Workshop Objectives

At the end of this workshop you should be able to:

- **Reflect** on features of STEM training environments that either promote or inhibit inclusion, equity, and belonging among trainees

- **Describe** strategies to create inclusive and equitable training environments in the classroom, laboratory, and institutional contexts

- **Identify** specific approaches to foster inclusive and equitable training environments that you can implement in your own training and/or professional activities.

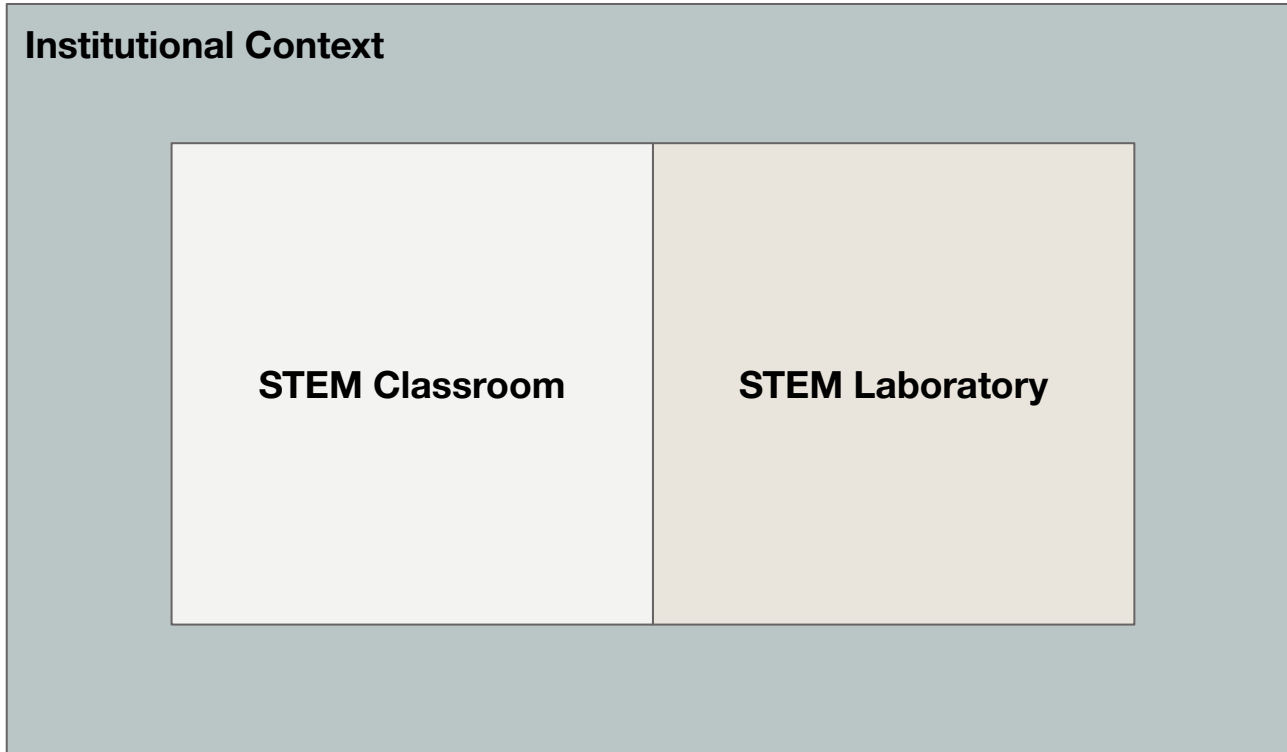# Dimensions of Inclusive Training in STEM

Institutional Context

STEM Classroom

STEM Laboratory

Dimensions of Inclusive Training in STEM

Institutional Context

STEM Classroom

- Inclusive and equity-minded course design and instructional practices

STEM Laboratory

- Mentorship
- Laboratory activities and policies

I. Inclusion & Equity in the Classroom

Let's Reflect

- Drawing upon your own experiences, what conditions, instructor actions, or features of the **STEM classroom** have led you to:

  - Feel included, supported, and/or feel like you belong?

  - Feel excluded, unsupported, and/or feel like you don't belong?

Take **2 minutes** to reflect on your own and to write down your ideas.

I'll then ask for volunteers to share some of their thoughts with the room.
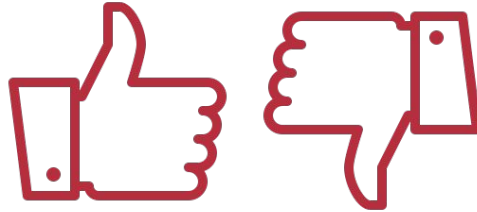
Inclusion and Equity in the Classroom

Thumbs up or down:

How familiar are you with the terms "inclusive teaching" and "equity-minded teaching"?
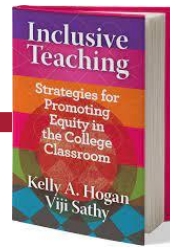
Defining "Inclusive Teaching"

Teaching inclusively means embracing student diversity in all forms — race, ethnicity, gender, disability, socioeconomic background, ideology, even personality traits like introversion — as an asset. It means designing and teaching courses in ways that foster talent in all students, but especially those who come from groups traditionally excluded in higher education.

Inclusion describes a culture in which all learners feel welcome, valued, and safe, and it requires intentional and deliberate strategies.

Inclusive teaching mind-set: every pedagogical decision should be countered with two questions:

- Who might be left behind as a result of my practice?

- How can I invite those students in?

Hogan & Sathy 2022 (WVU Press); Sathy & Hogan, <u>"How to Make your Teaching More Inclusive"</u>

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Defining "Equity-Minded Teaching"
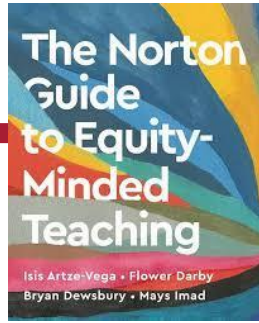
Equity-minded teaching is teaching that is informed by principles, practices, and historical understandings that aim to realize equal outcomes among all students, with particular attention to students of minoritized races and ethnicities.

