psychology* 58 (2007): 515–541.

   Mannix, E., and M. A. Neale. "What differences make a difference? The promise and reality of diverse teams in organizations." *Psychological Science in the Public Interest* 6 (2005): 31–55.

   Cox, T., Jr. (1993).*Cultural Diversity in Organizations: Theory, Research & Practice.* San Francisco: Berrett-Koehler Publishers.

2. University of Wisconsin–Madison, Office of the Provost (2004). "Definition of Campus Climate." (http://wiseli.engr.wisc.edu/climate/Provost_ClimateDefn.pdf)

3. Herring, C. "Does diversity pay? Race, gender, and the business case for diversity." *American Sociological Review* 74 (2009): 208–224.

   Chang, M. J., D. Witt, et al. (2003). *Compelling Interest: Examining the Evidence on Racial Dynamics in Colleges and Universities.* Stanford, CA: Stanford University Press.

   American Council on Education (ACE) and American Association of University Professors (AAUP) (2000). *Does Diversity Make a Difference? Three Research Studies on Diversity in College Classrooms.* Washington, DC: ACE and AAUP.

4. McLeod, P. L., S. A. Lobel, and T. H. Cox, Jr. "Ethnic diversity and creativity in small groups." *Small Group Research* 27 (1996): 248–265.

5. Nemeth, C. J. "Dissent as driving cognition, attitudes, and judgments." *Social Cognition* 13 (1995): 273–291.

   Nemeth, C. J. "Differential contributions of majority and minority influence." *Psychological Review* 93 (1986): 23–32.

   Nemeth, C. J. "Dissent, group process, and creativity: The contribution of minority influence."

Advances in Group Process 2 (1985): 57–74.

Schulz-Hardt, S. et al. "Group decision making in hidden profile situations: Dissent as a facilitator for decision quality." *Journal of Personality and Social Psychology* 91 (2006): 1080–1093.

Sommers, S. R. "On racial diversity and group decision making: Identifying multiple effects of racial composition on jury deliberations." *Journal of Personality and Social Psychology* 90 (2006): 597–612.

Antonio, A. L., et al. "Effects of racial diversity on complex thinking in college students." *Psychological Science* 15 (2004): 507–510.

6. Kanter, R. M. (1983). *The Change Masters: Innovations for Productivity in the American Corporation*. New York: Simon and Schuster.

7. Antonio, A. L. "Faculty of color reconsidered: Reassessing contributions to scholarship." *Journal of Higher Education* 73 (2002): 582–602.

Turner, C. S. V. "New faces, new knowledge." *Academe* 86 (2000): 34–37.

Nelson, S., and G. Pellet (1997). *Shattering the Silences* [video recording]. San Francisco: Gail Pellet Productions.

8. Milem, J. F. (2003). "The educational benefits of diversity: Evidence from multiple sectors." In *Compelling Interest: Examining the Evidence on Racial Dynamics in Colleges and Universities*, edited by M. J. Chang, D. Witt, J. Jones, and K. Hakuta, 126–169. Stanford, CA: Stanford University Press.

9. Smith, D. G., et al. (1997). *Diversity Works: The Emerging Picture of How Students Benefit*. Washington, DC: Association of American Colleges and Universities.

10. Astin, A. W. "Diversity and multiculturalism on the campus: How are students affected?" *Change* 25(2) (1993): 44–49.

Astin, A. W. (1993). *What Matters in College? Four Critical Years Revisited.* San Francisco: Jossey-Bass.

11. Gurin, P., E. L. Dey, et al. "Diversity and higher education: Theory and impact on educational outcomes." *Harvard Educational Review* 72 (2002): 330–366.

Gurin, P. "Selections from *The Compelling Need for Diversity in Higher Education*, expert reports in defense of the University of Michigan." *Equity & Excellence in Education* 32 (1999): 36–62.

12. Espenshade, T. J., and A. W. Radford (2009). *No Longer Separate, Not Yet Equal: Race and Class in Elite College Admission and Campus Life.* Princeton, NJ: Princeton University Press.

13. Pascarella, E. T., et al. "Influences on students' openness to diversity and challenge in the first year of college." *Journal of Higher Education* 67 (1996): 174–195.

14. Fox, M. F. (2003). "Gender, faculty, and doctoral education in science and engineering." In *Equal Rites, Unequal Outcomes: Women in American Research Universities*, edited by L. S. Hornig, 91–109. New York: Kluwer Academic/Plenum Publishers.

Carbonell, J. L., and Y. Castro. "The impact of a leader model on high dominant women's self-selection for leadership." *Sex Roles* 58 (2008): 776–783.

Kutob, R. M., J. H. Senf, and D. Campos-Outcalt. "The diverse functions of role models across primary care specialties." *Family Medicine* 38 (2006): 244–251.

Bakken, L. L. "Who are physician-scientists' role models? Gender makes a difference." *Academic Medicine* 80 (2005): 502–506.

15. Sheridan, J., and J. Winchell (2006). *Results from the 2006 Study of Faculty Worklife at UW–Madison*. Madison, WI: WISELI.

Sheridan, J., and J. Winchell (2003). *Results from the 2003 Study of Faculty Worklife at UW–Madison*, Madison, WI: WISELI.

Harvard University Task Force on Women Faculty (2005). *Report of the Task Force on Women Faculty*. Cambridge, MA: Harvard University.

Astin, H. S., and C. M. Cress (2003). "A national profile of academic women in research universities." In *Equal Rites, Unequal Outcome: Women in American Research Universities*, edited by L. S. Hornig, 53–88. New York: Kluwer Academic/Plenum Publishers.

