June 20, 2024

#SWDSS

NIH Scientific Workforce Diversity Seminar Series

How Are Institutions Transformed to Foster Cultures of Inclusive Excellence?

Lea Vacca Michel, PhD

Rochester Institute of Technology

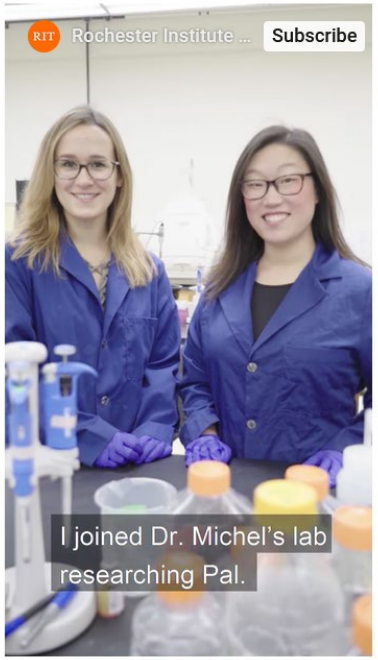
diversity.nih.gov

National Institutes of Health
Office of the Director
Chief Officer for Scientific Workforce Diversity

Putting the A in DEIA

Accessibility and Disability Inclusion at RIT

Rochester Institute of Technology: NTID



Medicine's Future

Nicole Pannullo
Biochemistry

By working on a faculty-guided research project, Pannullo has gained hands-on research experience to pursue a future in regenerative medicine. It's one way Pannullo is putting experiential learning to work.

Support at RIT

- Captioning
- American Sign Language Interpreters
- Note-taking
- 1:1 Tutoring with signing faculty
- **Support for Authentic Research Opportunities**
- **Training for Hearing Research Mentors**

RIT | National Technical Institute for the Deaf

1st

College of Its Kind

NTID is the first and largest technological college in the world for deaf and hard-of-hearing students.

1.1k

Deaf and Hard-of-Hearing Students

RIT/NTID serves more than 1,100 deaf and hard-of-hearing students from around the United States and the world who live, study, and work alongside hearing students on the mainstream RIT campus.

Nicole Pannullo
Post baccalaureate Fellow at National Eye Institute (NEI) (2019)
5th Year Graduate Student at The Johns Hopkins University

Disability Inclusion: Supporting our Deaf and Hard-of-Hearing Population

RIT U-RISE is an NIH-funded training program to support Deaf and Hard-of-Hearing Bachelor's-level students who want a PhD in biomedical, bio-behavioral, or clinical research fields. RIT U-RISE pays qualified RIT undergraduate D/HH students to participate in mentored intensive research experiences and professional activities for up to three years.

RIT's Inclusive Excellence (IE) initiative (2017-2023) sought to increase infrastructure, resources, and expertise to strengthen inclusion in STEM education—embracing perspectives, strengths, and insight from a multicultural base of faculty, staff, and students in the College of Science.

Disability Inclusion: Motivation and Mission

Deaf and hard-of-hearing (DHH) scientists are severely underrepresented in the nation's biomedical research workforce. In 2018, only **0.38%** of all PIs on NIH awards reported a hearing disability, yet hearing-loss prevalence for US adults ages 20-69 is **31.1%.**

The primary mission of the **RIT U-RISE Scientists-in-Training Program for Deaf and Hard-of-Hearing Undergraduates (RIT U-RISE)** was to diversify the biomedical research workforce by preparing DHH undergraduates to enter biomedically related PhD programs at research-intensive universities. A secondary mission was to **disseminate evidence-based best practices to scientists at other institutions to make biomedical research communities-of-practice more accessible and inclusive for DHH students.**

BARRIERS TO DEAF STUDENTS PURSUING ADVANCED DEGREES

- Poor mentoring
- Lack of role models
- Poor science identity
- Communication barriers
- Cultural stigmas

