

Neurodiversity 101

Embracing Neuro-Differences in the
Classroom and the Workplace

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2023 Celebration of DIA at Mines

Introduction

- Neurodiversity (ND) is the idea that we all have different types of brains.
 - In the same way we understand that there is no “correct” or “incorrect” gender or race, the neurodiversity paradigm teaches that there is no “correct” or “incorrect” type of brain.
 - People with differences in brain behavior should be valued for their unique strengths.
- Neuro-differences between neuro**divergent** and neuro**typical** individuals
 - may be invisible or hover at the edge of perception
 - which may lead to feelings of exclusion, alienation
- The purpose of this workshop is to give you tools and strategies that can be used to better understand and support neurodivergent people at Mines.

Poll question

I understand what neurodiversity is and can apply strategies for embracing neuro-differences in the classroom / workplace.

1

strongly
disagree

2

disagree

3

neutral

4

agree

5

strongly
agree

 Start presenting to display the poll results on this slide.



autism

dysgraphia

sensory processing disorder

Tourette's
obsessive compulsive disorder
dyspraxia

common neurotypes

sensory integration disorder

extremely sensitive person

pathological demand avoidance

ADHD

acquired ND

stuttering

dyslexia

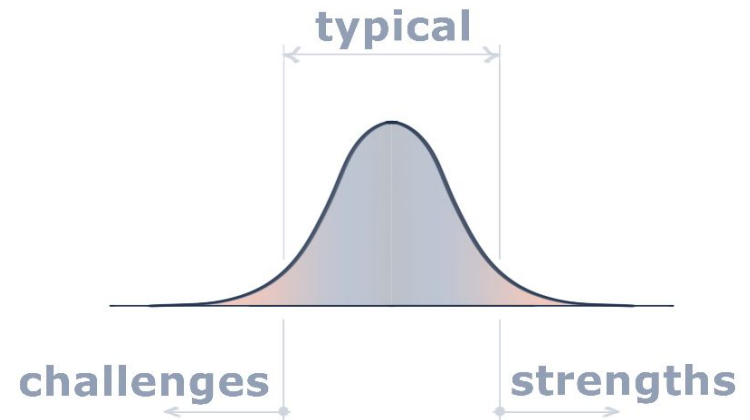
disassociative identity disorder

dyscalculia

bipolar

Strengths + Challenges = Multi-Exceptionality

- **Multi-exceptionality** is the confounding idea that individuals can be on both extremes of the bell curve
 - the “bright and quirky” student
 - the “smart but absent-minded” professor
- ND students and faculty at Mines are highly likely to be **multi-exceptional**
 - their ND strengths can be a perfect match to a career in engineering
 - they thrive in a **strengths-based** learning (or working) environment
 - traditional education is based in resolving deficits; not harnessing **strengths**



Medical and Social Models

- The **medical model** of disability focuses on deficits:
 - *"Simone Biles is a bad swimmer"*
 - *"Michael Phelps is a bad gymnast"*
- The **social model** of disability identifies barriers imposed on ND people by society (or NT norms)
 - e.g. autistic people can feel confused or annoyed when NT people tell "white lies" or use figurative language
 - e.g. people with ADHD can feel annoyed at the slow speed of NT conversations or interrupt

Image caption: Olympic athletes Simone Biles and Michael Phelps, neither of whom attended Mines.
Image source: Posted by Simone Biles on social media (Facebook)
<https://www.facebook.com/simonebiles/posts/congrats-to-nathan-adrian-michael-phelps-on-the-4x100-meter-gold/829627063805530>



Voices and Vignettes

- In Spring 2023, a survey was deployed for Mines students, faculty, and staff to have a safe (anonymous) space to share their thoughts about ND.
- Browse a few of [the responses](#)¹.
- How do these stories impact your beliefs about ND people at Mines and the campus culture?
- Discuss with a neighbor (and we'll ask you to report back)

Neurodiversity @ Mines: Voices and Vignettes

Selected Responses from Mines Students, Faculty, and Staff
(all of whom consented to having their responses shared)

