Toolkit for Increasing Accessibility in Academia

> **This is a living document which aims to gather resources and tips to support graduate students with disabilities. To contribute to this document, please fill out this [anonymous google form](#).**
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> **Our experiences of disability intersect with our other identities (racial, gender, sexual, ethnic, religious, national, age, socio-economic, and more). Sharing resources and tips that address these intersections is highly encouraged.**
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> **Our goal is to disseminate this collectively created toolkit as widely as possible. For this reason, please be aware that our contributions to this document can be shared by whomever and may be shared in a different format in the future (for example, in a resource guide).**
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> **This document contains the following sections:**
> 1) **Tools for Grad Students with Disabilities**
> 2) **Tips for PIs to Support Students with Disabilities**
> 3) **Additional Resources**
> 4) **Funding Opportunities for Students with Disabilities**

Tools for Grad Students with Disabilities

Visual Impairments and Blindness
- JAWS (Job Access with Speech) Screen Reader and ZOOMText
  - [Compatible with R](#)
- Adaptive microscopes with a [digital screen](#)
- Procedures and reagents can be read aloud using a phone when labelled with a QR code (requires a QR printer)
- Testing: see if you are eligible for extra time testing, oral exams, test scribes, large print, braille or electronic test and other accommodations from Department of Accessibility Services (OAS)
- Writing:
  - VoiceOver and TextEdit for writing on a Mac

- ○ JAWS on Word for writing when using Windows or the built-in Dictate feature
- Magnifying plate reader when microscope not necessary
- Audio Textbooks- can usually be provided by accessibility office
- Braille textbooks- less common but sometimes provided through accessibility offices
- Freedom scientific provides an array of products to turn print text into braille, large text, contrast colors, or audio
- Slant boards for desk work
- Overlays for enhancing color contrasts
- To avoid glare from overhead lights, try putting light filters on fluorescent lights
- Eliminate unnecessary background noise or consider isolation headphones
- Open and close doors fully (half-open doors can be an obstacle) and eliminate clutter from ailes and movement paths
- Place materials in a consistent place so students can locate them independently
- Keep a consistent organization in physical space so student can independently maneuver throughout environment

Non-neurotypical, atypical, and neurodivergent brains

- ***Attention and slow processing disorders***
  - ○ Testing: see if you are eligible for extra time testing or small group testing from Department of Accessibility Services (OAS)
  - ○ If you're having trouble focusing during breakout/small group activities in the classroom, request to go to work out in the hallway or somewhere quieter
  - ○ The tried and true Pomodoro technique!
  - ○ Consider asking to record lectures so that you can re-listen to them at your own pace and/or in a place where you are able to concentrate.
  - ○ Audio textbooks are sometimes easier than traditional written textbooks and can often be provided by the accessibility office.

- ○ Use a scanner app to immediately scan important documents and save them to your documents folder in the cloud, so you don't have to worry about keeping track of papers.
- ○ Amazing Marvin is a task manager that can be used to organize for project, task, and time management.
- ○ "Mirroring," or working with somebody else who is also working, can help focus come more easily. Zoom co-working sessions can also be helpful for this!
  - ■ [Focusmate](#) is a Zoom co-working option
- **Dyslexia**
  - ○ Try using Dyslexie or Opendyslexic font
  - ○ Procedures and reagents can be read aloud using a phone when labelled with a QR code (requires a QR printer)
  - ○ JAWS (Job Access with Speech) Screen Reader
    - ■ [Compatible with R](#)
  - ○ Testing: see if you are eligible for extra time testing
  - ○ Many accommodations for visual impairment can be used to mitigate the effects of dyslexia
- **Dyscalculia**
  - ○ See if you are eligible for extra time testing if you are taking a math exam
  - ○ If an exam includes math but does not allow calculators, request for an exception given your disability
- **Dyspraxia**
- **Auditory processing disorders**
- **Autism spectrum disorders**

Mobility and ambulatory aids (wheelchairs, crutches, walkers, etc).