"Inclusion is a core component of equity. One way to differentiate inclusive from equity-minded teaching is to think of inclusion as what we can do now; it is focused on the present. Equity, on the other hand, looks at both the past and the future, and it works to agitate or transform the system."

Practices to Promote Equity & Inclusion

Artze-Vega et al. 2023 (WW Norton & Company)

Let's Discuss

- What are some examples from your own experiences of equitable course design or inclusive day-to-day teaching?

Take **4 minutes** to discuss with a partner.

I will ask for a few volunteers to share their ideas with the group.

Before the start of the term

Design for Equity
- Relevance
- Rigor
- Transparency
- Inclusive course and syllabus design

Key Themes
- Holistic support for faculty and student well-being
- Authentic relationships
- Sociohistorical knowledge
- Attention to context
- Advocacy for change

Learning through Critical Reflection
- Critical self-examination
- Reflective engagement with course data

Inclusive Day-to-Day Teaching
- Trust
- Belonging
- Structure
- Support

After the term

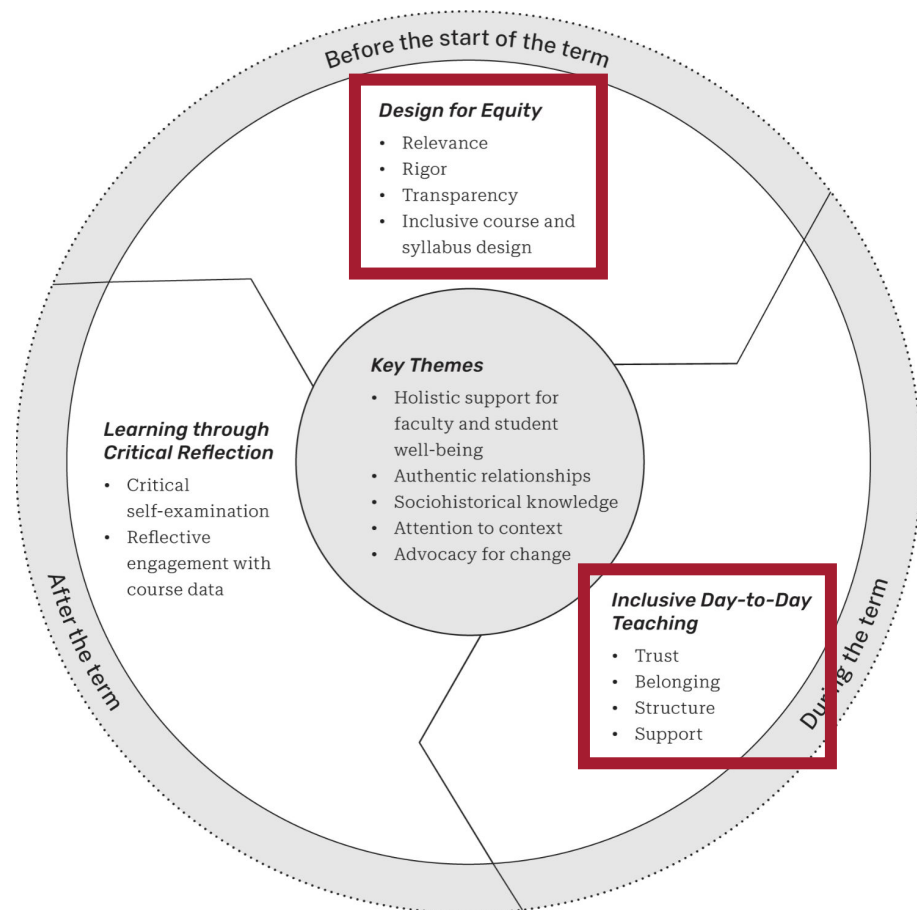**During the term**

Artze-Vega et al. 2023 (WW Norton & Company)

