Mentoring Training Workshop
April 11, 2017

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NINDS

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AAAS Fellow

Marguerite Matthews, PhD.
AAAS Fellow
A Mentored Research Experience and Strong Mentorship has been linked to:


- **Persistence** (Gloria *et al.*, 2001; Solorzano 1993; McGee and Keller, 2007; Sambunjak *et al.*, 2010; Williams *et al.*, 2015; Bordes-Edgar *et al.*, 2011; Campbell and Campbell, 1997)

- **Research productivity** (Steiner and Lanphear, 2002; 2007; Wingard *et al.*, 2004)

- **Higher career satisfaction** (Schapira *et al.*, 1992; Beech *et al.*, 2013)

At its best, mentoring can be a life-altering relationship that inspires mutual growth, learning, and development. Its effects can be remarkable, profound and enduring; mentoring relationships have the capacity to transform individuals, groups, organizations and communities.

(Ragins and Kram, 2007)
The Uneven Mentoring Landscape

- White investigators significantly more likely than Black and Hispanic investigators to win R01 awards; minority investigators indicate that **inadequate mentoring posed obstacles to obtaining funding** (Ginther *et al.*, 2011)
- Science faculty **rated male applicant as more competent** than identical female applicant; offered male ~ $4,000 more in salary, more career mentoring than to the female (Moss-Racussin *et al.*, 2012)
- URMss and White women’s **mentorship requests more ignored** than those by White men (Milkman *et al.*, 2014)
- Male biologists **less likely to hire and train** women in their laboratories (Sheltzer & Smith, 2014).
- URMss typically **receive less mentoring** than their non-minority peers (Thomas *et al.*, 2001; Helm *et al.*, 2000; Morzinski *et al.*, 2002).
A National Focus on Mentoring

- National Science Foundation (NSF)
  - Post-doctoral mentoring plans
  - Undergraduate research AND mentoring programs
  - AAAS/ PASEMEN STEM Mentoring 2030 Meeting

- National Academies of Science
  - New Report on Mentored Undergraduate Research Experiences
  - Participatory Workshop on Effective Mentoring in STEMM

- Sloan Foundation
  - University Centers of Mentoring Excellence

- HHMI
  - Mentor and mentee training program for the Gilliam Scholar Programs

- National Institutes of Health (NIH)
  - Mentored K awards
  - Individual development plans (IDPs)
  - National Research Mentoring Network (NRMN)
National Research Mentoring Network (NRMN)

NRMN is a nationwide consortium of biomedical professionals and institutions collaborating to provide all trainees across the biomedical, behavioral, clinical and social sciences with evidence-based mentorship and professional development programming that emphasizes the benefits and challenges of diversity, inclusivity and culture within mentoring relationships, and more broadly the biomedical research workforce.
NRMN Goals

Overarching Goal:
To significantly contribute to national efforts to enhance the size, quality, diversity and productivity of the biomedical research workforce trained to improve human health through mentoring activities

• Increase access to mentoring across all career stages through matching and linking
• Improve mentoring relationships and outcomes through training for research mentors, grantwriting coaches, career coaches & mentees
• Increase access to research resources & career development opportunities through referring
• Increase awareness of the value of career mentoring across the nation through promoting
NRMNet: A Platform for Mentoring and Networking

PROMOTING

TRAINING

MATCHING

LINKING

REFERRING

NRMN Applications

MyNRMN
Browse profiles of mentors and mentees from around the country and build your network by connecting with users that share interests with you. Use your dashboard to chat in real time with others in your network, send messages seeking advice, share documents, build your CV, and set appointments to collaborate with others using your personalized calendar.

Take Me There

Guided Virtual Mentorships
Engage in a one-on-one mentorship involving a weekly discussion over the course of 4 months where you and your partner will receive prompts and suggested discussion topics to guide your interactions each week. Once the 4-month mentorship is over, mentees can select a new mentor and gain the perspectives of multiple mentors over time, or continue to interact with the same mentor by building on the engagement in another 4-month mentorship.