- Meet with your PI to discuss how to make their lab and your workspace accessible to you.
- Opening doors to freezers, fridges, autoclaves, ect: tie a rope around the door handle to pull it open.
- Open and close doors fully (half-open doors can be an obstacle) and eliminate clutter from ailes and movement paths (ex: trash cans, rolling

carts and other movable equipment should be kept out of movement paths)
- Place materials in consistent placement so student can locate them independently
- Keep a consistent organization in physical space so student can independently maneuver throughout environment
- Use low, wheelchair accessible workbench
- Wheelchair tray for easy access to materials (keyboards, hold reagents, ect)
- Push chairs in always to avoid creating obstacles and make sure chairs are not in the way of a place where a person might use their wheelchair instead (ex: move chair out of cell culture hood to ensure wheelchair can be used instead)
- All walk in freezers should be equipped with ramps: if they are not, make this known to accessibilities office
- Ask for parking accommodations from the accessibility office
- Make sure an ACCESSIBLE evacuation plan exists in the building in case of emergency. If one doesn't exist, contact the accessibility office to create one.

Chronic illness

- Work with your advisor to build a flexible schedule that allows you to work when you feel well, rest when you don't, and accommodate doctor's appointments
- **Diabetes**
- **Multiple sclerosis**
- **Fibromyalgia**
- **Cystic fibrosis**
- **Sickle cell disease**
- **Chronic pain**
- **Chronic migraine**
  - Fluorescent lighting is prevalent in academic offices, especially in graduate student offices without natural light, and screen time can compound this. Ask to bring in alternative lighting or for permission to use an alternative workspace. Stronger rose-colored "blue light" glasses like [Theraspecs](#) or apps to adjust screen brightness like [f.lux](#) can help as well.

- ***Endometriosis***
- ***Epilepsy***
- ***Dysautonomia***
  - Talk to PI about modified deadlines and allowed time off before it is necessary
  - Ask the accessibility office for lighting adjustments
  - Ask the accessibility office for temperature adjustments and discuss temperature adjustments with PI. Alternatively, use personal desk heaters or fans to control temperature.
    - When this isn't possible like when working in cell culture hood or BSL3, try using an EMBRWAVE for mobile temperature regulations
  - Request access to food, liquids or medicines
  - Request ergonomic seating- under desk foot stools, ergonomic chairs, and other ergonomic seating options can be provided by accessibility office
  - Allot additional time to complete tasks
  - Dress code adjustments- some safety protocols can be modified depending on lab environment particular situations

Color Blindness
-

Speech-language disorders
-

Deafness and hard-of-hearing
-

Mental illness
-
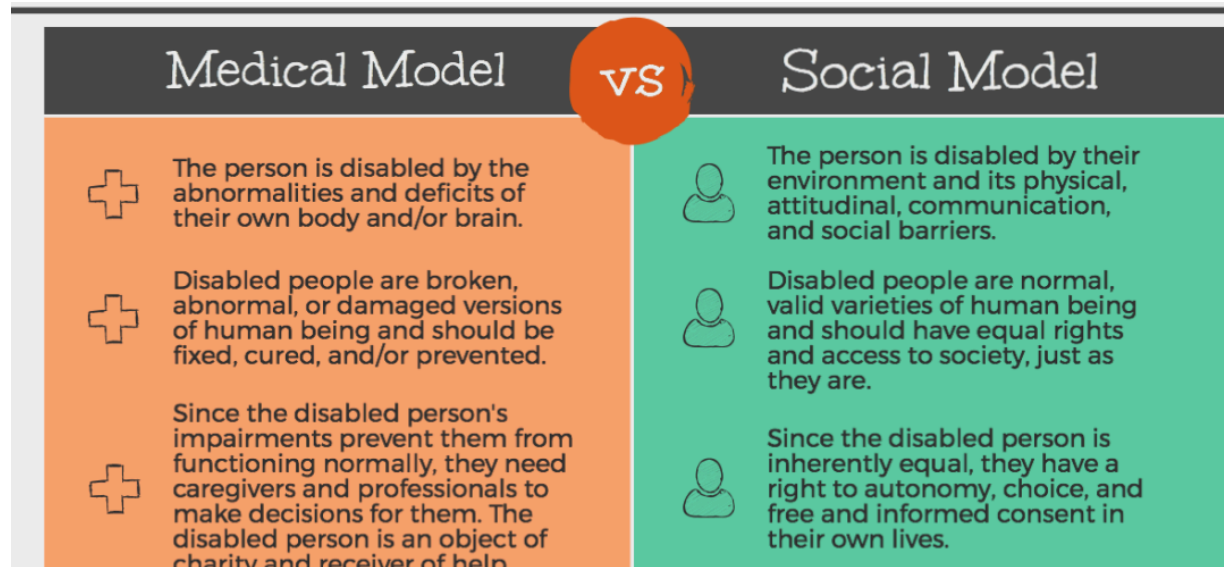
Disability & Fieldwork
- ***Dietary restrictions***

