

Future of Bioscience Graduate and Postdoctoral Training (2)
Workshop 2: How to increase engagement and skills of faculty in mentorship?



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Session Goal

To generate a list of recommendations and concrete action plans for increasing engagement and skills of faculty in mentorship which:

- Builds upon existing research and evidence-based approaches
- Addresses the challenges and benefits of diversity in the biomedical training workforce
- Can be implemented across a range of institutions which may vary in their culture around training and mentoring
- Include plans for assessment of effectiveness and impact
- Is ambitious and yet feasible

Ideas from Abstracts (and Posters)

- Hutto: Maximizing Mentorship: Faculty and Trainee Fall Workshop Series
- Loughlin, Coutin, and Leslie: Training Future Faculty in Mentoring
- Hitchcock: Rackham Graduate School- Mentoring Others Results in Excellence
- Moorhead: Empowering Students Enhances Faculty Mentorship
- Vincent, Fontaine, and Wefes: PACT- Postgraduate Advisors for Career Trainees

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.



Pfund et al, AIDS and Behavior, 2016;
McGee, AIDS and Behavior, 2016

Success in Mentoring Relationships

Mentor Success: Gaining the skills and knowledge to:

- 1) effectively support mentee development
- 2) facilitate the attainment of the transferrable “competencies” necessary to meet individual mentees’ goals.

This requires the ability to come to a clear understanding of each mentee’s unique needs and desires and the flexibility and humility to adjust one’s approach to support a mentee’s success.

Mentee Success: Gaining:

- 1) personal and professional competencies necessary to define his/her career goals
- 2) experience needed for that career
- 3) the ability and opportunity to progress toward that chosen career goal

This requires the ability of each mentee to proactively navigate multiple relationships - identifying, articulating and ensuring that they get what they need in order to progress.

A Mentored Research Experience and Strong Mentorship has been linked to:

- ▶ **Enhanced science identity, sense of belonging and self-efficacy** (Palepu *et al*, 1998; Garman *et al*, 2001; Paglis *et al*, 2006; Lopatto, 2007; Bland *et al*, 2009; Feldman *et al*, 2010; Cho *et al*, 2011; Chemers *et al*, 2011; Thiry and Laursen, 2011; Byars-Winston *et al.*, 2015)
- ▶ **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)
- ▶ **Enhanced recruitment of URMs** (Hathaway *et al*, 2002; Nagda *et al*, 1998).

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)
- URM 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).
- URM typically **receive less mentoring** than their non-minority peers (Thomas *et al.*, 2001; Helm *et al.*, 2000; Morzinski *et al.*, 2002).

Attributes for Effective Research Mentoring Relationships

<p>RESEARCH SKILLS</p> <ul style="list-style-type: none"> • Developing disciplinary research skills • Teaching and Learning disciplinary knowledge • Developing technical skills • Accurately assessing mentees' understanding of disciplinary knowledge and skills • Valuing and practicing ethical behavior and responsible conduct of research 	<p>DIVERSITY/CULTURALLY-FOCUSED SKILLS</p> <ul style="list-style-type: none"> • Advancing equity and inclusion • Being culturally responsive*** • Reducing the impact of bias • Reducing the impact of stereotype threat
<p>INTERPERSONAL SKILLS</p> <ul style="list-style-type: none"> • Listening actively • Aligning mentor and mentee expectations • Building trusting relationships/ honesty 	<p>SPONSORSHIP SKILLS</p> <ul style="list-style-type: none"> • Fostering mentees' independence • Promoting professional development • Establishing and fostering mentee professional networks • Actively advocating on behalf of mentees
<p>PSYCHOSOCIAL SKILLS</p> <ul style="list-style-type: none"> • Providing motivation • Developing mentee career self-efficacy • Developing mentee research self-efficacy • Developing science identity • Developing a sense of belonging 	

Resources

Current Needs to Advance Our Efforts

- Common language, shared resources and aligned metrics
- Coordinated national efforts
- Centralize resources and tools
- Deeper investigation

Resources from Abstracts

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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**



NRMN's Programs by Career Stage

● Program Available

● Program Under Development

Program statuses as of 2017

MATCHING /LINKING

	Undergraduate	Graduate	Postdoc	Junior Faculty	Senior Faculty	Non-faculty Researcher	Administrator
Guided Virtual Mentorships	●	●	●	●	●	●	●
MyNRMN	●	●	●	●	●	●	●
Near Peer Mentoring	●	●	●				
Virtual Collaboratory			●	●	●	●	

TRAINING

Career Coaching		●	●				
Facilitator Training				●	●	●	●
Grant Writing Coaching Groups			●	●	●	●	
Mentor Certifications				●	●		
Research Mentee Training	●	●	●	●			
Research Mentor Training		●	●	●	●	●	●
Shark Tank			●	●	●	●	
Institutional Mentoring Academy Planning							●