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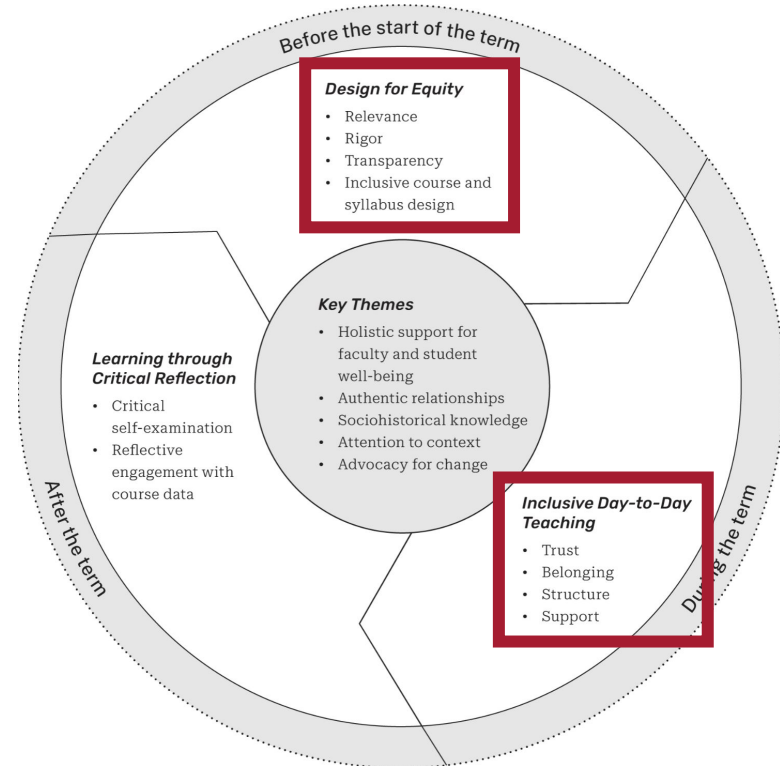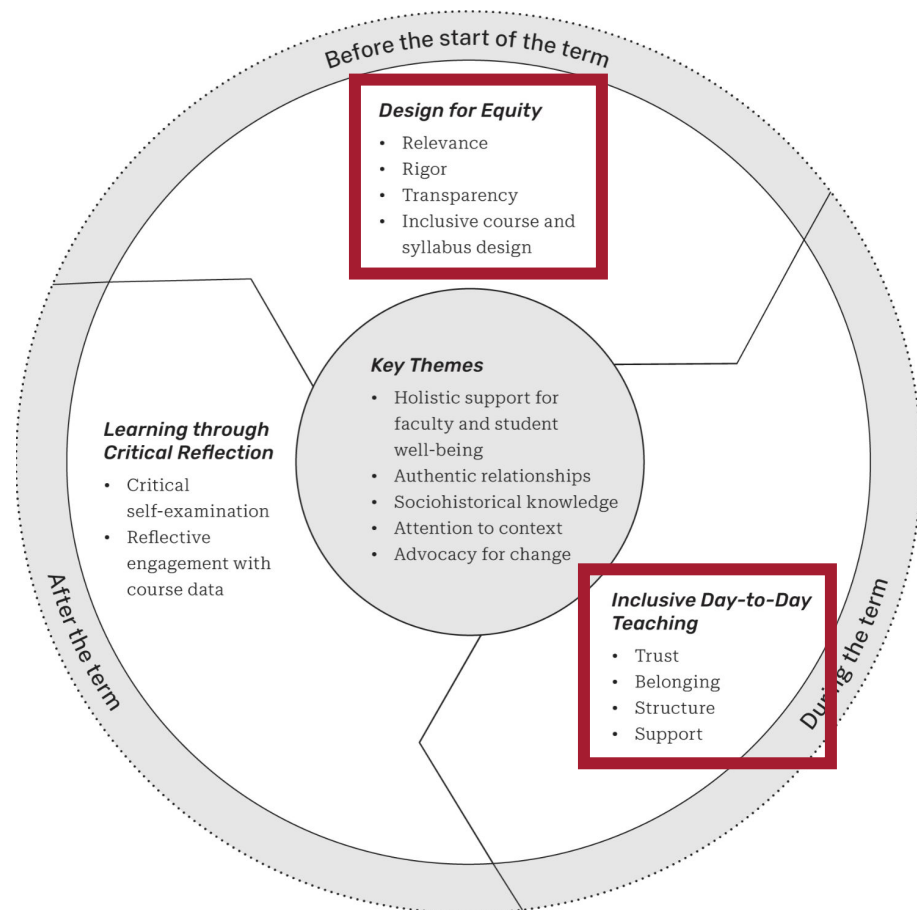# Practices to Promote Equity & Inclusion: Personal Vignettes

Artze-Vega et al. 2023 (WW Norton & Company)

Inclusive Course Structures & Policies

Sex, Gender, and the Brain
(Harvard College)

Harvard College | Neuro101G | Fall-Spring 2021-22
Prerequisites: LS1a & MCB80, or permission of the instructor

Sex, Gender and the Brain

Instructor

Tari Tan, PhD | taralyn_tan@hms.harvard.edu

She / her / hers

In this course…

Class Meetings
Wednesdays
6:00-7:15 pm | Robinson 105

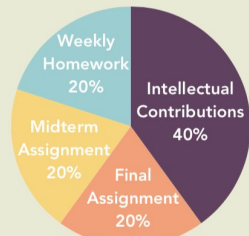**Course Canvas Page**
https://canvas.harvard.edu/courses/89969

We'll answer the questions:

- What types of sex (and gender) differences exist in the nervous system & how do these differences lead to sexually dimorphic behaviors in different animals?
- What does the study of sex differences and sexually dimorphic behaviors in model organisms like worms, flies, and mice teach neuroscientists about general brain function?
- How does the study of sex/gender differences in the brain relate to human health?
- How is scientific information communicated to other scientists and to the general public, how does it go wrong, and how can we avoid common communication pitfalls?
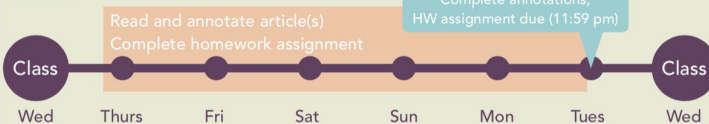
Students will learn to:

- **Read and Analyze** primary scientific literature & related articles
- **Write** research article "digests" like those published in the journal *eLife*
- **Visually Summarize** research articles via graphical abstracts
- **Present** scientific information orally via "chalk talks"

Learning is evaluated by:

- Weekly Homework 20%
- Intellectual Contributions 40%
- Midterm Assignment 20%
- Final Assignment 20%

A typical week entails:

75 minutes of class
4-7 hours out-of-class work

Read and annotate article(s)
Complete homework assignment

Complete annotations; HW assignment due (11:59 pm)

Class — Wed — Thurs — Fri — Sat — Sun — Mon — Tues — Class — Wed

---

Course Parts List

Student Hours (aka "Office Hours")

What are student hours?
- Scheduled blocks set aside to talk with you, my students!
- Pop in anytime - no need to let me know you plan to attend.

How should I use student hours?
- However you'd like! You don't need a special reason to attend.
- Ask questions about class or just stop by to chat.
- Make it a habit! Stop by in-person or come hang out in a zoom room for even just a few minutes.
- Guilt-free! Don't ever feel bad about stopping by. I really enjoy it and I promise you're not imposing.

I'm convinced! When are student hours?
- We will schedule in-person & Zoom student hours as a class to accommodate students' schedules as best as possible.
- I will also provide additional time slots each week for which students can sign up in case they can't attend the normal time.

I write a lot of letters of recommendation for my students and this is always easier to do if I get to know you better.

How to Be Successful in the Course

- Actively contribute to the learning environment through your participation in online and in-class discussions. Each of you possesses unique experiences, knowledge, and perspectives that will enrich our conversations and enhance our collective learning!
- Give yourself plenty of time to read the articles and to complete the assignments before the deadlines.
- Use your classmates as resources! Leverage the collaborative paper annotations in Perusall (see next page) & consider discussing the papers with classmates outside of class.
- Use me as a resource! Come to student hours for additional discussion or clarification.
- Last, but not least: practice self-care! Get enough sleep and manage your overall stress levels. If you are feeling overwhelmed, please talk to me so that I can support you.