- ○ If you have dietary restrictions or dietary-linked autoimmune diseases, you may need to bring some staple foods to the field. Be sure to request a larger luggage allowance if your advisor is requiring you to bring equipment as well.
  - ○ Ask to spend a day in the city before traveling to your field site to purchase specific foods you may need to make cooking easier.
  - ○ Ask for a per diem that allows you to cook for yourself/eat out where you choose rather than group meals where you must rely on others to cook or accommodate your restrictions
- **Allergies**
- **Mobility aids**
- **Chronic illness**
  - ○ Fieldwork can be intensive, so inform your PI or supervisor that you will need regularly scheduled days off, as well as ad hoc days off if your illness flares up. Regularly scheduled rest can help avert triggering a flare. Because people with chronic and invisible illnesses are often so skilled at masking and hiding our conditions, it can be easier to have these conversations in advance (so it doesn't come as a surprise to your supervisor) rather than when you are in crisis.

Tips for PIs to Support Students with Disabilities

- **Advising:**

  - Realize that the university's office for disability services is not an all encompassing solution, support, or "fixer" for students with disabilities. Unfortunately, the support these offices can offer is often quite limited, especially for graduate students.

  - Students are most able to advocate for themselves and communicate their accommodations when they are in an environment that is receptive and respectful of their needs. Disclosing a disability status is a vulnerable experience and can be nerve-racking. Due to lapses in disability law, graduate students face a legal "gray area" when it comes to legal protections from discrimiation from their institutions. As an advisor, responding with openness, flexibility, and care can go a long way towards building trust in the advisor-advisee relationship. Moreover, understanding the conditions under which your student works best will only serve to make your relationship and their productivity thrive. Finally, assume the conversation should be kept confidential unless the student says otherwise.

  - While conversations about disability can be uncomfortable for both the student and the PI, they can be very helpful to the working relationship. Think about starting conversations or responding to your students' disability disclosure with questions like:
    - "What can I do to better support you?"
    - "Are there resources you can share with me so that I can learn about how to make our workspace more accessible?"

  - Realize that students with disabilities can take twice as long, and often have to work twice as hard, to complete assignments and tasks. This can be especially true in the beginning of their graduate career. Partner with your student to decide on a timeline for deliverables that works for you both.

- Send your student procedures beforehand. This way the student can familiarize themselves and identify steps where accommodations may be needed.

- If your student has a chronic or mental illness that requires regular medical or therapy appointments during the workday, please try to be considerate, flexible, and supportive. In the event that their appointments interfere with their research or classes, approach the conversation with a problem-solving mindset that both honors their health needs and their graduate work to find a solution.

- Educate yourself on the "social model" of disability which is what most disability communities follow. Take the time to read up on your student's disability. This will go a long way to understanding the challenges students with disabilities face.

Medical Model	VS	Social Model
The person is disabled by the abnormalities and deficits of their own body and/or brain.		The person is disabled by their environment and its physical, attitudinal, communication, and social barriers.
Disabled people are broken, abnormal, or damaged versions of human being and should be fixed, cured, and/or prevented.		Disabled people are normal, valid varieties of human being and should have equal rights and access to society, just as they are.
Since the disabled person's impairments prevent them from functioning normally, they need caregivers and professionals to make decisions for them. The disabled person is an object of charity and receiver of help.		Since the disabled person is inherently equal, they have a right to autonomy, choice, and free and informed consent in their own lives.

- It is not up to the student to accommodate themselves, it is up to the institution and department to accommodate the student. There is only so much a student can do to fit into the environment but there is much more we can do to change the environment to be inclusive for the student. It is crucial that you understand the responsibility lies with you as the PI to create an accessible environment.

