Multidisciplinary Research
Mentor Training Seminar

Multidisciplinary Research Mentor Training Seminar

Course Objective: Seminar participants will work with a community of peers to develop and improve their mentoring skills. By the end of the class, participants should be able to clearly articulate a personal mentoring philosophy to anyone inside or outside their discipline, and have multiple strategies for dealing with mentoring challenges.

Content

The content of each session in this curriculum is designed to address the key concerns and challenges identified by research mentors. The topics include:

- Establishing Expectations
- Maintaining Effective Communication
- Assessing Understanding
- Fostering Independence
- Addressing Diversity
- Dealing with Ethics

Many people have a much easier time talking about topics such as expectations or communication style than they do talking about issues of diversity and power hierarchies. People who use this guide are encouraged to explore issues of diversity and power dynamics in *all* activities because these issues can often be a subtext for miscommunication, misunderstanding, and conflict in mentoring relationships.

The *multidisciplinary* curriculum is not discipline specific and is designed to be used with researchers from a variety of disciplines. Much of the content of this seminar is adapted from *Entering Mentoring: A Seminar to Train a New Generation of Scientists*, created by Jo Handelsman, Christine Pfund, Sarah Miller Lauffer, and Christine Pribbenow, with support from the Howard Hughes Medical Institute Professors Program (PI: Jo Handelsman). A PDF version of the book is available at: *www.hhmi.org/grants/pdf/labmanagement/entering_mentoring.pdf*. The original, biology-focused *Entering Mentoring Seminar* materials were adapted for use across science, technology, engineering and math through the Delta Program in Research, Teaching, and Learning with funding from the National Science Foundation (Grant # 0717731; PI: Christine Pfund). This adaptation process involved a full collaborative effort between faculty and staff from Astronomy, Biology, Chemistry, Engineering, Math, Physics, and Psychology. The process was supported by existing NSF funded projects at the University of Wisconsin-Madison including the Midwest Alliance, Wisconsin Alliance for Minority Participation (WiscAMP), Interdisciplinary Graduate Education in Research Training (IGERT), Center for the Integration of Research Teaching and Learning (CIRTL), Nanoscale Science and Engineering Center (NSEC) and Undergraduate Research and Mentoring (URM).

Format

Experiential learning and facilitated discussion form the structural foundation of this research mentor training seminar. The content and process are based on the experiences of faculty and staff who have implemented the mentor training seminar at the University of Wisconsin-Madison. These seminar facilitators have learned that the best results come from keeping an open discussion format to allow participants to integrate their diverse experiences into the course materials and activities. In order to accommodate the unique idiosyncrasies of each mentor-mentee relationship, this seminar focuses on core principles that apply broadly across disciplines. Simply asking the mentors a few guiding questions typically leads to vigorous discussion. The case studies and reading materials can provide a tangible starting point, and the mentors will often move quickly from the hypothetical examples to their own experiences with undergraduate researchers. The seminar is most effective with mentors who are working

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with undergraduate research mentees full-time, for example, in an undergraduate summer research program. The short duration of such a program intensifies the urgency of dealing successfully with challenges that arise. Likewise, the frequent contact with the undergraduate researchers provides mentors with the opportunity to implement immediately the ideas generated by the discussions.

Implementation: Facilitating the Seminar

Facilitating the Research Mentor Training Seminar is not the same as teaching it. Your role as facilitator is to enable the seminar participants to take ownership of their own learning by helping them to engage in self-reflection and shared discovery and learning. Your role in the group is to get others to work through their thoughts and ideas---it is not your role to be the expert on mentoring. As a facilitator, you may also walk a fine line between facilitator and participant, but remember that the group members will look to you for guidance and structure. Your own experiences and ideas should enhance the discussion but should not dominate and become the focus of the discussion.

Being an effective facilitator is the key to helping the research mentors in the seminar meet the learning objectives and become more successful mentors. To assist you in your own facilitation abilities, we have included a brief facilitator guide in the next section which contains additional information, tips, and tools for facilitation.

Implementation: Using this Guidebook to Facilitate Weekly Sessions

Ideally, it is best to hold the first seminar session with research mentors BEFORE they begin working with their research mentees. You should prepare for each session by copying the readings, descriptions of session themes and learning objectives, case studies, and any worksheets for each mentor in the group. Alternatively, all of the materials can be copied at the start of the seminar and distributed at the first meeting or posted on a course website. The specific themes and objectives for each session are included at the beginning of the seminar materials. You might consider asking participants to review the themes and learning objectives at the beginning of each session. As an alternative, you can review the objectives and themes after a few weeks to check in on their progress.