A typical class session…

Class intro or student presentations

Paper discussion (combination of full class + small group)

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Inclusive Course Structures & Policies

The Theory & Science of Teaching (Harvard Graduate Course)

## Course Learning Goals and Objectives:

Overall Course Goals: Within this course we want you to gain **foundational knowledge** about how people learn and **integrate** ideas from across different domains of education research to ultimately **apply** that knowledge towards the development of your own instructional activities. We approach your learning in this course not merely as an exercise in knowledge acquisition and application but as a gateway to further your own professional development as an educator. Throughout the course we therefore also want you to **learn something about yourself**, to develop habits as a **reflective practitioner**, and to **develop new interests** relevant to your educational work.

Specific Learning Objectives: In service of the above goals, we have identified specific learning objectives to guide your learning. At the conclusion of this course, you will be able to:

- **Identify** the evidence-based principles for how people learn for long-term retention and expert application of skills and information
- **Provide examples** of how dimensions of student diversity, the learning environment, and broader societal/social forces impact student learning
- **Synthesize** concepts from different domains of education research (e.g., motivation, inclusion and belonging) to **explain** why certain educational practices are effective (or not)
- **Apply** your integrated model of how people learn to **create** a learning-centered syllabus and individual lesson plan for a course of your own design
- **Describe** the relevance and value of your learning in this course to other aspects of your life and professional training
- **Reflect on** your growth and identity as an educator and **cite evidence** from the course to support your self-assessment
- **Develop a plan** for continued professional development in the teaching/education space as a self-directed learner

Course Roadmap

Teaching 100 is a highly interleaved exploration of learning science, cognitive psychology, pedagogy, teaching practice and the diversity of the student experience. As a learning community, we will engage in self-reflection, dialogue, and a variety of learning activities to further our collective understanding of our students, ourselves as instructors, and the evidence-based approaches that we can implement to promote **significant learning experiences** within our own educational contexts. The diagram below depicts the relationships among many of the topics we will cover in the course. I look forward to learning with you!
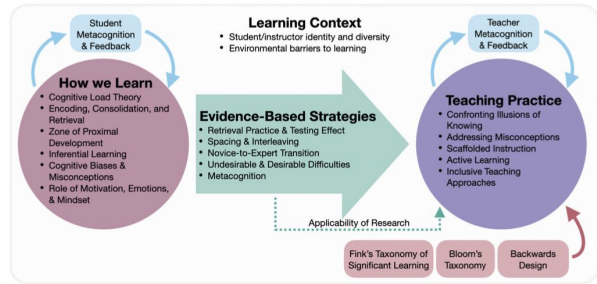

Course Logistics:

A week prior to each class session we will publish an online module to Canvas for you to complete asynchronously (i.e., on your own time) before the corresponding synchronous class session. The virtual and in-person sections of Teaching 100 share the same asynchronous work. The asynchronous content will always inform and relate to the module's synchronous class sessions. While the online materials may include assignments that directly follow from the previous class or include pre-reading for the next class, note that much of each module's asynchronous content is designed to be a free-standing learning experience to complement what we will do in class. This means that we typically won't spend time in class reviewing the content assigned as part of the online modules. Since both the synchronous and asynchronous aspects of the course are equally important to your learning, we ask that you dedicate appropriate time to both components. An overview of the weekly course flow is given below, followed by more detailed descriptions of course assignments. Please reach out to Tari or the TFs if you have any questions about the course workflow (or other aspects of the course).
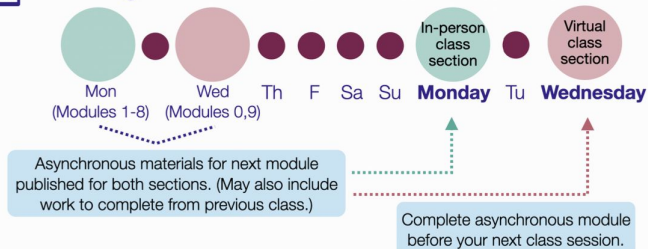
Supporting Your Growth: Course Assignments

A Note on Learning for Personal Growth, Not for Grades:
Grades are a form of extrinsic motivation – they push students towards the specific achievements required to obtain the grade they desire. Once goals are identified, it is human nature that we attempt to meet them with the smallest possible effort. Because Teaching 100 is graded SAT/UNSAT, extrinsic, grade-focused motivation will not drive student effort or success. Instead, we have designed the course to encourage and support intrinsic effort. A structured process of goal setting, feedback, and reflection will help you identify the aspects of the course that most resonate with you and will best serve your personal and professional growth. This helps each of you define what success in Teaching 100 will mean to you. This internal assessment then guides your effort and provides a metric for achievement.

Because a grade is still required by Harvard, the requirements for a SAT are described in the Grades section later in this document. It is important to recognize, however, that meeting these requirements is not the same as gaining significant knowledge, building skills, or developing expertise. Progress in these domains will come from your own individual decisions to think, prepare, and engage deeply in the course's content and process. In Teaching 100, your learning and growth are directly proportional to your effort. We invite you to embrace and enjoy this opportunity!

Inclusive Course Structures & Policies

The Theory & Science of Teaching (Harvard Graduate Course)

Not explicitly described in the "official" university policies are guidelines about the use of generative AI tools like ChatGPT. We will collaboratively construct our own guidelines for this course as a learning community during our first class session. In preparation for that discussion, please start thinking about, for example:

- What (if any) constitutes an acceptable use of ChatGPT in this course
- How to establish trust and accountability for its use (or non-use) among our learning community
- Whether permissive or restrictive policies are better aligned with our other professional activities and training

We will collaboratively construct our own community guidelines as a learning community during our first class session. In preparation for that discussion, please start thinking about the following questions:

- How can we establish our learning environment as a **brave space**? (See https://diversity.ncsu.edu/news/2020/04/02/what-is-a-brave-space/)
- How can we commit to being engaged with the course, while also being accommodating and compassionate of one another?
- How can we hold space in our classroom for events happening outside of the class that may differentially impact members of our learning community?