Zakian, V., et al. (2003). *Report of the Task Force on the Status of Women Faculty in the Natural Sciences and Engineering at Princeton*. Princeton, NJ: Princeton University Press.

Allen, W. R., et al. (2002)."Outsiders within: Race, gender, and faculty status in US higher education." In *The Racial Crisis in American Higher Education: Continuing Challenges for the Twenty-First Century*, edited by W. A. Smith, P. G. Altbach, and K. Lomotey, 189–220. Albany, NY: State University of New York Press.

Trower, C. A., and R. P. Chait. "Faculty diversity: Too little for too long." *Harvard Magazine* 104 (2002): 33–37, 98.

Turner, C. S. V. "Women of color in academe: Living with multiple marginality." *Journal of Higher Education* 73 (2002): 74–93.

Aguirre, A., Jr. "Women and minority faculty in the academic workplace: Recruitment, retention, and academic culture." *ASHE-ERIC Higher Education Reports* 27 (2000).

Foster, S. W., et al. "Results of a gender-climate and work-environment survey at a midwestern academic health center." *Academic Medicine* 75 (2000): 653–660.

Turner, C. S. V., and S. L. Myers Jr. (2000). *Faculty of Color in Academe: Bittersweet Success*. Boston, MA: Allyn & Bacon.

MIT Committee on Women Faculty (1999). *A Study on the Status of Women Faculty in Science at MIT*. Boston, MA: Massachusetts Institute of Technology.

Blackburn, R. P., and C. Hollenshead (1999). *University of Michigan Faculty Work-Life Study Report*. Ann Arbor, MI: University of Michigan.

Riger, S., J. Stokes, et al. "Measuring perceptions of the work environment for female faculty." *Review of Higher Education* 21 (1997): 63–78.

16. Turner, C. S. V., and S. L. Myers Jr. (2000). *Faculty of Color in Academe: Bittersweet Success*. Boston, MA: Allyn & Bacon.

Turner, C. S. V. "Women of color in academe: Living with multiple marginality." *Journal of Higher Education* 73 (2002): 74–93.

17. Rankin, S. R. (2003). *Campus Climate for Gay, Lesbian, Bisexual, and Transgender People: A National Perspective.* New York: National Gay and Lesbian Task Force Policy Institute.

Suarez-Balcazar, Y., et al. "Experiences of differential treatment among college students of color." *Journal of Higher Education* 74 (2003): 428–444.

Hurtado, S., D. F. Carter, and D. Kardia. "The climate for diversity: Key issues for institutional self-study." *New Directions for Institutional Research* 98 (1998): 53–63.

Cress, C. M., and L. J. Sax. "Campus Climate Issues to Consider for the Next Decade." *New Directions for Institutional Research* 98 (1998): 65–80.

Nora, A., and A. F. Cabrera. "The role of perceptions of prejudice and discrimination on the adjustment of minority students to college." *Journal of Higher Education* 67 (1996): 119–148.

Smedley, B. D., H. F. Myers, and S. P. Harrell. "Minority-status stresses and the college adjustment of ethnic minority freshmen." *Journal of Higher Education* 64 (1993): 434–452.

Hurtado, S. "The campus racial climate: Contexts of conflict." *Journal of Higher Education* 63 (1992): 539–569.

18. Salter, D. W., and A. Persaud. "Women's views of the factors that encourage and discourage classroom participation." *Journal of College Student Development* 44 (2003): 831–844.

Crombie, G., et al. "Students' perceptions of their classroom participation and instructor as a function of gender and context." *Journal of Higher Education* 74 (2003): 51–76.

Swim, J. K., L. L. Hyers, et al. "Everyday sexism: Evidence for its incidence, nature, and psychological impact from three daily diary studies." *Journal of Social Issues* 57 (2001): 31–53.

Whitt, E. J., et al. "Women's perceptions of a "chilly climate" and cognitive outcomes in college: Additional evidence." *Journal of College Student Development* 40 (1999): 163–177.

Sands, R. G. "Gender and the perception of diversity and intimidation among university students." *Sex Roles* 39 (1998): 801–815.

Foster, T. J., et al. "An empirical test of Hall and Sandler's 1982 report: Who finds the classroom climate chilly?" Paper presented at the annual meeting of the Central States Communication Association, Oklahoma City, OK, April 1994.

Hall, R. M., and B. R. Sandler (1982). *The Classroom Climate: A Chilly One for Women?* Washington, DC: Project on the Status and Education of Women, Association of American Colleges.

19. Spencer, S. J., C. M. Steele, and D. M. Quinn. "Stereotype threat and women's math performance." *Journal of Experimental Social Psychology* 35 (1999): 4–28.

Steele, C. M. "A threat in the air: How stereotypes shape intellectual identity and performance." *American Psychologist* 52 (1997): 613–629.

Steele, C. M., and J. Aronson. "Stereotype threat and the intellectual test performance of African Americans." *Journal of Personality and Social Psychology* 69 (1995): 797–811.

20. Burgess, D. J., A. Joseph, et al. "Does stereotype threat affect women in academic medicine?" *Academic Medicine* 87 (4) (2012): 506–512.

Brodish, A. B., and P. G. Devine. "The role of performance-avoidance goals and worry in mediating the relationship between stereotype threat and performance." *Journal of Experimental Social Psychology* 45 (2009): 180–185.

Davies, P. G., S. J. Spencer, and C. M. Steele. "Clearing the air: Identity safety moderates the effects of stereotype threat on women's leadership aspirations." *Journal of Personality and Social Psychology* 88 (2005): 276–287.

Croizet, J.-C., G. Després, et al. "Stereotype threat undermines intellectual performance by triggering a disruptive mental load." *Personality and Social Psychology Bulletin* 30 (2004): 721–731.