Take Me There

MyTraining
Discover and take part in NRMN programs and events. Use your NRMN calendar to apply to participate in upcoming training programs and workshops, register for online webinars, discussion panels, and more.

Take Me There

NRMN: Mentoring to Diversify the Biomedical Workforce

Diversity Program Consortium
Supported by the National Institutes of Health
### NRMN’s Programs by Career Stage

**Program statuses as of 2017**

<table>
<thead>
<tr>
<th>MATCHING /LINKING</th>
<th>Undergraduate</th>
<th>Graduate</th>
<th>Postdoc</th>
<th>Junior Faculty</th>
<th>Senior Faculty</th>
<th>Non-faculty Researcher</th>
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<td>Guided Virtual Mentorships</td>
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Programs marked with a green circle are available, while those marked with an orange circle indicate programs under development.
Defining Mentoring

A collaborative learning relationship that proceeds through purposeful stages over time and has the primary goal of helping mentees acquire the essential competencies needed for success in their chosen career.

It includes using one’s own experience to guide another through an experience that requires BOTH personal and intellectual growth and development.

Applies to research mentoring, career coaching, peer mentoring, virtual mentoring, and in some cases advising.
Skill Building Across Attributes for Effective Research Mentoring Relationships

<table>
<thead>
<tr>
<th>RESEARCH SKILLS</th>
<th>DIVERSITY/CULTURALLY-FOCUSED SKILLS</th>
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<tbody>
<tr>
<td>• Developing disciplinary research skills</td>
<td>• Advancing equity and inclusion</td>
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<td>• Teaching and Learning disciplinary knowledge</td>
<td>• Being culturally responsive</td>
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<td>• Developing technical skills</td>
<td>• Reducing the impact of bias</td>
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<td>• Accurately assessing mentees’ understanding of disciplinary knowledge and skills</td>
<td>• Reducing the impact of stereotype threat</td>
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<td>• Valuing and practicing ethical behavior and responsible conduct of research</td>
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<tr>
<th>INTERPERSONAL SKILLS</th>
<th>SPONSORSHIP SKILLS</th>
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<tr>
<td>• Listening actively</td>
<td>• Fostering mentees’ independence</td>
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<td>• <strong>Aligning mentor and mentee expectations</strong></td>
<td>• Promoting professional development</td>
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<tr>
<td>• Building trusting relationships/ honesty</td>
<td>• Establishing and fostering mentee professional networks</td>
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<td>• Actively advocating on behalf of mentees</td>
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<th>PSYCHOSOCIAL SKILLS</th>
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<td>• Providing motivation</td>
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<td>• Developing mentee career self-efficacy</td>
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<td>• Developing mentee research self-efficacy</td>
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<td>• Developing science identity</td>
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<td>• Developing a sense of belonging</td>
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Pfund *et al.* 2016
NRMN serves as a national training hub to improve mentoring relationships

**Activities:**

- Face-to-face mentor training workshops
- Face-to-face mentee training workshops
- Self-paced online training
- Synchronous online training
- Train-the-trainer workshops
- NRMN Master Facilitators
Building on over a decade of work...
...a mentor training curriculum was developed and tested...

Key elements of mentor training:

- Process-based using case studies and group problem solving
- Aimed at awareness-raising and reflection
- Provides a confidential and brave forum to share the collective experience of mentors across a range of experiences
- Distribute and adapt resources to improve mentoring
...with standardized competencies...

• Aligning expectations
• Promoting professional development
• Maintaining effective communication
• Addressing equity and inclusion
• Assessing understanding
• Fostering independence
• Cultivating ethical behavior
• And more in development!
...and adapted it for different career stages and disciplines...
....and published evidence regarding its effectiveness


Faculty Mentor Satisfaction with Training (n=128 mentors in intervention group)

Was the 8-hour training a valuable use of your time?

- Yes: 88%
- No: 12%

Would you recommend the sessions to a colleague?