Making Course Material Relevant to Students' Lives

Sex, Gender and the Brain (Harvard College)

Functional identification of an aggression locus in the mouse hypothalamus

These papers always start with abstracts
Main thing I read, methods give me cataracts
But they help get the paper in formation
This one talks about electric stimulation

Scientists have never understood
How aggression works in the brain, wish they could
But manipulations and methods
Helped us see localization and the locus in question

So authors believe that there is an intermingle
Between mating and fighting but how could I know, I'm single
They involve similar limbic structures but maybe friction
Because the neurons encoding them may be in some competition

ABOUT THE AUTHOR

I have lived in an apartment building in New York since birth. Growing up, my mom would babysit children which meant multiple people to play with, that ranged in ages from newborns to pre-teens. My sisters and I enjoyed the company, and we are grateful as they were a huge part of our lives. Daily, our imaginations came together and created an endless number of stories. Sometimes we would be become researchers, exploring the Earth, the body, the brain! We would play pretend and conduct investigations and come up with all sorts of crazy results and conclusions.

Although we were curious kids and each one of us filled with so many questions, we lacked the opportunity to get answers. Retrospectively, this highlighted the lack of accessibility of information to children in communities like mine. As I grew up, there was a learning curve to understanding research articles and becoming comfortable with its jargon. Therefore, I decided for my final project to create a "children's" book. I have included several small anecdotes from my life to describe the results from the paper. I hope you enjoy reading a bit from my childhood and understand the paper in a fun but informative way.
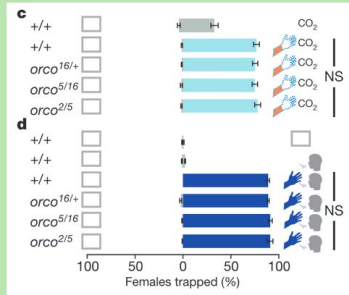
Making Course Material Relevant to Students' Lives

Discipline of Neuroscience (Harvard PhD Program in Neuroscience)

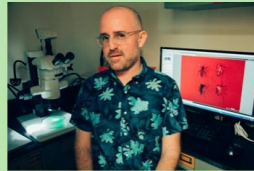# Empowering Graduate Students to Redefine the Narrative: "Science Reconsidered"

Students-as-Partners Curriculum Development:

- "Identity first": Considering one's scientific interests in the context of self
- Students select a topic within their scholarly discipline to "reconsider" through a new lens (e.g., by challenging dominant narratives, recontextualizing its relevance, etc.)
- Students apply inclusive and equity-promoting approaches to create open-access educational materials for STEM instructors to teach the "reconsidered" topics

Introduction to Topics Including:

- Nature of science and ways of making meaning
- Global perspectives and dominant theories of knowledge (epistemologies) in STEM education
- Educational frameworks and pedagogies to decolonize STEM & promote equity/social justice
- Transdisciplinary and collaborative scientific inquiry and communication skills

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Let's Reflect

- What is one idea that you envision yourself applying to your own classroom/teaching context to promote inclusion & equity?

- If you don't envision having your own classroom, can you identify one way in which this content could be relevant to your own professional activities?

Take **3 minutes** to reflect on your own. I encourage you to write down your ideas.

We will not be sharing with the group.

II. Inclusion & Equity in the Laboratory

Let's Reflect

- Drawing upon your own experiences, what conditions, actions of others, or features of the **laboratory environment** have led you to:

    - Feel included, supported, and/or feel like you belong?

    - Feel excluded, unsupported, and/or feel like you don't belong?

Take **2 minutes** to reflect on your own and to write down your ideas.

I'll then ask for volunteers to share some of their thoughts with the room.

The Science of Effective Mentorship in STEMM

"Effective mentors are critical in the development of undergraduate and graduate students in science, technology, engineering, mathematics, and medicine (STEMM)—especially for many members of underrepresented and marginalized populations. The Science of Effective Mentoring in STEMM committee systematically compiled and analyzed current research on the characteristics, competencies, and behaviors of effective mentors and mentees in STEMM and developed a practical resource guide for mentoring practitioners to create and support viable, sustainable mentoring support systems."

The National Academies of
SCIENCES · ENGINEERING · MEDICINE

CONSENSUS STUDY REPORT

The Science of Effective Mentorship in STEMM
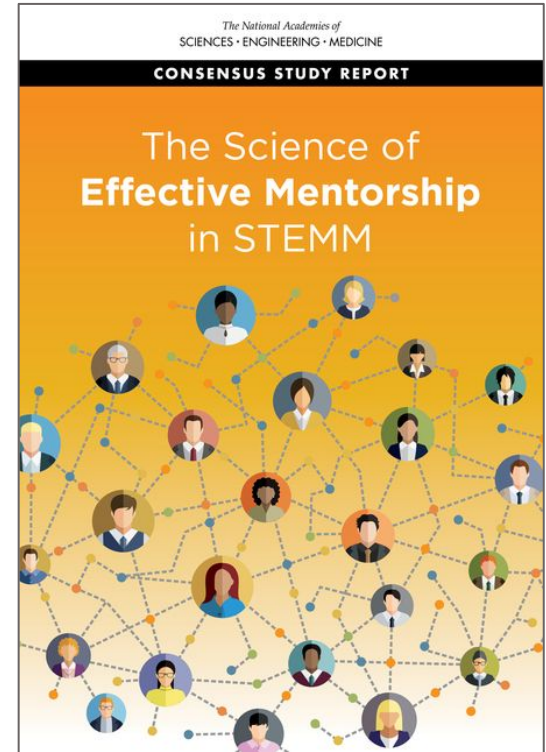
Byars-Winston A, Dahlberg ML, eds. 2019 (NASEM); also see Online Interactive Guide

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HARVARD MEDICAL SCHOOL

Mentorship Defined

"Mentorship is a professional, working alliance in which individuals work together over time to support the personal and professional growth, development, and success of the relational partners through the provision of career and psychosocial support."