Disability Inclusion: Supporting our Deaf and Hard-of-Hearing Population

Structure

- Research Syllabus (outline expectations)
- Detailed Protocols (captioned video protocols)
- Meeting notes
- Schedule in advance

YouTube *ScienceCreAchins*: Gel Electrophoresis Lab

Goudreau C and Michel LV (Aug 2023) Looking at your lab through a new lens. *Nature Reviews Chemistry*.
Gehret A, Trussell J, Michel LV (2021) Experiential Education of Deaf and Hard of Hearing Students in the Lab with Non-Signing Advisors, *International J Inclusive Education.*

Disability Inclusion: Supporting our Deaf and Hard-of-Hearing Population

Physical Environment

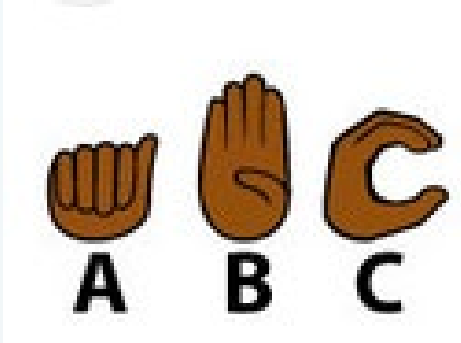
- Safety (Flashing fire alarm, avoid high shelves in the middle of the lab, don't work alone, mirrors)
- Microphones in the lab (blue tooth to cochlear implants)
- Moveable white board

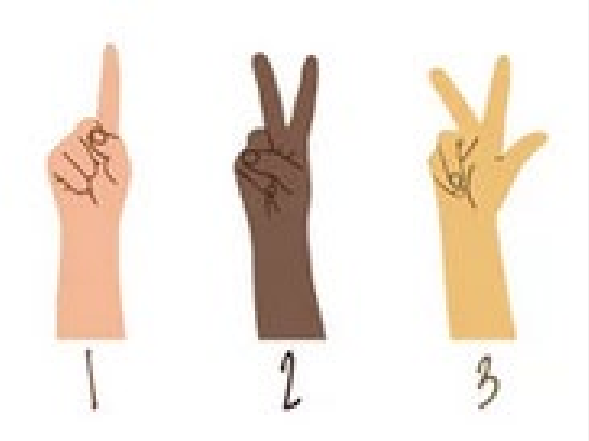
Pagano S, Ross A, Pagano T (2015) Chemical and biological research with deaf and hard-of-hearing students and professionals: Ensuring a safe and successful laboratory environment. *J of Chemical Health and Safety* 68

Disability Inclusion: Supporting our Deaf and Hard-of-Hearing Population

Cultural Competency

- Learn basic American Sign Language
- Learn about Deaf culture from Deaf creators
- Teach others and include ASL when possible
- Work with ASL interpreters