- Very Likely: 45%
- Likely: 45%
- Unlikely: 6%
- Very Unlikely: 4%
Mentor Skills Gains (n=124)

Significant Change in Mentor Self-Reported Effectiveness

Pfund et al. Academic Medicine 2014
Mentor Behavioral Change
N=141; 3 months post training

Intervention
- No change: 3%
- Awareness: 8%
- Intent: 2%
- Implemented: 87%

Control
- No change: 42%
- Awareness: 1%
- Intent: 10%
- Implemented: 47%

Pfund et al.  Academic Medicine 2014
Social Cognitive Career Theory
(Lent, Brown & Hackett, 1994, 2000)

Interventions to Optimize Mentoring Relationships

Person Inputs
- Predispositions
- Gender
- Race/ethnicity
- Disability/Health status

Learning Experiences

Contextual Influences
Proximal to Choice Behavior

Can I do this?

Self-efficacy Expectations

Interests
Goals
Actions

Outcome Expectations

Persistence

What will happen?
Promoting Effective Communication and Alignment of Mentor-Mentee Expectations
Case Study Discussion: 10 mins

- There is a facilitator assigned at each table who will help guide the discussion
- Listen to the case read aloud
- Share your initial reactions to the case
- Discuss how each of the individuals in the case might feel and how you would have handled the situation if you were the PI.
- Consider additional discussion questions as time allows
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, manuscript/thesis sections, figures, etc. hasn’t worked. Communicating the importance of manuscripts to the scientific endeavor hasn’t worked. Encouragement hasn’t worked. Veiled threats don’t seem professional. Other than being patient, what should I do?
Mentoring Compacts: Making All Expectations Transparent
Mentoring Compacts: An Overview

Description:
• A written document used to articulate expectations between mentors and mentees
• Differs from an Individual development Plan (IDP) which focused on short and long-term career plans;
• Focused on expectations for the working relationship on a daily or weekly basis
• Compacts vary in their format and level of detail

Rationale:
• Provides written documentation of expectations which can be revisited and revised over time
• Serves as a shared reference point for regular progress reviews
• Makes invisible expectations, visible
• Levels the playing field among mentees

In summary, compacts provides mentors and mentees an opportunity to reflect upon and articulate their expectations and bring them into alignment
Mentoring Compacts: Example Domains to Consider

What I expect from you
- You will take ownership of your educational experience
- You will develop your personal research skills
- You will contribute to the lab and be a good lab citizen

What you can expect from me
- I will provide the means to pursue the scientific direction of our team.
- I am committed to mentoring you now and in the future.
- I will encourage you to attend scientific meetings and make an effort to fund these activities.
- I will be available for regular meetings and will provide timely review of research.
- I will provide a work environment that is intellectually stimulating, supportive, safe, and free from harassment.

Nuts and Bolts
- Hours and Vacation
- Individual meetings
- Group meetings
- Annual Evaluations
- Authorship
Mentoring Compacts Can Address Expectations Across A Range of Issues (Example Domains)

- Issues of research productivity (designing experiments, writing, lab notebooks, timelines, etc)
- Issues of authorship (policies, timing of decisions, raising questions, etc)
- Issues of time (work hours, vacation, sick leave, etc)
- Issue of communication (frequency of meetings, preparation for and follow-up for meetings, method of communication, annual reviews, etc)
- Issues of respect (being a good team member, contributions to lab climate, acknowledging work of others, use of phones/earphones in the lab, etc)
- Issues of professional development and networking (attending meetings, conferences, department/campus seminars, IDPS, etc)
- Issue of resolving conflict (when to bring up issues and with whom, institutional resources)
Research Mentor Training Website has Example Compact and Links

https://mentoringresources.ictr.wisc.edu

(Accessible thru NRMNet.net)
Cultural Diversity Factors

• Gender, race, and ethnicity relate to how mentees perceive their mentored research experience, what they value in a research mentor, and their self-perceptions (Byars-Winston et al., 2010; Blake-Beard et al., 2011; Carlone & Johnson, 2007; Hurtado et al., 2009; Ishiyama, 2007; Johnson et al., 2011; Laursen et al., 2010)