Mentorship is a learned skill.

The National Academies of
SCIENCES · ENGINEERING · MEDICINE

CONSENSUS STUDY REPORT

The Science of
Effective Mentorship
in STEMM

Byars-Winston A, Dahlberg ML, eds. 2019 (NASEM); also see Online Interactive Guide

Let's Discuss

What are features of:

Effective/productive mentorship relationships	Inffective/unproductive mentorship relationships

Take **4 minutes** to discuss with a partner.

Assign a **notetaker** to write out your ideas on a sheet of chart paper. I will collect the sheets and summarize.

Attributes for Effective Research Mentoring Relationships

Research Development
- Teaching disciplinary knowledge
- Providing technical training
- Accurately assessing understanding of disciplinary knowledge and skills
- Promoting ethical behaviors & responsible conduct of research

Interpersonal
- Active listening/effective communication
- Aligning expectations
- Building trusting relationships
- Active coaching

Psychosocial
- Providing motivation
- Developing mentee career self-efficacy
- Developing mentee research self-efficacy
- Developing science identity
- Developing a sense of belonging

Diversity/Cultural
- Cultural self-knowledge
- Advancing equity and inclusion
- Being culturally responsive
- Reducing impact of bias
- Reducing stereotype threat

Sponsorship
- Fostering independence
- Promoting professional development
- Expanding mentee networks
- Actively advocating
- Fostering work-life integration

Pfund, C. *et al.* 2016

Resources for Mentorship Training (for Mentors & Mentees)

CIMER — Center for the Improvement of Mentored Experiences in Research

Entering Mentoring

The Entering Mentoring curricula is designed for those who wish to implement process based, professional development workshops for research mentors. You may choose one of our complete, pre-assembled packages or build your own customized curriculum.

Complete Curricula
Custom Curricula

Entering Research

The Entering Research curricula is designed for those who wish to implement process-based, professional development workshops, courses, or programs for undergraduate and graduate research trainees. You may choose one of our complete, pre-assembled packages or build your own customized curriculum.

Complete Curricula
Custom Curricula

Mentoring Up

The Mentoring Up curricula is designed for those who wish to implement process-based, professional development workshops for postdoctoral trainees and junior faculty.

Complete Curricula

https://cimerprojectportal.org/

NRMN MyCourses
National Research Mentoring Network

Unconscious Bias

The Unconscious Bias Course will help you address your personal unconscious bias, teach you about microaggressions, provide a solutions toolkit, develop your self-awareness, and discuss bias and disparities in STEM disciplines and STEM research, including medicine and healthcare.

Mentoring Undergraduate Students

This self-directed course is designed to help faculty members, postdoctoral fellows, or graduate students optimize their mentoring relationships with undergraduate mentees. The course predominantly addresses research mentoring that occurs within biomedical, behavioral, and social science fields.

Mentoring Graduate Students, Post Docs & Early Career Faculty

This self-directed course is designed to help faculty members (or other experienced researchers) optimize their mentoring relationships with graduate students, post-doctoral fellows, and early-career faculty.

Launching Research Part 1: Laboratory Readiness

The purpose of this course, Launching Research, Part 1: Laboratory Readiness, is to inspire students to confidently explore research .

Launching Research Part 2: Tools for Organization and Investigation

The purpose of this course, Launching Research, Part 2: Tools for Organization and Investigation, is to inspire students to confidently explore research.

Applying to Graduate School and Summer Research Experiences

The purpose of this series of mini-courses is to provide students the resources necessary to successfully apply to Ph.D. programs.

Graduate Application Process
CV & Statement of Purpose
Letters of Recommendation
GRE Prep & Expectation
Seeking Financial Support for School
How to Interview Successfully
Individual Development Plan
Summer Research Experience

https://nrmnet.net/nrmn-courses/

THE SCIENCE OF EFFECTIVE MENTORSHIP IN STEMM
ONLINE GUIDE V1.0

Overview | Mentorship Defined | Program Development and Management | Actions and Tools

https://nap.nationalacademies.org/resource/25568/interactive/index.html

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Strategies to Improve Mentorship

- Facilitate explicit conversations about expectations (e.g., via mentor compacts)

- Acknowledge and respond to different identities (e.g., practice "culturally aware mentorship")a

Compact Between Biomedical Graduate Students and Their Research Advisors

A framework for aligning the graduate student mentor-mentee relationship

January 2017

AAMC
Tomorrow's Doctors, Tomorrow's Cures®

Association of American Medical Colleges

https://www.aamc.org/what-we-do/mission-areas/medical-research/grad-compact

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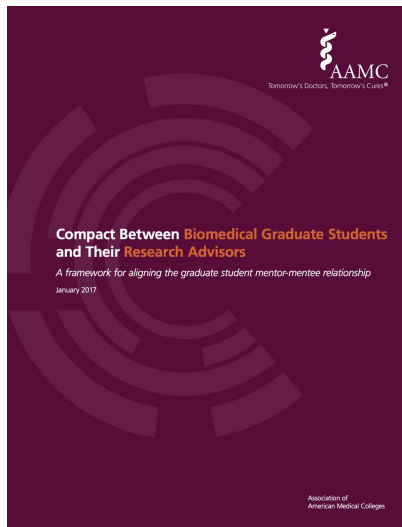
MENTOR–GRADUATE TRAINEE EXPECTATIONS AGREEMENT

Trainee (print) _____   Mentor (print) _____

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

1. Our major goals are:
   A. Proposed research project goals –
   B. Trainee'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 _____ years.

4. The trainee will propose their weekly schedule to the mentor by the _____ week of the semester.

   If the trainee must deviate from this schedule (e.g., to study for an upcoming exam), they 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 all that apply):

   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.
   a. (Circle one): It will be the (trainee's/mentor's) responsibility to schedule these meetings.
   b. In preparation for these meetings, the trainee will:
   c. In preparation for these meetings, the mentor will:

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

8. The trainee is expected to participate in the following (journal club, teaching commitments, etc.):

9. When learning new techniques and procedures, the mentor will train the trainee using the following procedure(s) (write out directions, hands-on demonstration, verbally direct as the trainee does the procedure, etc.):

10. The proper procedure for documenting research results (laboratory notebook) in our research group is:

    The notebook will be checked _____ (e.g., weekly/monthly).