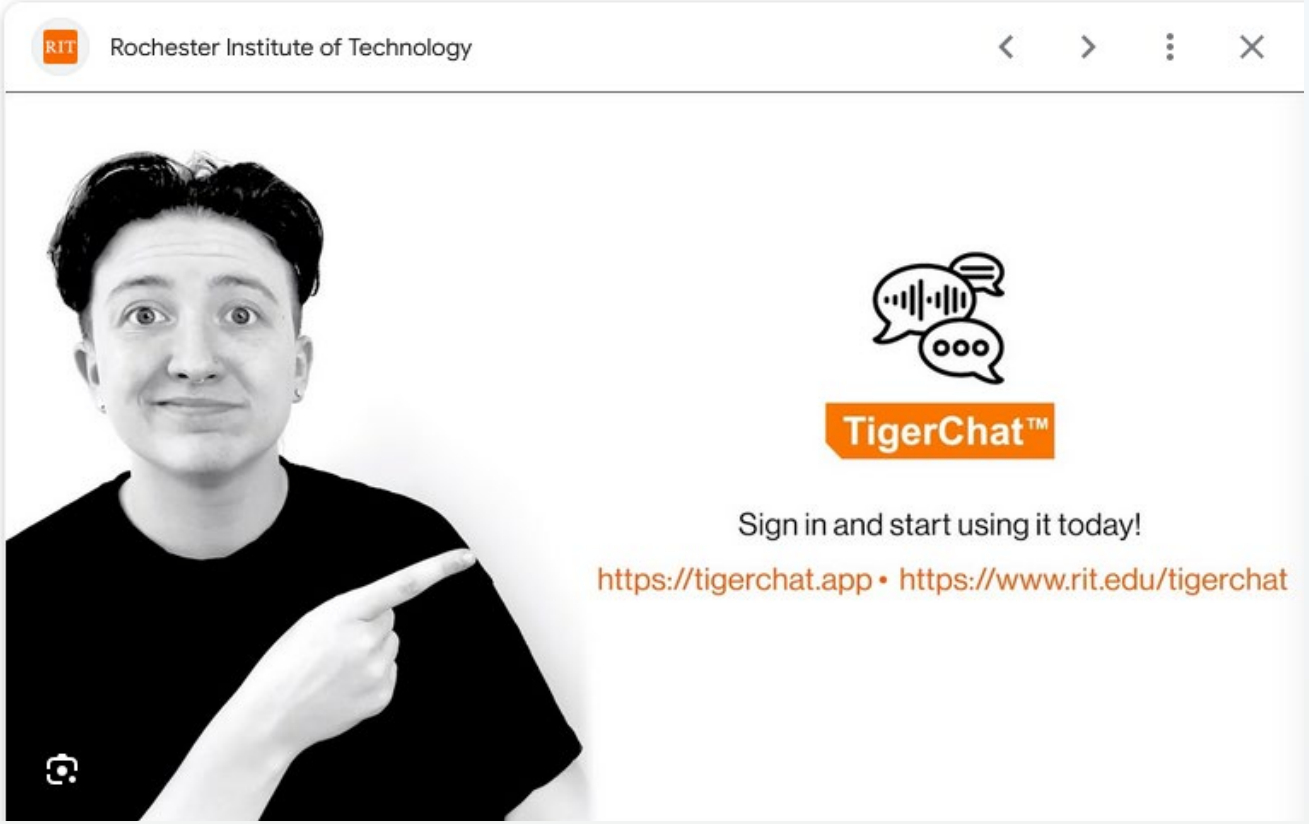


Listman JD, Kurz K, Picioli A, Craig P (2024) Inclusive research environments for deaf and hard of hearing English speakers. *CBE—Life Sciences Education 23.*

Disability Inclusion: Supporting our Deaf and Hard-of-Hearing Population

Communication

- Use different communication resources and technologies
- Acknowledge lack of incidental learning
- Science can get lost in translation
- Ask questions and be open to feedback



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ASBMBTODAY

THE MEMBER MAGAZINE OF THE AMERICAN SOCIETY FOR BIOCHEMISTRY AND MOLECULAR BIOLOGY

ESSAY

All alone in a crowd

By Lea Vacca Michel

Aug. 11, 2022

COURTESY OF LEA VACCA MICHEL

The Michel research group from the Rochester Institute of Techology takes a break from the 2019 ASBMB annual meeting in Orlando, Florida, to visit Universal Studios. Pictured, left to right, are Sean Lewis, Xinbei Liu, Lea Michel, Leslie Gallardo, Zack Ward, Julia Faraone and Morgan Bauer.

I thought I had anticipated everything. I'd booked a beautiful Airbnb within walking distance of the conference center. I had a list of phone numbers and flight info for all my students. I'd spent hours helping my students prepare their research posters. I'd gone through the presentation list and created a schedule of interesting talks for my students to choose from. And thanks to a collaborative effort with the conference staff, the sign language interpreters were confirmed for all those sessions. We were ready.