○ Creating an accessible environment is often time intensive, expensive and will require restructuring of physical and online spaces as well as lab culture. This is not a warning to dissuade from creating accessibility, but it is important to understand that there are no "easy fixes" to mitigate disability. Systemic ableism is heavily ingrained in academia and it is our responsibility to be not just "not ableist" but actively anti-ableist.

○ Realize that accessibility is not one size fits all. No disability is the same and accessibility will need to be an ongoing conversation between you and your students.

● *Teaching:*

○ When a student hands you their accommodation letter from the Department of Accessibility Services (OAS), please take a minute to read and acknowledge it. Without doing so, you are missing an opportunity to better understand how your student learns.

○ Small group work activities can be challenging for people with attention, auditory, or processing disorders. The background noise of chattering can make it very hard for these students to focus and engage. Please consider offering alternative quiet spaces (such as the hallway or outdoors) for groups to use for the duration of the activity.

○ Consider that tasks can take some people with disabilities twice as long to complete; this does not mean, however, that these students don't know the information or are less prepared. For this reason, in-class worksheets or assignments (whether worked on independently or in small groups) can be challenging for these students and this can be related to or compounded by background noise. They may feel rushed through the activity, by the professor and/or their peers, and feel frustrated or embarrassed for being unable to thoroughly process the material at the same pace as the class. One way to accommodate this is to offer students the opportunity to work on the assignment in-class **or** outside of class.

You could also offer students the opportunity to work independently and in a quiet space (hallway or outdoors).

○ Avoid calling on students to read aloud; instead, wait for a student to volunteer.

○ Consider recording your classes for students to re-listen to at their own pace.

○ Assign a class notetaker or offer opportunities for students to share and compare notes with each other.

○ **Allow students to create the space they need**, such as allowing the following individualized strategies:
  ■ Use of computers in class (note-taking software is a *very* useful accommodation for many students)
  ■ Knit or use fidget toys during class (these activities can promote concentration and active listening)

● *Wheelchair accessibility*

○ While buildings may meet the structural standards for "wheel-chair accessibility," placement of bookshelves, trashcans, etc. can make (lab) spaces inaccessible to people in wheelchairs or people who use ambulatory aids (crutches, walkers, etc.). For example, while most wet labs have a low bench which people in wheelchairs can use for lab work, it often becomes the go-to space for printers and other machinery. **Please make your lab wheelchair accessible.** Additionally, when you have a student with mobility/ambulatory aids rotating or joining your lab, please check with that student to make sure they can easily navigate your lab and their workspace. If not, please make the necessary adjustments so that your lab is accessible.

○ Open and close doors fully (half-open doors can be an obstacle) and eliminate clutter from ailes and movement paths (ex: trash

cans, rolling carts and other movable equipment should be kept out of movement paths)

- ○ Push chairs in always to avoid creating obstacles and make sure chairs are not in the way of a place where a person might use their wheelchair instead (ex: move chair out of cell culture hood to ensure wheelchair can be used instead)

- ○ Check where and how far away the closest wheelchair accessible bathroom is from your lab or teaching space.

- ○ Freezer, fridge, and autoclave doors are generally out of reach for people in wheelchairs. Please attach a rope that can be used by the student to pull open the door.

- ○ Make sure an ACCESSIBLE evacuation plan exists in the building in case of emergency. If one doesn't exist, contact the accessibility office to create one.

- **Deafness and hard-of-hearing**

  - ○ [Improving the academic workplace for your deaf and hard-of-hearing colleagues](#)
  - ○ [How to get the most from live auto-caption of presentations](#)

- **Color blind accessible graphics**

  - ○ When making figures in R, use this [website](#) to find colors that are color blind accessible. Make sure to check the box that says "only show: color blind safe"

  - ○ For making color blind heat maps: https://cran.r-project.org/web/packages/viridis/vignettes/intro-to-viridis.html#the-color-scales

  - ○ In addition to ensuring that the color combinations you use are colorblind accessible, using different symbols or patterns of line

dashes can be super helpful! This solution doesn't apply to every figure (like heatmaps), but it can actually solve a lot of problems.