Detailed notes for group facilitators are also included in each session plan. Time estimates for activities and facilitated discussions for each of the sessions are indicated in parentheses and can be adjusted at your discretion. The facilitator notes provide directive signposts (e.g., ACTIVITY, TELL, ASK, NOTE, DISCUSS), to support the facilitation process. "ACTIVITY" indicates that participants are to engage in some process on their own, in small groups or as a large group. "TELL" means that the information that follows needs to be shared with the whole group. "ASK" means a specific question or questions needs to be put to the group. "NOTE" means that some particular issue or content needs to be emphasized. "DISCUSS" means that a broader discussion, usually supported by guiding questions, needs to occur. Sometimes more discussion questions are provided than can reasonably be addressed in the time allotted for the activity or group discussion. The questions suggested for the case studies in this seminar are based on experiences of those who have facilitated the seminar in the past. A "Reflection and Notes" space is provided for you to make your own notes about how each session went and things you want to remember, change, or do differently the next time you facilitate the session. You can find additional questions for the case studies, as well as additional case studies, at the "Build Your Own Curriculum and Workshops" section of the "Curriculum Options" tab at www.researchmentortrianing.org.

Grading

The seminar emphasizes experiential learning and the integration of knowledge---drawn from reflection, discussion, readings and seminar activities---with practice. The seminar is often graded using a contract "A," which means that attending the seminar, doing the assignments, and participating in the activities will result in an "A" for the class. This approach allows each participant to invest personally in the learning experience and develop a unique and authentic identity as a mentor. In some cases, the seminar has been offered as a practicum in which credit is given for participating in the research mentor training seminar and engaging in the practice of mentoring an undergraduate researcher.

Multidisciplinary Research Mentor Training Seminar
Facilitation Guide

Role of Facilitators

- **Make it safe:** Take time to tell the group members that the seminar is a safe place to be honest about their ideas and feelings. Everyone's ideas are worth hearing.

- **Keep it constructive and positive:** Remind members of your group to keep things positive and constructive. Ask the group how they want to deal with negativity and pointless venting. Remind them that the seminar is about working together to learn, not complaining about the current situation or discounting the ideas of others in the interest of a personal agenda.

- **Make the discussion functional:** At the start of each session, explain the goals of the session to the group. Try to keep the group on task without rushing them. If the conversation begins to move beyond the main topic, bring the discussion back to the main theme of the session.

- **Give members of the group functional roles and responsibilities:** Assign or ask for volunteers to take notes, keep track of time, and report out in the larger group at the end of the session. Functional roles help keep participants engaged.

- **Give all participants a voice:** In a group, there are likely to be issues of intimidation and power dynamics that can play out in ways that allow certain members of the group to dominate and others to remain silent. At the start of the conversation, mention that the group is mixed by design, and point out that a diversity of perspectives is an essential part of the process. Remind group members to respect all levels of experience. It's important that everyone's voice is heard!

Group Dynamics:
Suggestions for How to Handle Challenges

What do I do when no one talks?
- ➢ Have everyone write an idea, thought, or answer to a question on a piece of paper and toss it in the middle of the table. Each participant then draws a piece of paper from the center of the table (excluding their own) and reads it out loud. All ideas are read out loud before any open discussion begins.
- ➢ Have participants discuss a topic in pairs for 3-5 minutes before opening the discussion to the larger group.

What do I do when one person is dominating the conversation?
- ➢ Use a "talking stone" to guide the discussion. Participants may only talk when holding the stone. Each person in the group is given a chance to speak before anyone else can have a second turn with the stone. Participants may pass if they choose not to talk. Importantly, each person holding the stone should share his or her *own* ideas and resist responding to another person's ideas. Generally once everyone has a chance to speak, the group can move into open discussion without the stone.
- ➢ Use the "Constructive/ Destructive Group Behaviors Exercise. Each participant chooses their most constructive and destructive group behavior from a list (see following page). Each person writes the two behaviors on the back of their table tent. Each participant then shares their choice with the larger group and explains why she chose those behaviors.

What do I do when the group members direct all their questions and comments to me, instead of their fellow group members?
- ➢ Each time a group member talks to you, move your eye contact to someone else in the group to help the speaker direct his or her attention elsewhere.
- ➢ Ask the participants for help in resolving one of *your* mentoring challenges. For example, ask them for advice on how to deal with an apathetic undergraduate researcher. This helps the group members stop looking to you for the *right* answers and redirects the problem-solving and discussion to the entire group.