Keller, J., and D. Dauenheimer. "Stereotype threat in the classroom: Dejection mediates the disrupting threat effect on women's math performance." *Personality and Social Psychology Bulletin* 29 (2003): 371–381.

Schmader, T., and M. Johns. "Converging evidence that stereotype threat reduces working memory capacity." *Journal of Personality and Social Psychology* 85(3) (2003): 440–452.

Steele, C. M. "A threat in the air: How stereotypes shape intellectual identity and performance."
American Psychologist 52 (1997): 613–629.

21. Krendl, A. C., J. A. Richeson, et al. "The negative consequences of threat: A functional magnetic resonance imaging investigation of the neural mechanisms underlying women's underperformance in math." *Psychological Science* 19 (2008): 168–175.

22. Plant, E. A., and P. G. Devine. "The antecedents and implications of interracial anxiety." *Personality and Social Psychology Bulletin* 29 (2003): 790–801.

23. Dovidio, J. F. "On the nature of contemporary prejudice: The third wave." *Journal of Social Issues* 57 (2001): 829–849.

24. Biernat, M., M. Manis, and T. E. Nelson. "Stereotypes and standards of judgment." *Journal of Personality and Social Psychology* 60 (1991): 485–499.
25. Biernat, M., and M. Manis. "Shifting standards and stereotype-based judgments." *Journal of Personality and Social Psychology* 66 (1994): 5–20.

26. Dovidio, J. F., and S. L. Gaertner. "Aversive racism and selection decisions: 1989 and 1999." *Psychological Science* 11 (2000): 315–319.

27. Bielby, W.T., and J. N. Baron. "Men and women at work: Sex segregation and statistical discrimination." *American Journal of Sociology* 91 (1986): 759–799.

28. Biernat, M., and M. Manis. "Shifting standards and stereotype-based judgments." *Journal of Personality and Social Psychology* 66 (1994): 5–20.

29. Deaux, K., and T. Emswiller. "Explanations of successful performance on sex-linked tasks: What is skill for the male is luck for the female." *Journal of Personality and Social Psychology* 29 (1974): 80–85.

30. Martell, R. F. "Sex bias at work: The effects of attentional and memory demands on performance ratings of men and women." *Journal of Applied Social Psychology* 21 (1991): 1939–1960.

31. Eagly, A. H., and S. Sczesny (2009). "Stereotypes about women, men, and leaders: Have times changed?" In *The Glass Ceiling in the 21st Century: Understanding Barriers to Gender Equality*, edited by M. Barreto, M. K. Ryan, and M. T. Schmitt, 21–47. Washington, DC: American Psychological Association.

Eagly, A. H., and A. M. Koenig (2008). "Gender prejudice : On the risks of occupying incongruent roles." In *Beyond Common Sense: Psychological Science in the Courtroom*, edited by E. Borgida and S.
T. Fiske, 63–81. Malden, MA: Blackwell Publishing.

Heilman, M. E., A. S. Wallen, et al. "Penalties for success: Reactions to women who succeed at male gender-typed tasks." *Journal of Applied Psychology* 89 (2004): 416–427.

Ridgeway, C. L. "Gender, status, and leadership." *Journal of Social Issues* 57 (2001): 637–655.

32. Dovidio, J. F., et al. "On the nature of prejudice: Automatic and controlled processes." *Journal of Experimental Social Psychology* 33 (1997): 510–540.

33. Trix, F., and C. Psenka. "Exploring the color of glass: Letters of recommendation for female and male medical faculty." *Discourse & Society* 14 (2003): 191–220.

34. Steinpreis, R. E., K. A. Anders, and D. Ritzke. "The impact of gender on the review of the curricula vitae of job applicants and tenure candidates: A national empirical study." *Sex Roles* 41 (1999): 509–528.

35. Wennerås, C., and A. Wold. "Nepotism and sexism in peer-review." *Nature* 387 (1997): 341–343.

36. Budden, A. E., et al. "Double-blind review favours increased representation of female authors." *Trends in Ecology & Evolution* 23 (2008): 4–6.

37. Johns, M., T. Schmader, and A. Martens. "Knowing is half the battle: Teaching stereotype threat as a means of improving women's math performance." *Psychological Science* 16 (2005): 175–179.

38. Good, J. J., J. A. Woodzicka, and L. C. Wingfield. "The effects of gender stereotypic and counter-stereotypic textbook images on science performance." *Journal of Social Psychology* 150 (2010): 132–147.

Quotes

Hurtado, Sylvia. "Linking diversity with the educational and civic missions of higher education." *Review of Higher Education* 30 (2007): 186.

Uhlmann, Eric Luis, and Geoffrey L. Cohen. "'I think it, therefore it's true': Effects of self-perceived objectivity on hiring discrimination." *Organizational Behavior and Human Decision Processes* 104 (2007): 208.

Prepared for WISELI by Eve Fine and Jo Handelsman

Thanks to Molly Carnes, Jennifer Sheridan, Amy Wendt, Linda Baier Manwell, Brad Kerr, and Christine Calderwood for their suggestions.

How can you use or view diversity as an asset to a mentor-mentee relationship?

Influence of Unconscious Assumptions and Biases

Research shows that people who have strong egalitarian values and believe that they are not biased, may unconsciously behave in discriminatory ways.

Recognize that unconscious biases, attitudes, and other influences unrelated to qualifications, contributions, behaviors, and personalities can influence our interactions.

Examples range from expectations or assumptions about physical or social characteristics associated with race, gender, age, and ethnicity to those associated with certain job descriptions, academic institutions, and fields of study.