REFERRING

Career Development Webinars	●	●	●	●	●	●	●
NRMNet Portal	●	●	●	●	●	●	●

PROMOTING

NRMN Ambassadors	●	●	●	●	●	●	●
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Cultural Aware Mentor (CAM) Training Prepares Mentors to:

1. Identify how their cultural beliefs, worldviews **and** identities influence their mentoring practices
2. Recognize how cultural diversity can impact—complicate and benefit—their research mentoring relationships
3. Acknowledge the impact of conscious and unconscious assumptions, preconceptions, biases, and prejudices on the mentor-mentee relationship
4. Use culturally responsive mentoring principles to guide them in talking about cultural diversity matters with their mentees.
5. Apply evidence-based strategies to reduce and counteract the impact of biases, stereotype threat, and privilege to foster trusting, culturally responsive mentoring relationships.



Examples of CAM Activities

Focus	Example Activities
Cultural Awareness	Culture Box (homework required) Video Racial identity interview
Cultural Strategies & Behavior	Case studies Role play Culturally aware mentoring principles
Cultural Confidence	Signposts (self-reflections throughout session) Small group discussion
Cultural Commitment	Culturally Aware Mentor's Toolkit (resources) Culturally Aware Mentoring Plan (CAMP) Road to Culturally Aware Mentoring (handout)

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 diversity 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



Our UW-Madison team leads the Mentor Training Core of the [National](#)

Online self-study for mentors of grads, postdocs, and faculty

<http://z.umn.edu/OptimizingMentoring>

The screenshot shows the University of Minnesota Clinical and Translational Science Institute website. The header includes the university logo and name, a search bar, and navigation links for 'myU' and 'One Stop'. The main navigation menu includes 'Home', 'About', 'Consultations and services', 'Researcher resources', 'Education and training' (highlighted), 'Community members', and 'News and events'. The left sidebar lists various resources, with 'Mentor training' highlighted. The main content area features the title 'Mentor training' and a breadcrumb trail: 'Home > Education and training > Mentoring'. The primary heading is 'Optimizing the Practice of Mentoring: An Online Curriculum for the Professional Development of Research Mentors'. Below this, a paragraph describes the course as a free, self-paced, online professional development program for junior faculty, post-doctoral fellows, and graduate students. Two buttons are present: 'Register' with the text 'Registration takes 5 minutes and will provide you with immediate access to the course.' and 'Log in' with the text 'Already registered? Log in to reaccess the course at any time.'

UNIVERSITY OF MINNESOTA
Driven to Discover™

myU > One Stop >

Search Websites and People search

HEALTH SCIENCES >

Clinical and Translational Science Institute

Helping researchers be more successful

PORTAL LOGIN >

Home About Consultations and services Researcher resources **Education and training** Community members News and events

Career development programs

Online training courses

Mentoring

- Mentor training**
- Become a mentor
- Mentor of the Year Award

Seminars

Degree programs

Clinical research professionals

Mentor training

Home > Education and training > Mentoring

Optimizing the Practice of Mentoring: An Online Curriculum for the Professional Development of Research Mentors

The Clinical and Translational Science Institute has developed a free, self-paced, online, professional development course designed to prepare faculty from a range of disciplines to be effective research mentors for junior faculty, post-doctoral fellows, and graduate students.

Register > Registration takes 5 minutes and will provide you with immediate access to the course.

Log in > Already registered? Log in to reaccess the course at any time.

Center for the Improvement of Mentored Experiences in Research (CIMER)

Cimerproject.org



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Services

Research Mentor Training
Research Mentee Training
Facilitator Training
Consulting

Curricula

Research Mentee Training
Research Mentor Training
Full Curricula download
&
Build-Your-Own Curricula
download

Evaluation

Tools for Evaluating:
Mentor Training
Mentee Training
Mentored Research
Experiences

Resources

Online Mentor Training Courses
Online Mentee Training Courses
Virtual Mentoring Programs
Materials for Mentors and Mentees
Video Case Studies
Songs as Case Studies

CIMER: Providing resources for organizations and institutions to improve research mentoring relationships

National Academies of Science Report on Undergraduate Research

Prepublication Copy

Uncorrected Proofs



Undergraduate Research Experiences for STEM Students: Successes, Challenges, and Opportunities

Committee on Strengthening Research Experiences for Undergraduate STEM Students

James Gentile, Kerry Brenner, Amy Stephens, *Editors*

Board on Science Education
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Division on Earth and Life Studies

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The National Academies of
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“Undergraduate research would benefit from better comparative data” says Academies panel
Kuo, Science Feb. 24, 2017

“The report calls on NSF and other entities to support more data collection efforts. It also recommends that science faculty involved in undergraduate research programs delve into the literature from the educational sciences on how to evaluate learning experiences and team up with education researchers and social scientists for expertise.”