11. If the trainee 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:

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

Byars-Winston A, Dahlberg ML, eds. 2019 (NASEM); Branchaw, J.L. *et al.* 2019

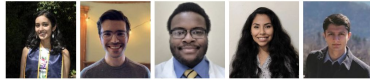OIST | C-HUB Center for Professional Development & Inclusive Excellence

HARVARD MEDICAL SCHOOL

Strategies to Improve Mentorship

- ## Support multiple mentorship structures

Pod Graduate Student Mentors

Sanika Ganesh — PiNBAC Mentee: Anna Rios
Matt Collie — PiNBAC Mentee: Khalil Threadgill
Nigel Hunter — PiNBAC Mentee: Erlyn Clermont
Dianna Hidalgo — PiNBAC Mentee: Nya Weems
Navid Mousavi — PiNBAC Mentee: Xavier Valencia

Yasmine Ayman — PiNBAC Mentee: Kayla Anthis
Anu Muppirala — PiNBAC Mentee: Fernanda Medeiros Contini
Tarek Jabri — PiNBAC Mentee: Lia D'Alessandro
Gizem Terzioglu — PiNBAC Mentee: Sammy Garcia
Habiba Noamany — PiNBAC Mentee: Daria Paulis

Rachel Essner — PiNBAC Mentee: Berenice Chavez-Rojas
Jonah Pearl — PiNBAC Mentee: Lauren Jones
Alyssa Larios — PiNBAC Mentee: Han Le

Pod Faculty Mentors

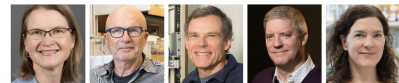**Tom Schwarz** — PiNBAC Mentee: Anna Rios and Daria Paulis
John Assad — PiNBAC Mentee: Khalil Threadgill and Nya Weems
Dragana Rogulja — PiNBAC Mentee: Erlyn Clermont
Chris Harvey — PiNBAC Mentee: Xavier Valencia
Carlos Ponce — PiNBAC Mentee: Lauren Jones
Rachel Wilson — PiNBAC Mentee: Berenice Chavez-Rojas

Maria Lehtinen — PiNBAC Mentee: Fernanda Medeiros Contini
Clifford Woolf — PiNBAC Mentee: Kayla Anthis
Bruce Bean — PiNBAC Mentee: Lia D'Alessandro
Rick Born — PiNBAC Mentee: Sammy Garcia
Lisa Goodrich — PiNBAC Mentee: Han Le

PiNBAC
Harvard Program in Neuroscience
Post-Baccalaureate Program

PiNBAC website

Research Mentors

Pascal Kaeser — PiNBAC Mentee: Anna Rios
Kerry Ressler — PiNBAC Mentee: Khalil Threadgill
Chinfei Chen — PiNBAC Mentee: Erlyn Clermont
Michela Fagiolini — PiNBAC Mentee: Xavier Valencia
Carlos Ponce — PiNBAC Mentee: Nya Weems
April Levin — PiNBAC Mentee: Lauren Jones

Bob Datta — PiNBAC Mentee: Kayla Anthis
Rachel Wilson — PiNBAC Mentee: Fernanda Medeiros Contini
Beth Stevens — PiNBAC Mentee: Lia D'Alessandro
Ben Deverman — PiNBAC Mentee: Lia D'Alessandro
Evan Macosko — PiNBAC Mentee: Sammy Garcia
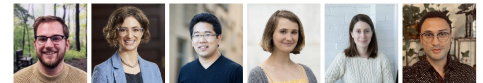**Hisashi Umemori** — PiNBAC Mentee: Han Le

Victor Navarro — PiNBAC Mentee: Daria Paulis
Max Heiman — PiNBAC Mentee: Berenice Chavez-Rojas

In-Lab Mentors

Jonathan Andersen — PiN Graduate Student — PiNBAC Mentee: Anna Rios
Emily Newman — Research Fellow — PiNBAC Mentee: Khalil Threadgill
Takuma Sonoda — Postdoctoral Researcher — PiNBAC Mentee: Erlyn Clermont
Olivia Rose — Visiting Doctoral Student — PiNBAC Mentee: Nya Weems
Saia Jereb — Postdoctoral Associate — PiNBAC Mentee: Lia D'Alessandro
Mauro Silva — Postdoctoral Research Fellow — PiNBAC Mentee: Daria Paulis

Diego Pacheco — Research Fellow — PiNBAC Mentee: Fernanda Medeiros Contini
Dana Levy — Postdoctoral Fellow — PiNBAC Mentee: Kayla Anthis
Siva Nagappan Chettiar — Research Fellow — PiNBAC Mentee: Han Le

Let's Reflect

- Think about one of your current mentorship relationships (either as the mentor or mentee):

  - What is one area that could be improved?

  - What is an actionable step you could take to begin to improve it?

Take **2 minutes** to reflect on your own and to write down your ideas.

I'll then ask for volunteers to share some of their thoughts with the room.