Micro-aggressions

Micro-aggressions are brief and commonplace daily verbal, behavioral, or environmental indignities, whether intentional or unintentional, that perpetuate marginalization of people. Often the interpretation of a micro-aggression event is personal.

Micro-insults: communicate [to a woman] negative messages about competencies or abilities, lack of belonging to the profession.

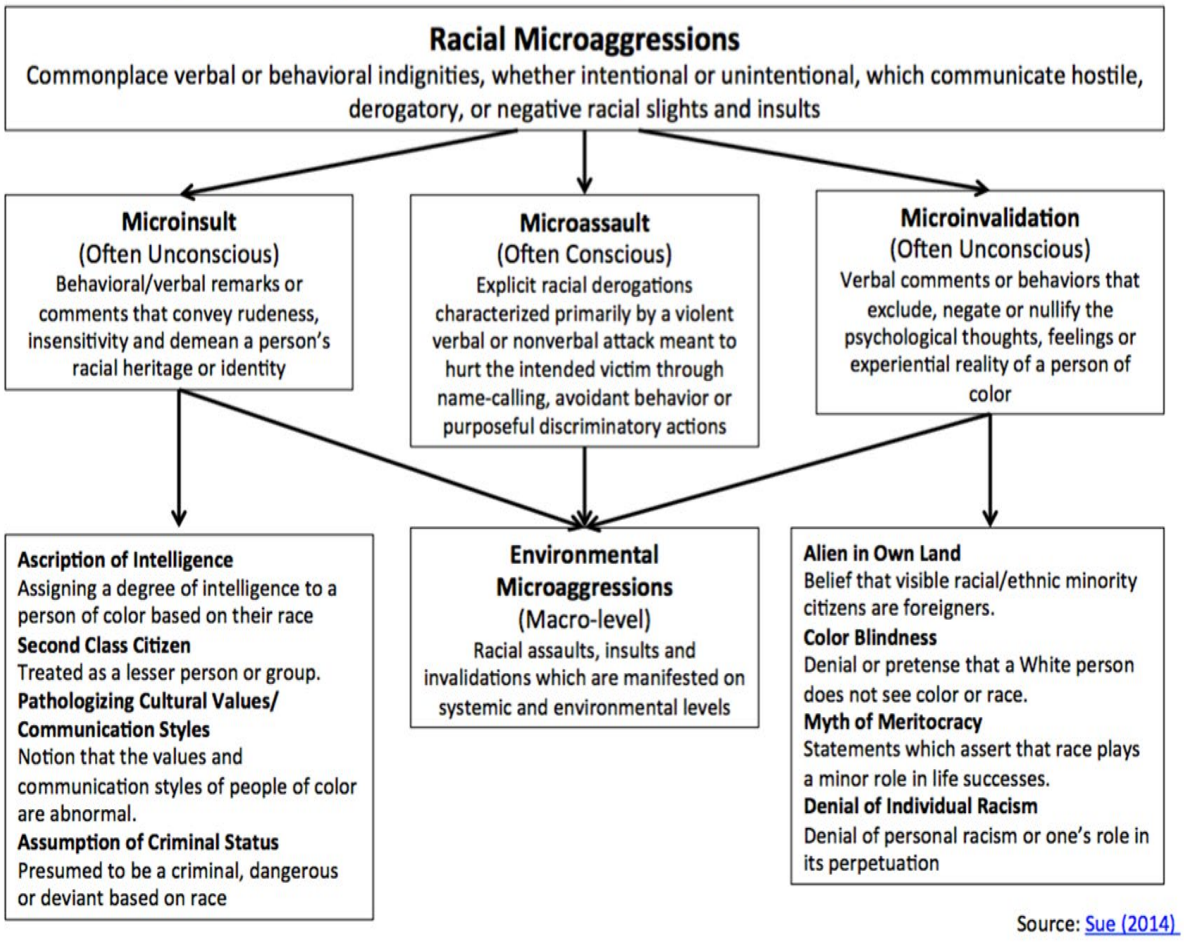
"I told the grad student under me that he should consider a certain factor in trying to make sense of his data. He said no and ignored me. When the other grad student/post doc [male] suggested it, he was open to it right away." (Barthelemy et al,)

Micro-assaults: purposeful, targeted negative messages, frequently a very conscious action.

"...Many of the boys in the class expressed interest in engineering. When it got around to me, I responded that I wanted to major in physics. The teacher raised an eyebrow and said "Oh, so you're going to be a waitress."

Micro-invalidations: assess women's gendered experiences as being non-existent or something the woman is only imagining. *(From Barthelemy et al,)*

Figure 1 – Categories and Relationship of Racial Microaggressions



Source: Sue (2014)

TOOL: Recognizing Microaggressions and the Messages They Send

Microaggressions are the everyday verbal, nonverbal, and environmental slights, snubs, or insults, whether intentional or unintentional, that communicate hostile, derogatory, or negative messages to target persons based solely upon their marginalized group membership (from Diversity in the Classroom, UCLA Diversity & Faculty Development, 2014). The first step in addressing microaggressions is to recognize when a microaggression has occurred and what message it may be sending. The context of the relationship and situation is critical. Below are common themes to which microaggressions attach.