What do I do when a certain person never talks?
- ➢ Have a different participant initiate each day's discussion so that different people have the chance to speak first during the week.
- ➢ Assign participants in the group different roles in a scenario or case study and ask them to consider the case from a certain perspective. Ask the participants to discuss the case in the larger group from the various perspectives. For example, some participants could consider the perspective of the mentee while others consider the perspective of the mentor.
- ➢ Try some smaller group discussions (2-3 participants per group) as the person may feel more comfortable talking in the smaller group.

What do I do when the group gets off topic?
- ➢ Have everyone write for 3 minutes about the ideas they want to share on a given topic. This short writing time will help participants collect their ideas and decide what thoughts they would most like to share with the group so they can focus on that point.
- ➢ Ask someone to take notes and recap the discussion at the half-way and end-point of the session to keep the conversation focused.

Constructive and Destructive Group Behaviors*

Constructive Group Behaviors

Cooperating: Is interested in the views and perspectives of the other group members and is 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 a relief after a particularly difficult discussion.

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

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

Destructive Group Behaviors

Dominating: Takes much of meeting time expressing self views and opinions. Tries to take control by use of power, time, etc.

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

Multidisciplinary Research Mentor Training Seminar Syllabus

Sessions	Topics	Assignments <u>Due</u>	Readings
Week 1	**Getting Started and Project Design**		
Week 2	**Establishing Expectations & Maintaining Effective Communication**	1. Draft mentoring strategy or philosophy 2. Description of mentee's research project	National Academy of Sciences, (1997). "What is a Mentor?"
Week 3	**Assessing Understanding & Fostering Independence**	1. A short biography of mentee 2. Summary of the discussion about expectations or a draft mentoring contract	
Week 4	**Mentoring Challenges and Solutions**	Bring in copies of your own case study to share with the class (or be prepared to present one verbally)	Handelsman, Pfund, Miller Lauffer, & Pribbenow, (2005). "Mentoring Learned, Not Taught."
Week 5	**Addressing Diversity**	Reflection on differences and how they affect the research experience	Fine & Handelsman, (2005). "Benefits and Challenges of Diversity." Crutcher, B.N., (2007). "Mentoring across cultures."
Week 6	**Dealing with Ethics**	Look over the general ethics guidelines for your discipline Be prepared to talk about how they apply to you and your work. Bring a copy of them to class.	Lee, Dennis, & Campbell, (2007). "*Nature's* Guide for Mentors.*"*
Week 7	**The Elements of Effective Mentoring**	Summary of your mentor's response to a mentoring challenges	
Week 8	**Developing a Mentoring Philosophy**	Revised mentoring philosophy	

Multidisciplinary Research Mentor Training Seminar
Session 2
Establishing Expectations and Effective Communication

Core themes and Objectives

Expectations

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 about expectations are needed on a regular basis.

Learning Objectives for Expectations:

Mentors will have the knowledge and skill to:

- Establish expectations and clearly communicate them to the mentee
- Design and communicate clear goals for the mentoring relationship
- Listen to and consider the expectations of their mentee in the mentoring relationship
- Assess the mentee's knowledge and skill level and adjust the project design accordingly
- Consider how differences may affect the relationship

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Communication

Good communication is a key element of any relationship and a mentoring relationship is no exception. As 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 the specific characteristics of effective communication and take time to practice communication skills.

Learning Objectives for Communication:

Mentors will have the knowledge and skill to:

- Foster open communication with the mentee
- Address how difference in communication styles, background, position of power, etc. can alter the intent and the perception of what is said and heard
- Use multiple strategies for improving communication.

Activities

Introductions

Review seminar logistics

Share research project descriptions

Case Study: Expectations

Communication and establishing expectations check-in

Participant Materials

Table tents and markers (or table tents from previous week)

Copies of description and learning objectives for Expectations and Communication

Copies of *Expectations* case studies: *The Sulky Undergraduate* and *Crossing the Boundary*

Assignments for Next Session

Interview your mentee and write a paragraph describing him or her.

Discuss expectations with your mentee (or another young researcher in your group or department) and write a paragraph about the discussion. (Alternatively, draft a contract to use with your mentee. For an example, see http://www.aamc.org/research/gradcompact/.)