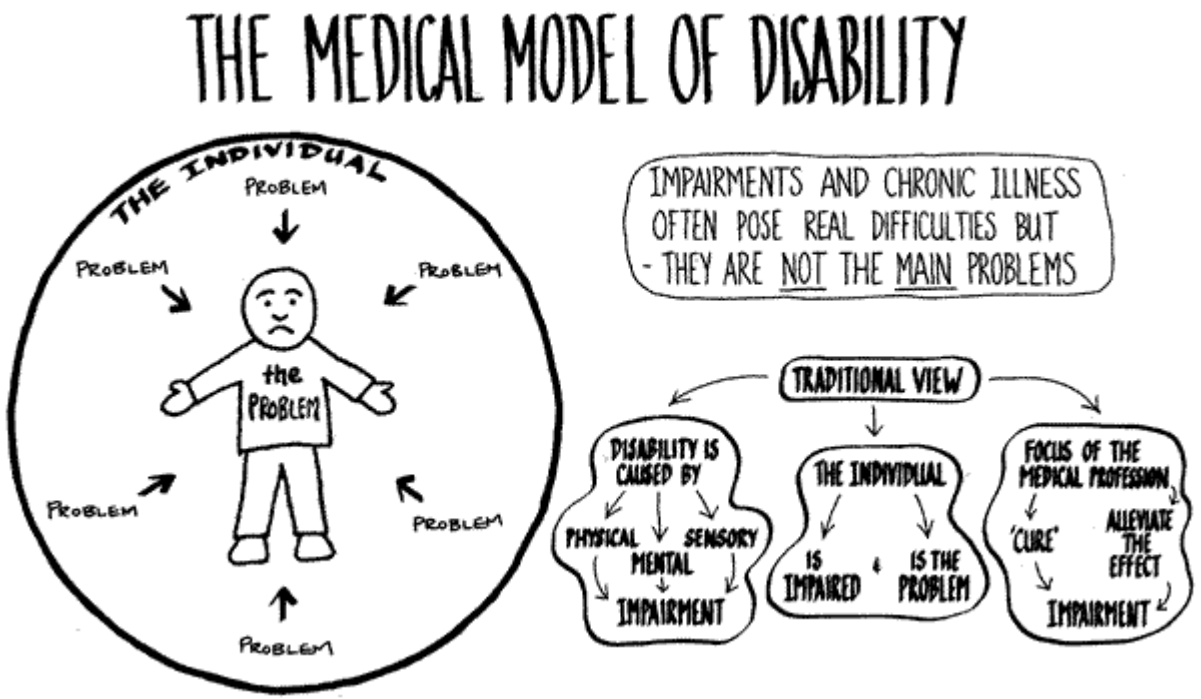
When traveling to national meetings with my students, I typically allow one afternoon of free time so they can explore the area, take in a museum or visit whatever local venue they fancy. This time, we were going to Orlando, so the choices were endless (and expensive). But I was determined to make one thing happen — we were going to a theme park.

Michel LV (2022) All alone in a crowd. *ASBMB TODAY* August 11, 2022.

Disability Inclusion: Supporting our Deaf and Hard-of-Hearing Population

Mindset

- Focus on removing barriers to access instead of an individual's "shortcomings"
- Individuals have different strengths, weaknesses, needs, and preferences