THEMES	MICROAGGRESSION EXAMPLES	MESSAGE
Alien in One's Own Land When Asian Americans, Latino Americans and others who look different or are named differently from the dominant culture are assumed to be foreign-born	• *"Where are you from or where were you born?"* • *"You speak English very well."* • *"What are you? You're so interesting looking."* • A person asking an Asian American or Latino American to teach them words in their native language. • Continuing to mispronounce the names of students after students have corrected the person time and time again. Not willing to listen closely and learn the pronunciation of a non-English based name.	You are not a true American. You are a perpetual foreigner in your own country. Your ethnic/racial identity makes you exotic.
Ascription of Intelligence Assigning intelligence to a person of color or a woman based on his/her race/gender	• *"You are a credit to your race."* • *"Wow! How did you become so good in math?"* • To an Asian person, *"You must be good in math, can you help me with this problem?"* • To a woman of color: *"I would have never guessed that you were a scientist."*	People of color are generally not as intelligent as Whites. All Asians are intelligent and good in math/science. It is unusual for a woman to have strong mathematical skills.
Color Blindness/Evasiveness Statements that indicate that White person does not want to or need to acknowledge race	• *"When I look at you, I don't see color."* • *"There is only one race, the human race."* • *"America is a melting pot."* • *"I don't believe in race."* • Denying the experiences of students by questioning the	Assimilate to the dominant culture. Denying the significance of a person's color's racial/ethnic experience and history. Denying the individual as a racial/cultural being.

	credibility/validity of their stories	
Criminality/Assumption of Criminal Status A person of color is presumed to be dangerous, criminal or deviant based on his/her race	• A White man or woman clutches his/her purse or checks wallet as a Black or Latino person approaches • A store owner following a customer of color around the store • Someone crosses to the other side of the street to avoid a person of color • While walking through the hall of the Chemistry building, a professor approaches a post-doctoral scholar of color to ask if she/he is lost, making the assumption that the person is trying to break into the one of the labs	You are a criminal. You are going to steal/you are poor; you do not belong. You are dangerous.
Denial of Individual Racism/Sexism/Heterosexism A statement made when bias is denied.	• *"I'm not racist. I have several Black friends."* • *"As a woman, I know what you go through as a racial minority."* • To a person of color: *"Are you sure you were being followed in the store? I can't believe it."*	I could never be racist because I have friends of color. Your racial oppression is no different than my gender oppression, I can't be racist. I'm like you. Denying the personal experience of individuals who experience bias.
Myth of Meritocracy Statements which assert that race or gender does not play a role in life successes, for example in issues like faculty demographics	• *"I believe the most qualified person should get the job."* • *"Of course he'll get tenure, even though he hasn't published much—he's Black!"* • *"Men and women have equal opportunities for achievement."* • *"Gender plays no part in who we hire."* • *"America is the land of opportunity."* • *"Everyone can succeed in this society, if they work hard enough."* • *"Affirmative action is racist."*	People of color are given extra unfair benefits because of their race. The playing field is even so if women cannot make it, the problem is with them. People of color are lazy and/or incompetent and need to work harder.

Pathologizing Cultural Values/Communication Styles The notion that the values and communication styles of the dominant/White culture are ideal/"normal"	• To an Asian, Latino or Native American*: "Why are you so quiet? We want to know what you think. Be more verbal." "Speak up more."* • Asking a Black person: *"Why do you have to be so loud/animated? Just calm down."* • *"Why are you always so angry?"* anytime race is brought up in classroom discussion. • Dismissing an individual who brings up race/culture in work/school setting.	Assimilate to dominant culture. Leave your cultural baggage outside. There is no room for difference.
Second-Class Citizen Occurs when a target group member receives differential treatment from the power group; for example, being given preferential treatment as a consumer over a person of color	• Faculty of color mistaken for a service worker. • Not wanting to sit by someone because of his/her color. • Female doctor mistaken for a nurse. • Being ignored at a store counter as attention is given to a White customer. • Saying *"You people…"* • An advisor assigns a Black post-doctoral scholar to escort a visiting scientist of the same race even though there are other non-Black scientists in this person's specific area of research. • An advisor sends an email to another work colleague describing another individual as a "good Black scientist." • Raising your voice or speaking slowly when addressing a blind student. • In class, an instructor tends to call on male students more frequently than female ones.	People of color are servants to Whites. They couldn't possibly occupy high status positions. Women occupy nurturing positions. Whites are more valued customers than people of color. You don't belong. You are a lesser being. A person with a disability is defined as lesser in all aspects of physical and mental functioning. The contributions of female students are less worthy than the contributions of male students.
Sexist/Heterosexist Language Terms that exclude or degrade women and LGBT persons	• Use of the pronoun "he" to refer to all people.	Male experience is universal.

	• Being constantly reminded by a coworker that *"we are only women."* • Being forced to choose Male or Female when completing basic forms. • Two options for relationship status: married or single. • A heterosexual man who often hangs out with his female friends more than his male friends is labeled as gay.	Female experience is invisible. LGBT categories are not recognized. LGBT partnerships are invisible. Men who do not fit male stereotypes are inferior.
Traditional Gender Role Prejudicing and Stereotyping Occurs when expectations of traditional roles or stereotypes are conveyed	• When a female student asks a male professor for extra help on an engineering assignment, he asks *"What do you need to work on this for anyway?"* • *"You're a girl, you don't have to be good in math."* • A person asks a woman her age and, upon hearing she is 31, looks quickly at her ring finger. • An advisor asks a female student if she is planning on having children while in postdoctoral training. • Shows surprise when a feminine woman turns out to be a lesbian. • Labeling an assertive female committee chair/dean as a "b___," while describing a male counterpart as a "forceful leader."	Women are less capable in math and science. Women should be married during child-bearing ages because that is their primary purpose. Women are out of line when they are aggressive.

Adapted from Sue, Derald Wing, Microaggressions in Everyday Life: Race, Gender and Sexual Orientation, Wiley & Sons, 2010.

Resistance Scenarios

Statement 1: "Everyone has an equal chance to succeed in my lab, because I treat everyone the same. Isn't that enough?"