FACILITATOR NOTES

❖ Introductions (10 min)
  ➢ ASK: Please remind everyone who you are and share one word or phrase that describes the typical undergraduate research mentoring experience in your discipline.

❖ Review of the Seminar and Logistics (5 min)
  ➢ TELL: Briefly review the basic logistics and process for the seminar.
    ▪ Expectations for attendance and participation in weekly meetings
    ▪ How readings and assignments will be distributed and collected for the course
    ▪ Confidentiality is important to the seminar and everything discussed in seminar or on the course website will remain confidential.
    ▪ How to enroll in seminar if participants are taking the seminar for credit
    ▪ The seminar is designed for mentors actively working with a mentee. If that's not the case, participants can use their past experience in the discussions and adapt the assignments to plan for future mentoring relationships.

❖ Sharing research project descriptions in pairs and large group (10 min)
  ➢ ACTIVITY (5 min): Have participants pair up and read one another's project descriptions (or verbally share the projects if they did not do the assignment).
    ▪ TELL: Direct the pairs to discuss what the descriptions tell the reader about what research is like in their disciplines.
  ➢ DISCUSS (5 min): Have each pair share what they learned in their conversation with the larger group.

❖ *Expectations* Case Studies: *The Sulky Undergraduate* and *Crossing the Boundary* (15 min)
  ➢ ACTIVITY (2-3 min): Choose one of the *Expectations* case studies and distribute it. Let participants read the case individually.
  ➢ DISCUSS (12-15 min): In the large group discuss reactions to the case study. Some possible guiding questions:
    ▪ How do you establish and communicate your expectations to your mentee?
    ▪ How do you find out what expectations your mentee has of you and of his or her research experience?
    ▪ How do you design goals and projects for a mentee?
    ▪ When choosing a project for your mentee, how do you weigh the mentee's interest with the immediate needs of the research PI or group?
    ▪ As an advisor or mentor, what should you do if a mentee does not like the project?
    ▪ How do you assess your mentee's skills so you can choose an appropriate project?
    ▪ How can you make sure your expectations take into account a mentee's individual learning style, background, and abilities?

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- ❖ Awareness of communication and understanding (5 min)
  - ➢ DISCUSS: Explore mentors' attention to and awareness of their communication with their mentees. Some possible questions to use:
    - How would you characterize the communication between you and your mentee regarding the research project?
    - What would your mentee's paragraph say if he or she wrote a description of the research project? Would it align with yours?
    - How would you discuss the differences in order to achieve better alignment?

- ❖ Assignment for next week (5 min)
  - ➢ Interview your mentee (or another young researcher in your research group or department) and write a paragraph that describes your mentee.
  - ➢ Discuss expectations with you mentee (or another young researcher in your group or department) and write a paragraph about the discussion. Alternatively, draft a contract to use with your mentee. For an example, see http://www.aamc.org/research/gradcompact/

Reflection and Notes

Case Study (Expectations): The Sulky Undergraduate

I mentored an undergraduate student who came from another university for the summer. I explained the project to him and taught him some basics techniques and approaches needed for the project. Because my professor and I did not think he had sufficient background for a more complicated project, we chose to have him work on a more basic one.

He was very quiet for the first ten days of the project, and then he went to my advisor and complained about the project. He said he wanted a project "like Mark's." Mark was a student with a strong disciplinary background and his project was much more advanced. My advisor insisted that my mentee keep the project I had designed for him, but the student became sulky. As the summer went on and he didn't get much, if any, of his work done, I began to wonder if he understood what we were doing or even cared about it.

Case Study (Expectations): Crossing the Boundary

My advisor serves as a group leader for a research team that includes graduate students, postdocs, and faculty from multiple departments. She asked me to mentor an undergraduate summer student and selected a project that was primarily housed in our laboratory, but would require a few days working in a collaborating lab in a different department. I had a conference to attend during the summer and figured it would be a good time for this student to work in the other laboratory while I was out of town. I provided instructions for the student and the name of the fellow graduate student I collaborated with in the other laboratory.

Upon my return, I found the student I was mentoring had not accomplished what I had hoped she would. When asked about why she had not done what was expected, she explained that the other graduate student would not allow her to use the instrument needed to complete the work. She said the graduate student told her that in their department an undergraduate student is required to take a course before using that specific instrument and that she could leave the samples for someone else to run when they got around to it. For the rest of the summer, my student was very hesitant to do anything that could not be accomplished in our lab. At the end of the summer, she told me that she enjoyed her experience, but was not interested in working on a multidisciplinary research project in graduate school.