Fostering Inclusion in the Lab: Policies and Activities

We believe that it is a privilege to carry out curiosity-driven scientific research that adds to our understanding of the world and informs efforts to alleviate human suffering and disease. As members of the scientific research community, we shoulder the responsibility of communicating our findings fairly and clearly so that others can benefit from what we have learned. We also believe that we should actively engage with our communities and help younger students identify and nurture their own scientific passions. With these goals in mind, our lab employs the following strategies:

TO CARRY OUT RIGOROUS AND REPRODUCIBLE RESEARCH

TO BE TRANSPARENT AND EFFECTIVE COMMUNICATORS

TO CREATE A LAB CULTURE THAT COMMUNICATES AND REINFORCES OUR SHARED VALUES

TO MEET THE NEEDS OF EVERY TRAINEE AND HELP THEM TO ADVANCE THEIR CAREERS

TO SERVE AS ENGAGED AND INFORMED MEMBERS OF OUR COMMUNITY

TO CREATE A LAB CULTURE THAT COMMUNICATES AND REINFORCES OUR SHARED VALUES

- As communicated in lab meetings and upheld by the PI and senior members of the lab, we strive to create a supportive and equitable environment. All are welcome and encouraged to pursue work they find meaningful.
- All lab members are expected to give and receive help. We recognize that everyone needs help sometimes and that it is our collective responsibility to lift each other up.
- Members of the lab are broadly engaged with other projects in the lab, supported by weekly lab meetings and regular small group meetings focused on related topics.
- Questions and comments are encouraged and solicited during all lab meetings so that even the most junior members feel comfortable seeking clarity or sharing ideas.
- Lab retreats serve as an opportunity to think about broader implications of our work, brainstorm future projects, and recognize and appreciate our progress.
- Professional successes and personal milestones are celebrated through lab lunches, birthday cake gatherings*, and outings to many interesting places in the Greater Boston area.
- Because we recognize that lab members have various personal commitments and scheduling restrictions, official lab outings and events are held during standard work hours.
- Members of the lab enjoy taking part in a number of informal lab activities, most of which involve home-made, artisanal baked goods*.

* Not applicable during a global pandemic

Goodrich Lab Website, HMS

Fostering Inclusion in the Lab: Policies and Activities

The Stevens Lab

The Stevens Lab is a neurobiology research laboratory located at Boston Children's Hospital and The Stanley Center at the Broad Institute of MIT and Harvard. The mission of the Stevens Lab is to drive fundamental discoveries about neuro-immune interactions during healthy development and disease, and to mentor the next generation of scientific leaders in an inspiring, collaborative training environment.

The Stevens Lab believes that diversity of perspective, background and ability is key to creativity and innovation in science. We welcome trainees and scientists who are from underrepresented minorities (URM) to join our lab and thrive in our team-oriented culture that values excellence, rigor and respect. We pledge to foster an inclusive training environment that values and supports our peers who are women, immigrants, LGBTQI+, people with disabilities, and Black, Indigenous and People of Color (BIPOC).

The institutional and systemic racism that pervades academia and medicine is unacceptable and we are not willing to be complacent participants in this paradigm.

To address these issues, we fiercely advocate for a culture of equity and representation. We are actively working to unlearn our implicit biases, undo systems of injustice and inequity in STEM and to increase representation of URM in science. We believe that fighting racism, implicit bias and discrimination should be approached through education, advocacy and outreach. The entire team at the Stevens lab is dedicated to change both in and out of the lab. To this end we are committed to the following:

EDUCATION: To actively contribute to the anti-racism movement and associated obstacles facing URM, we must be prepared to learn. In the following points, our focus will be listening to the leaders of these movements as we find our voice:

- Educate ourselves about the impact of racism and the many ways in which it manifests subconsciously and on different scales (micro- and macroaggressions)
- Educate ourselves about our own inherent biases and actively work to unlearn them
- Actively seek leaders in URM advocacy that can aid in our development

RECRUITMENT AND RETENTION: Our goal is to increase the diversity of our applicant pools and actively create a work environment that supports and retains a richly diverse community.

- Implement recruitment practices that reach a more diverse community for all positions
- Work with local colleges to identify individuals for paid internships and technician positions that would lead to greater opportunities
- Actively work to create a safe space for all lab members by increasing the dialogue on topics of racism, sexism, and other issues within academia

OUTREACH: Working at multiple levels - primary, secondary and post-secondary

- Ensuring that Dr. Stevens gives talks at universities that are more diverse in their student population
- Working with local colleges to offer mentors to URM students and share our passion for biological sciences
- Promoting the work of our URM colleagues with elementary, middle, and high school classrooms

EQUITY IN RESEARCH AND MEDICINE: As members of the biomedical community, we have an incredible opportunity to contribute to the dialogue surrounding disparities in research and medicine.

- Contribute to the dialogue within Boston Children's Hospital on best practices for eliminating these disparities
- Hold leadership accountable for implementing departmental and hospital wide changes for addressing these problems
- Continually educate ourselves on issues that URM populations face in healthcare

ADVOCACY:
- Amplify the work of URM trainees and investigators by nominating individuals for invited talks and prioritizing URM works for journal clubs
- Offering financial support for potential lab members who may not otherwise be able to afford the lower wages that often characterize the lower end of the academia pay scale

Stevens Lab Website, BCH

Fostering Inclusion in the Lab: Policies and Activities

"Reimagined" Journal Clubs for Inclusive Scientific Training

Tan & Venkatesh, 2023

"Reimagined" Journal Clubs for Inclusive Scientific Training

Article Selection

Journal Club Structure

Tan & Venkatesh, 2023; Tanner 2013

Let's Reflect

- In what way(s) do you, or could you, leverage your laboratory's (or unit's) activities and/or policies to better foster inclusion and equity?

Take **2 minutes** to reflect on your own and to write down your ideas.

We will then go around the room and have each person share **one idea** with the group.

III. Inclusion & Equity at the Institutional Level

Let's Discuss

Institutional Context

STEM Classroom	STEM Laboratory
- Inclusive and equity-minded course design and instruction	- Mentorship - Laboratory activities and policies

- What are current barriers to implementing inclusive practices in the classroom and/or laboratory?

- What could be done at the institutional level to support or incentivize the adoption of practices that foster inclusive training environments?

Take **6 minutes** to discuss in small groups (3-4 people).

Assign a **notetaker** to write down your group's ideas and assign a **reporter** who will summarize your group's discussion for the room.

Exit Slips

- What is the most useful thing you are taking away from today's workshop?

Please take **1 minute** to write out your answer on a sticky note that I will collect.

(You do not need to put your name on note.)

Thank you for your participation!

What questions do you have for me?

For additional resources, see the C-Hub resources page

Keep in touch: taralyn_tan@hms.harvard.edu