ASSUMPTIONS	STRATEGIES

Statement 2: "If I try to reach out to everyone and be understanding, it will give them an unrealistic impression of the real work of academia. They need to be tough to make it, so I am doing a disservice to coddle them?"

ASSUMPTIONS	STRATEGIES

Case Study: Is It Ok to Ask?

Last summer I worked with a fantastic undergraduate mentee. She was very intelligent and generated a fair amount of data directly relevant to my thesis project. I think that she had a positive summer research experience, but there are a few questions that still liner in my mind. This particular mentee was an African American woman from a small town. I always wondered how she felt on a big urban campus. I also wondered how she felt about being the only African American woman in our lab. In fact, she was the only African American woman in our entire department that summer. I wanted to ask her how she felt, but I worried that it might be insensitive tor politically incorrect to do so. I never asked. I still wonder how she felt and how those feelings may have affected her experience.

Guiding Questions for Discussion:

1. What are the main themes raised in this case study?

2. What might the mentor's intent have been in asking the question, and what might the impact be on the mentee?

3. How might you react to this case differently if the mentee was the only openly gay student in the department? How do you engage such conversations based on interest without feeling or expressing a sense of judgment about differences? How do you ask without raising issues of tokenism?

4. As a mentor, how do you decide when asking questions about racial or other identities is appropriate?

Power Dynamics

-- What is meant by “Power Dynamics”?

-- What ethical issues can arise due to the power dynamic between the mentor and mentee?

-- How can a mentor’s reaction to unexpected news motivate or influence a mentee to make a good or bad ethical choices? What is the issue or point of conflict?

-- What strategies can be used by mentor and mentee to negotiate those issues when they arise (or avoid them all together)?

Power Relationships Among Social Identity Groups

Social Identity	Dominant (Agent) Groups	Subordinate (Target) Groups
Race	White	People of Color, Multi-racial, etc.
Sex/Gender	Male	Female, Transgender, Intersex
Socio-Economic Class	Upper, Middle, Wealthy	Working, Lower, Poor
Sexual Orientation	Heterosexual	Lesbian, Gay, Bisexual, Asexual
Age	30's to Early 50's	Below 30's, Older than 50's
Ability/Disability	Able-bodied	Physical, Mental, Emotional, Learning Disability
Education	Graduate, College	High School or Less
Religion/Spirituality	Christian (Protestant/Catholic)	Pagan, Muslim, Jewish, Buddhist, Sikh, Atheist, Shinto, Yoruban, Agnostic, etc.
Nationality	U.S. Born	Born elsewhere, Foreign
Ethnicity	Western European	Mexican, Nigerian, Russian, Chinse, Navajo, Iranian, Cambodian, etc.
Language Use	"Proper"/King's English	Accents, English as a 2nd language, etc.
Size/Appearance	Attractive, Cute, etc.	Fat, Too Tall/Short, Unattractive, Ethnic Hair/Dress
Occupation	Top/Mid Management, Professional	Service worker, Student, etc.
Marital/Parental Status	Married, Heterosexual, Kids	Single Parent, Divorced, Single, "Unwed Mother," Lesbian Mother, etc.
Other	(Dominant/Agent)	(Subordinate/Target)
TOTALS		

Adapted from Gisella Zuniga, 2001 and SJTI 2001 Manual; Mark Brimhall-Vargas, OHRP, University of Maryland.

Case Study: A Drive in the Country

A female undergraduate student and her male mentor were planning to attend the national meeting of the Society for Advancement of Chicanos and Native Americans in Science (SACNAS) in a city an 8-hour drive from their university. A few weeks before the meeting, the mentor went into the lab and suggested to the student that they drive to the meeting together. He said they could stay over in a hotel to break up the driving into two days, and it would still cost less than flying. He commented on how it was a very scenic drive, they might be able to collect some research samples along the way, and it would give them unbroken time to talk about research and her plans for graduate school. As the student hesitated, she saw all of her lab mates stealing curious glances at her while the mentor waited for an answer.

Guiding Questions for Discussion:

1. What is the power dynamic in the mentoring relationship and what factors create it?
2. How might power issues have affected the undergraduate student's choices? For example, if another undergraduate student had offered to travel together, would her response have differed? Why?
3. Even assuming that the mentor and student have a strong, trusting relationship, why might the student be uncomfortable in this situation?
4. How might the mentor have handled the situation differently?
5. Is it acceptable for mentors to travel with mentees of the opposite sex (or of the same sex in the case of a mentor who is known by the community to be gay or lesbian)? To professional meetings? For fieldwork? If not, does this, on average, disadvantage women students? Why?

Enhance Benefits and Minimize Challenges By:

- Becoming aware of unconscious biases that may undermine your conscious commitment to egalitarian principles
- Consciously strive to minimize the influence of unintentional bias
- Seek out opportunities for greater interaction with diverse colleagues
- Focus on the individual
- Treat ALL individuals with respect, consideration and politeness
- Promote inclusive communities
- Avoid activating stereotype threat

Promoting Professional Development

Introduction

A goal of most mentoring situations is to enable the mentee to identify and achieve both academic and professional outcomes. Though learning to do disciplinary research and knowledge is an important academic outcome in mentoring relationships, there are many outcomes that will influence a mentee's future career. Mentors should consciously consider and support their mentees to achieve these other outcomes as well.

Learning Objectives

1. Identify the roles mentors play in the overall professional development of their mentees.
2. Develop a strategy for guiding professional development using a written document.
3. Initiate and sustain periodic conversations with mentees on professional goals and career development objectives and strategies.
4. Engage in open dialogue on balancing the competing demands, needs, and interests of mentors and mentees (e.g., research productivity, coursework, creativity, independence, career preference decisions, nonresearch activities, teaching, personal development, and work-family balance).