• Cultural diversity is important in all aspects of human life, including scientific training. Mentored research experiences are the foundation of scientific training, and therefore, warrant further investigation into how cultural diversity is understood, experienced, and responded to by those involved in these experiences (*Byars-Winston, Branchaw, Pfund, Leveritt, and Newton, 2015)
Cultural Context of Mentoring

Ignoring cultural diversity in mentoring relationships can lead to miscommunication, privileging dominant cultural norms, mismatched expectations due to differing value orientations, and conflicts in working styles (Brown et al., 2009)
Case Study Discussion: 10 mins

• There is a facilitator assigned at each table who will help guide the discussion

• Listen to the case read aloud

• Share your initial reactions to the case

• Discuss how each of the individuals in the case might feel and how you would have handled the situation if you were the PI.

• Consider additional discussion questions as time allows
You are a native-born American whose parents were born in Round-endia. You were delighted to begin your graduate research to work with Dr. Blunt, and were unconcerned that Dr. Blunt is a naturalized U.S. citizen born of a prominent family in Blunt-endia, a country with a centuries-old hostility toward Round-endia.

As with all his fellows, Dr. Blunt regularly meets with you to discuss your research. Blunt has given you fair feedback on your work. By the end of the 9th month of your graduate training, you feel your projects are well defined, on track and you are enjoying the research. You have begun to notice that Dr. Blunt spends a great deal of time interacting informally in the lab and socially outside the lab with his several Blunt-endian trainees. When visiting scientists come to the lab for a panel or seminars, Blunt seems more likely to introduce his Blunt-endian fellows to the visitor than his non-Blunt-endian fellows at dinner. Dr. Blunt also spends time in mentoring career discussions with his other fellows, but discusses only the research project with you.

You feel that you are not getting as rich of a professional development experience as the Blunt-endian students with whom Dr. Blunt seems more comfortable. In fact, Dr. Blunt seems even more formal and impersonal in his private dealings with you than with any of his other fellows. You suspect this may reflect the fact that you are the only Round-endian in the group.
Mentor and Mentee Views on Addressing Cultural Diversity in Research Mentoring Relationships

* Results compare Yes responses with those responding No or not indicating an opinion.

There is a mismatch between what URM students are experiencing and what [White] mentors are prepared to address

- URM STEM students want to talk with mentors about:
  - race/ethnicity matters
  - how race/ethnicity influence academic, career development
  - ways to overcome barriers related to race/ethnicity (e.g., Muller et al., 2012).

- Mentors often unaware of “racial realities” of some trainees

- White mentors tend toward colorblind attitudes (Prunuske et al., 2013)
Discussion Questions:

How do you discuss underrepresented student achievement in a culturally sensitive manner: Fellowships and Awards?

How do you demonstrate sensitivity around ‘minority fellowships’ versus ‘general fellowships’?
Drafting an Implementation Plan

(pg 15 in your packet)

• Recruitment strategies
• Stakeholder support
• Training details
  • Which training and for whom?
  • Which format? (e.g., integrated or stand-alone)
  • How many participants?
  • When?
  • Who will facilitate and co-facilitate?
• Resources
• Evaluation
Resources for Your Implementation

*(pg 17 in your packet)*
#1: NRMNNet for Links to Everything

NRMN Applications

MyNRMN
Browse profiles of mentors and mentees from around the country and build your network by connecting with users that share interests with you. Use your dashboard to chat in real time with others in your network, send messages seeking advice, share documents, build your CV, and set appointments to collaborate with others using your personalized calendar.

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Resource #2: Virtual Guided Mentorship and MyNRMN
Resource #3: Toolkit Resource: Phases of the Mentoring Relationship
https://ictr.wisc.edu/mentoring/

MENTORING

Effective mentoring is a key component of the education and training of clinical and translational researchers. ICTR strives to provide a supportive environment to our scholars and trainees, as well as their mentors, that includes research mentoring to foster growth throughout one’s professional career pathway. Our introductory Mentor and Mentee Resources are framed around the four phases of the relationship: Selection, Alignment, Cultivation, and Closure. Please see below to access in depth resources associated with each phase.