Source: http://www.ddsg.org.uk/taxi/social-model.html

Disability Inclusion: Supporting our Deaf and Hard-of-Hearing Population

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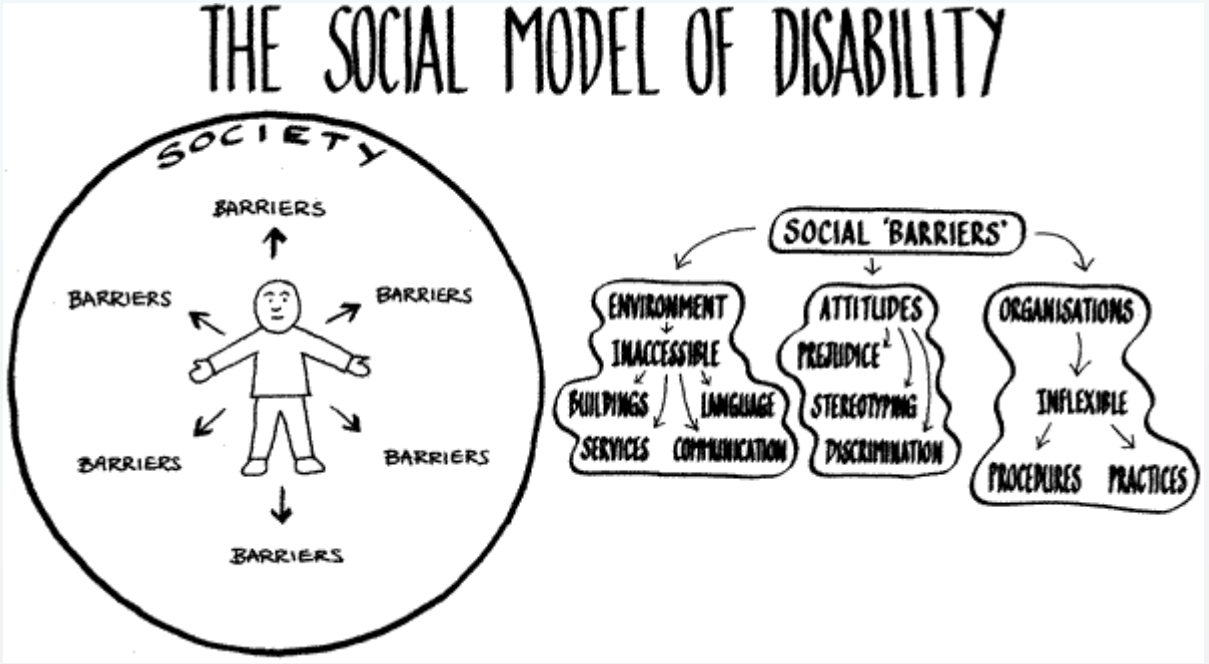
- Individuals have different strengths, weaknesses, needs, and preferences
- Deaf Tax: Time/mental load are increased for most activities; lack of incidental learning/mentoring



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Disability Inclusion: Supporting our Deaf and Hard-of-Hearing Population

Michel Research Lab Graduates

- 18 Deaf graduates
- 6 MS degrees
- 2 PhDs (Cornell, Ohio State University)
- 5 in PhD programs (Johns Hopkins, Boston U, U Penn)
- 1 DO degree
- 1 in Med school (UCLA)
- 1 Fulbright Scholar
- 100% of graduates are in science/medicine

Dr. Amie Fornah Sankoh (RIT ′17): the first deaf, Black woman to earn a STEM doctorate

Source: © Donald Danforth Plant Science Center/Patrick Bowey

Table 1. Summary of RIT-RISE trainee outcomes between 2017-2022

RIT RISE Program Outcomes - Number of:	2017-2022
Total trainee slots awarded by Notices of Award	30
Unfilled slots	9
Trainees appointed (unique individuals)	10
Trainees who participated in a summer research	8
Trainees who withdrew from the program	2
Trainees who completed B.S. or B.A.	2
Trainees who entered biomedical Ph.D. programs	1
Trainees who entered other professional degree (not including M.D. or biomedical Ph.D.)	1

Table 1 shows the outcomes for the current RIT-RISE program. The RIT-RISE objective goal was for 50% of trainees (5) to enter Ph.D. programs within three years of graduation. It is too early to assess the final RIT-RISE outcomes; however, current trainee performance and external evaluations indicate RIT-RISE remains on track to meet this goal of transitioning at least five of these trainees to PhD programs.

Anna Kasper (‘23)

- Undergraduate research in the Michel/Gaborski Labs for 3.5 years
- Summer research at Princeton (biomedical engineering)
- Co-authored a research publication in 2022
- Graduated summa cum laude (BS in Biology) in 2023 (Graduation speaker)
- Internship at Merck & Co
- PhD program in Neuroscience at the University of Pennsylvania Perelman School of Medicine