Case Study: To Be or Not to Be a PhD

You are currently mentoring two undergraduate researchers. Both are very talented and hardworking; however, one has made it clear that his career goals do not include going to graduate school. He is interested in going to medical school. The other scholar has her heart set on pursuing her PhD and eventually becoming a professor. Lately, you find yourself spending more time giving professional development advice to the student who intends to go to graduate school. You rationalize this by saying that you are more familiar with this career path and thus have more to offer. Secretly you worry that you are writing off the other student, believing that he is not worth your time and advice if he is going to medical school.

Guiding questions for discussion:

1. What are the main themes raised in this case study?
2. What should the mentor do now? What value judgments are being made by the mentor?
3. How do you advise on career paths with which you do not have personal experience? How can you discuss potential career paths with your mentee in an unbiased manner?

Creating and Individual Development Plan

An individual development plan supports the setting of goals and identifying strategies that will help to reach those goals. It is a written/visual self-tracking tool that can also be used to facilitate mentor-mentee communication and alignment of expectations.

Below are five suggested questions to guide the development of a plan. This is intended to be a living document that can be used to celebrate achievements, incorporate revisions, and ensure progress toward goals.

1. What are your goals?
    - Ultimate goal
    - Long-term (5-10 years)
    - Intermediate-term (2-5 years)
    - Short-term (1-2 years)
    - Immediate (6 months-1 year)
2. What competencies and skills will you need to successfully reach your goals?
    - Disciplinary knowledge
    - Research and technical skills
    - Professional and interpersonal skills
    - Management and leadership skills
3. What activities and experiences will you engage in to gain the competencies and skills?
    - Taking classes
    - Technique training
    - Research experiences
    - Teaching training
    - Professional society attendance
    - Professional development workshops
4. How will you assess your progress in mastering these competencies and skills?
    - Mastery of skill sets
    - Feedback
    - Successful outcomes
    - Peer review
5. Who will help you reach your goals and how?
    - Mentors
    - Department/College/School leadership
    - Peers
    - Family members

Goals	Competencies & Skills	Activities & Experiences	Assessment of Progress	Support People and Their Roles
Long-term 1.				
Intermediate-term 1. 2 3.				
Short-term 1. 2. 3.				
Immediate 1. 2. 3.				

Enhancing Work/Life Integration

Introduction

Addressing the complementary roles of work and family life as part of a more comprehensive view of a mentee's career development is often a feature of successful mentoring relationships. Work/life integration is a concern for both men and women. In its Statement of Principles of Family Responsibilities and Academic Work, the Association of University Professors stated: "Transforming the academic workplace into on that supports family life requires substantial changes in policy and, more significantly, changes in academic culture."[5]

Considerable planning and foresight are required to manage the inevitable conflicts that exist for early career academics as they attempt to initiate at the same time that many choose to begin a family. Even for those without children, managing work and other personal demands and responsibilities can be daunting. Mentors can play an important role in guiding and supporting their mentees through the early stages of a career and family life, but are often unsure of an effective method by which to address these issues with their mentees, or even if it is appropriate to do so.

This session will introduce mentors to a well-established program of materials, *Total Leadership* (www.totalleadership.org), designed to guide participants through a series of reflective exercises assessing the goals participants have for themselves in four domains of their life: 1) work; 2) family; 3) community; and 4) self. The exercises culminate with mentors conducting small-scale "experiment" designed to make a small but meaningful change in their behavior that will achieve better integration of their goals across these four domains. Improved work/life integration skills on the part of mentors serve not only as an effective way to model desired behaviors for mentees, but also provide practical experience from which mentors may feel more comfortable addressing issues related to the work/life integration with their mentees.

Learning Objectives

1. Recognize the importance of all four domains of a mentee's life to their overall career satisfaction.
2. Utilize a structured process designed to initiate and support conversations between mentors and mentees on the challenges of achieving better work/life integration.
3. Identify for themselves and their mentees targeted areas for achieving better work/life integration.

Curricular materials developed by Dennis Durbin, MD and Emma Meagher, MD (2015); the Children's Hospital of Philadelphia Research Institute and the University of Pennsylvania Perelman School of Medicine.

[5] American Association of University Professors, Statement of Principles on Family Responsibilities and Academic Work. Draft endorsed June 2001. Available at www.aaup.org/statements/REPORTS/re01fam.htn#7

Case Study: Looking for Harmony

Dr. Feinstein is a 32-year-old Assistant Professor on the tenure track who joined the faculty one year ago at the time she received a NIH Career Development Award. Dr. Feinstein is expecting her first child this year and would like to request a three-month maternity leave, and consider returning to work in a part-time capacity. However, Dr. Feinstein has not raised this issue with her mentor, a 60-year old Professor, whom she senses is already growing frustrated that she does not put in the number of hours that his generation did. Dr. Feinstein has heard that a newly hired assistant professor is real "go-getter" working 70-80 hours a week, and she fears this new mentee will make her look as if she is less serious about her research career.

Guiding Questions for Discussion:

1. What are the main themes raised in this case study?
2. How can the concept of workforce flexibility be translated for faculty in clinical and behavioral research?
3. As a mentor how do you address generational differences (with respect to work ethic, work-life integration, or other areas) that arise with your younger mentees?
4. How do differences in mentor/mentee gender affect these discussions?