ICTR is also a leader in the development of mentoring resources and specialized training curricula across the biomedical, translational, and clinical disciplines. Members of our mentoring team have developed, tested, and disseminated nationally recognized workshops for mentor and mentee training throughout the CTSA consortium. These initiatives are part of a larger coordinated NIH effort to diversify the biomedical research workforce.

NEED HELP?

Welcome to our new home on the UW ICTR web site. Previously bookmarked material can be found here or on the CIMER web site.

More questions? You can contact us at mentoring@med.wisc.edu

NRMN
Mentoring to Diversify the Biomedical Workforce

Our UW-Madison team leads the Mentor Training Core of the National
Resource #4: Complete research mentor training curricula (www.cimerproject.org)
Training Materials: Build-Your-Own Research Mentor Training Curricula

http://cimerproject.org/#/customCurricula
Planning Resource: Scheduling

http://cimerproject.org/#/curricula/planning

Mentor

Scheduling

Our mentor training is designed to be delivered in 8 hours. Former participants have reported that scheduling sessions every other week over approximately two months is ideal, because it allows time for reflection and practice.

Alternatively, you may wish to implement a shorter workshop. In this case, we recommend that you focus on just one or two topics. You can customize your own curriculum using our collection of materials.

Sample Schedule #1 (recommended)

<table>
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<tr>
<th>Session</th>
<th>Length</th>
<th>Topics</th>
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| 1       | 2 hours| Introduction to Mentor Training  
           Maintaining Effective Communication |
| 2       | 2 hours| Aligning Expectations  
           Assessing Understanding |
| 3       | 2 hours| Addressing Equity and Inclusion  
           Fostering Independence |
| 4       | 2 hours| Promoting Professional Development  
           Articulating Your Mentoring Philosophy and Plan |
Evaluation Resource: Mentoring Competency Assessment (MCA)

http://cimerproject.org/#/evaluation/mentor-training
Resource #5: Online self-study for mentors of grads, postdocs, and faculty

http://z.umn.edu/OptimizingMentoring
Resource #6: Recognition Resource: Become an NRMN Certified Facilitator

Requirements:

- Join NRMN and set up MyNRMN profile
- Implement mentor training successfully
- Share evaluation data
- Complete application

Benefits:

- Leverage this credential at your home institution
- Access to online facilitation resources and virtual space to share resources
- Stay connected to NRMN

For more information contact Stephanie House at house2@wisc.edu
Thank you!
Research Mentor Training Funding

- Original *Entering Mentoring* curriculum (HHMI Professors Program, PI: Handelsman)
- Adapted for use across science, technology, engineering, math, and social sciences (NSF #0717731, PI: Pfund) and clinical and translational science (CTSA) award mentors (NIH/NCRR ARRA UL1RR025011, PI: Dresner)
- Workshops and curricula have been developed for faculty mentors (NSF #0717731, PI: Pfund) including training workshops for T32 and R25 trainer
- NIH has funded a study to develop better understanding of specific factors in mentoring relationships that account for positive student outcomes (NIH #1R01GM094573 PI: Byars-Winston, co-I: Pfund) and renewal to focus on cultural aspects of mentoring relationships (NIH #R01GM094573 PIs: Byars-Winston and Pfund)
- The curriculum has been adapted for use in a synchronous, online venue through the NSF-funded Center for the Integration of Research, Teaching and Learning (CIRTL) Network (NSF DUE-0717768, PI: Mathieu)
- CIRTL and APS partnered to adapt the curriculum for physics mentors.
- NIH has funded legacy website (3UL1RR025011-05S1, PI: Drezner), randomized controlled trial (3UL1RR025011-03S1, PI: Drezner) and train-the-trainer workshops (R13GM106445, Co-PIs: Pfund and Sorkness)
- NIH as funded the National Research Mentoring Network (NRMN) (U54 MD0009479; U54 GM119023; PIs Burgess, Ofili, Okeyemi, Pfund, and Vishwanatha)