Additional Resources

Teaching
- ***Chemistry***
    - [Teaching Chemistry to Students with Disabilities](#)
    - [Implementation of Protocols To Enable Doctoral Training in Physical and Computational Chemistry of a Blind Graduate Student](#)

- ***Teaching in the field:***
    - [Fieldwork and Disability: An overview for an inclusive experience](#)

- ***Blind in STEM***
    - [Blind STEM Curriculum](#)

Follow the work of Disabled Queer and Trans Black, Indigenous, and People of Color (QTBIPOC) Activists and Scholars
- The disability justice movement was started by Black, Indigenous, and people of color
- Leah Lakshmi Piepzna-Samarasinha
- [syrus marcus ware](#)
- Patty Berne
- Aurora Levins Morales
- Stacey Milbern
- Mia Mingus

Reading
- Ableism in Academia by Dr. Nicole Brown
    - Here is a free PDF of the book: https://discovery.ucl.ac.uk/id/eprint/10110703/1/Ableism-in-Academia.pdf
- Care Work: Dreaming Disability Justice by Leah Lakshmi Piepzna-Samarasinha
- Listen to "David and Goliath" by Malcom Gladwell for a positive perspective on having Dyslexia
- The Short Bus by Jonathan Mooney

- Normal Sucks: How to Live, Learn, and Thrive Outside the Lines by Jonathan Mooney

Event Accessibility
- [Accessible Conference Guide](#)
- [Accessible Meeting and Event Checklist](#)

Race & Disability
- [#RevealToHeal: Mental Health and Communities of Color](#), written by Chrystelle Vilfranc from VangaurdSTEM
- [Dis/ability critical race studies (DisCrit): theorizing at the intersections of race and dis/ability](#)
- ["Through a Deficit Lens"](#) by Sarah Manchanda, a critique of the reinforcing roles race and gender can play in the institutional othering of disability

Deafness and hard-of-hearing
- [The Mind Hears](#): a blog by and for deaf and hard of hearing academics
- [Deaf Gain: Raising the Stakes for Human Diversity](#)
- Google doc list of [deaf professors around the world](#)

Visual Impairments
- [Blind Scientist Tools](#), compiled by Dr. Mona Minkara (a blind chemist)
  - Also see her blog post: ["Getting a PhD"](#)

Fieldwork & Disability
- ["Field work as a disabled graduate student"](#) blog post by Tatum S. Katz about navigating fieldwork with chronic pain

Other Resources
- [Making science labs accessible for students with disabilities](#)
- [Inclusivity for all: How to make your research group more accessible](#)
- Follow the hashtag #disabilityinSTEM on Twitter
- [Eye to eye peer mentoring programs](#)

Funding Opportunities for Students with Disabilities

External lists of funding sources

- https://cds.coe.hawaii.edu/scholarships/
- Freedom scientific offers scholarships to cover cost of adaptive materials for scientists, but it is only available if you contact them
- For students with rare diseases: https://chivecharities.org/
- Associationofhorizon.org

Discipline Specific

- STEM & Medicine:
  - The Student Award Program of the Foundation for Science and Disability
    - The Student Award Program of FSD helps to increase opportunities in science, engineering, mathematics, technology, and pre-medical/dental areas for graduate or professional students with disabilities. FSD has established a Science Graduate Student Grant Fund, which is available to fourth year undergraduates (who are disabled and have been accepted to a graduate or professional school in the sciences) and graduate science students who have a disability. Awards of $1000 each are made to support research projects of qualified university students in any field of Mathematics, Science, Medicine, Technology, or Engineering. Requirement: Citizenship, must be in STEM or Medicine, be a grad student or fourth year undergrad students accepted to a graduate or professional school with a disability

Disability Specific

- Cystic Fibrosis:
  - AbbVie CF Scholarship

- - - Provides 40 scholars with $3,000 awards each. Two of these students will be selected to receive a Thriving Student Scholarship of an additional $22,000 each. Application opens in Spring and awards are decided in October. Available to both Undergraduates and Graduate Students
- Dyslexia and visual impairments:
  - https://learningally.org/
    - Provides scholarships <$6000 for students.
- Ehlers-Danlos:
  - Ehlers-Danlos Society often provides scholarships for research equipment to students studying EDS or who have been diagnosed with EDS
  - https://www.ehlers-danlos.com/