The Four-way view

Assess importance, focus, satisfaction and performance in each domain

	Importance	Focus	Satisfaction 1=not at all … 10=fully	Performance 1=poor … 10=excellent
Work/Career	%	%	1 2 3 4 5 6 7 8 9 10	1 2 3 4 5 6 7 8 9 10
Home/Family	%	%	1 2 3 4 5 6 7 8 9 10	1 2 3 4 5 6 7 8 9 10
Community/Society	%	%	1 2 3 4 5 6 7 8 9 10	1 2 3 4 5 6 7 8 9 10
Self: Mind, Body, Spirit	%	%	1 2 3 4 5 6 7 8 9 10	1 2 3 4 5 6 7 8 9 10
Overall	100%	100%	1 2 3 4 5 6 7 8 9 10	1 2 3 4 5 6 7 8 9 10

 www.totalleadership.org

Discussion Questions:

1. What is the biggest or most compelling disconnect between the importance of a domain and the percentage of your time you spend in it?
2. Are there obvious places where you might work harder to bring a domain of life into more consistency with your core values?
3. Are there some core values that not getting expressed well in all domains of your life? Are there some domains of life where you are able to express many of your core values?

Articulating Your Mentoring Philosophy

Reflecting upon your mentoring relationships is a vital part of becoming a more effective mentor. This is especially important immediately following a mentor-training session so that you can consider how to implement changes in your mentoring practice based on the training. Reflection on your mentoring practice at regular intervals is strongly encouraged.

Mentoring - Overview

The key elements of mentoring are listed below.

- **Aligning expectations.** A critical element of the relationship is two-way communication to minimize misunderstandings about expectations. Because expectations can change as students advance, these conversations should occur frequently—at least several times per semester. Mentors need to design and communicate clear goals and consider how personal and professional differences may affect expectations. Expectations about the nature of the mentor-mentee relationship must also be clearly communicated. Alignment of mentor and mentee expectations will create a productive and functional relationship.

- **Assessing the mentee's understanding.** The mentor should develop strategies to assess the mentee's understanding of the core concepts and skills involved in the research or project, identify any gaps in understanding, and determine appropriate steps to fill those gaps.

- **Addressing issues of equity and inclusion.** There are many dimensions of diversity that come to play in the mentor-mentee relationship which offer both challenges and opportunities. It is important to recognize the impact of conscious and unconscious assumptions, preconceptions, biases, and prejudices that can adversely affect the relationship. Vibrant intellectual environments require the active engagement of diverse perspectives.

- **Fostering independence.** The goal of mentoring is to help the mentee to become a fully independent researcher and scholar. Working together, the mentor and mentee will define what are the core elements of this movement toward independence. The growing independence of the student will change his or her relationship with the mentor, a transformation that both parties should welcome. The mentor must help to build the student's confidence, trust, and sense of independence through the creation of an environment that fosters the achievement of specific goals.

- **Promoting Professional Development.** The mentor works with the student to identify and strive for academic and professional outcomes. The mentor should help the student develop a written strategy for professional development with concrete milestones. The mentor must engage in an open dialogue with the student about balancing competing demands, needs, and interests of both mentor and student (e.g., teaching, research productivity, grant funding, creativity and independence, career preference decisions, non-research activities, personal development, work-family balance, etc.).

- **Cultivating Ethical Behavior.** The mentor teaches ethical behavior by modeling it in the conduct of research, the drafting of presentations and publications, the fair assignment of authorship, and the treatment and evaluation of students. The mentor models ethical behavior by staying sensitive to the power imbalance in the advisor-student relationship. Students rightly see their advisors as crucial gatekeepers; it is essential not to abuse that position of power and influence.

- **Maintaining effective communication.** Achieving all of the above requires identifying and employing multiple and mindful strategies to improve communication effectively across

diverse dimensions. Mentors must learn how to communicate with students across a range of differences, including background, experience, discipline, ethnicity, gender, age, and positions of power. Key skill sets include active listening and the ability to provide constructive feedback.

- **Creating Healthy Spaces.** Effective mentoring includes providing holistic support for students. Mentors need to be sensitive to the possibility that students could be facing serious non-academic issues, including physical or mental health challenges; financial stress; family tensions; caregiving responsibilities; or personal distress, such as grief over the death of a loved one or sadness from being away from home or apart from a partner. Mentors may or may not feel comfortable discussing these issues with their students and should be sensitive to the fact that students may not want to discuss specifics with their mentors. They should, however, create an atmosphere that encourages students to share information about mitigating circumstances and reassures them that such challenges will be taken seriously and accommodated. Further, mentors should be aware of counseling, legal, and other resources available on campus and encourage students to make use of these, as appropriate. While mentors should be open to learning about challenges faced by their students, they should not overstep professional boundaries by asking overly personal questions or making inappropriate personal requests.

- **Providing Feedback.** Students require clear, prompt, and regular feedback regarding their skills, progress, and potential. Providing students with constructive feedback is a crucial part of the mentor's job and contributes significantly to the student's to academic and professional development.

Becoming an effective mentor takes time and practice. Reflecting on your own mentor-mentee experiences will enable you to develop and articulate your approach to mentoring. An effective mentoring relationship enhances the experience of both mentor and the graduate student resulting in greater productivity, success, and enjoyment.

Resources for Mentoring (partial list)

For Mentors

- Individual Development Plan
- National Research Mentoring Network

Publications

- Entering Mentoring, Christine Pfund , Janet L. Branchaw , Jo Handelsman
- Effective Mentoring in STEM: Practice, Research, and Future Directions
- Making the Right Moves: A Practical Guide to Scientific Management for Postdocs and New Faculty

For Students

Publications

- "Mentoring Up: Learning to Manage Your Mentoring Relationships"
- "Making the Most of Mentors: A Guide for Mentees" Judy T. Zerzan, Rachel Hess, Ellen Schur, Russell S. Phillips, Nancy Rigotti
- "Introduction to Mentoring: A Guide for Mentors and Mentees" (APA)