<p>1 I'm autistic, which people often find surprising. I'm an honor roll student and have a strong community of friends - and that doesn't make me any less autistic. Often, times when I tell people about my disability, they respond that they "never would have known" or that I "don't seem autistic". And I recognize that the intent is positive, but what these phrases really do is show the narrow range of what people believe autism is. I've spent my whole life learning how to mask the atypical parts of who I am - but I still, adhere to a rigid routine, and struggle in social situations.</p> <p>If given the chance, I can talk about my special interests for hours - which can be handy at Mines, given that most of them are science related. I'm also incredibly attentive to detail, have a strong memory, and think outside the box, all of which are traits that help me as an engineer. But I'm easily overwhelmed, struggle to communicate my needs, and resist change on all levels. Living in a world that isn't built for my brain is challenging in so many ways. Having a brain that works differently from most gives me a unique skill set. My autism is a major part of who I am, and embracing that has allowed me to grow into who I am today.</p>	<p>2 As a faculty member, I like how many (not all) neurodiverse students know how they learn, and they often teach me strategies that not only help them learn, but can help everyone learn.</p>
<p>3 In my brief time at Mines, it's been humbling to realize that I'm now a part of a community with perhaps the highest concentration of brainpower I've ever seen.</p> <p>I would guess that I fit squarely within that bell curve of intelligence here, but then again, the complexity of any community's neurodiversity is sold short by the mere image of a bell curve graph. We're more of a weird 4-D mosaic with all sorts of exotic swirling colors & patterns. Maybe that sounds hokey, but anyway, it's not only humbling, it's also exciting to meet & work with people who see the world from a different angle - we can continually learn from everyone else around us, and that's a sacred thing.</p>	<p>4 My ND primarily shows up by being overly methodical and explanatory. This is true in my personal and professional life. While this level of thoroughness and understanding of process can be very helpful in my role at Mines, I have learned to adjust my communication style for a few of my colleagues on campus so that my meaning stays clear in my communication. For example, I learned one of my colleagues doesn't read comments in parentheses (the information contained here is considered to be superfluous, and thus is rarely always ignored). This realization was really valuable for me, because I tend to include parentheticals in my correspondence (to help add context or provide additional detail). Thus, I have learned that when I'm communicating with this person, I need to make sure I find a way that all relevant information gets captured in the sentence itself, and I try to avoid using parentheses at all. This isn't a hugely negative or impactful experience, but it was an adaptation I've made that I think wouldn't have been necessary if not for my ND.</p>
<p>5 One of my struggles at Mines is that I need time to process. I need meeting agendas and any questions you want my feedback on in advance. I tend to "lose my words" in these situations and struggle to speak. I know what I want to say but my brain and my mouth become disconnected. I also like to listen to music all the time. It "quiets" my brain so I can focus. If I have my earbuds in, promise I'm not being rude. It just keeps my anxiety down and my brain focused.</p>	<p>Another tendency that I've previously ascribed to my ND is being very deliberative. I'm not a spontaneous person, and it can take me some time to make a decision on something. This is true for high-stakes decisions like, "What car should I buy," and for low-stakes ones like, "What should I order for lunch?" I had a really positive experience with a supervisor recently when they told me about a forthcoming policy change in our office before it became official. My supervisor knew this policy change would impact how I interfaced with others in the office, and they knew that the change in the office would happen in a matter of days once implemented. My supervisor recognized this preference in me and honored it by giving me the extra time and space to process this change and make a thoughtful choice about how I wanted to proceed.</p>

page 1 of 2

<p>6 I think I'm willing to put myself out there like that because of my neurodivergence, lack of concern for what people think of me, and ability to speak my truth regardless of who's listening, and I consider those good things. But it's very complex because there "are" social consequences, and it's those social consequences that I cannot understand and which I have no access to that keep me up at night (quite literally). I have kept my voice a little lower key since starting at Mines, because I'm trying to gauge myself and let people come to understand me gradually. I really don't want to miss this opportunity up. It's a dream job so far as I'm concerned. I'm not silencing myself or masking (I don't think) but I'm trying to be strategic and deliberate. I worry all the time that I'm going to slip and say something that alienates me, or that I'll be "too much" for people. I think that anxiety comes from within me rather than from the people around me, and I have overall felt totally welcomed and valued in my department. So, it's a delicate balance. My neurodivergence is absolutely a strength, a superpower, and a source of inspiration and fire, but it is certainly a double-edged sword. My new role as a faculty member lets me ride both edges of the blade. It's a beautiful opportunity for my own continued personal growth and healing from past traumas, and an invitation to help students through my mentorship and the world at large through my research. I hope more people can find their voices to express these kinds of struggles in a safe space, because it is through expression and connection that we can overcome the darkest aspects of our innermost hearts and minds to find our brightest light.</p>	<p>7 I am a faculty member with a diagnosed neurodivergent condition. Mines is incredibly challenging to navigate due to the constantly changing systems, procedures and organizational structures; inconsistent modes of communication; poor advertisements about events; overwhelming flood of emails and last-minute deadlines. I have shared concerns and these experiences with several faculty and administrators and have experienced shaming, gaslighting and a general lack of support or empathy. We provide accommodations for our neurodiverse students, but as far as I can tell there are none whatsoever available for neurodiverse faculty. I feel like I am struggling to survive at this institution.</p>
<p>8 Career seminars, such as disruptive (or was disruptive in charming ways?) so my ADHD was not identified when I was young. I began to struggle with certain tasks as I grew older and wasn't having any targeted new responsibilities, and my ADHD is a problem now. I was diagnosed at age 40. I am an assistant professor. These are also given in a way that treats me as if I'm not a professional. I have standards of body language and tone as good and not meeting them by my brain and what it does. But it's not enough to talk about those? We need to identify unnecessarily rigid expectations. Career day itself is expectations around our work and a sensory nightmare, massively overwhelming noise and chaos even if you aren't autistic, learn, and collaborate? How can we make it easier for anyone to ask for support and get it?</p>	<p>10 My neurodiversity stems from early childhood trauma leading to ADHD symptoms, so it's difficult to talk about and articulate. I also don't have the money to work with a therapist, nor do I ever want to be diagnosed since it might affect future opportunities or how I'm treated by healthcare or coworkers. I am very aware of what people expect of women in particular who have a history of or diagnosis with anxiety in their quality of healthcare and a sensory study that has been so overwhelming noise and chaos even if you aren't autistic, learn, and collaborate? How can we make it easier for anyone to ask for support and get it?</p>

Mines students, faculty, and staff:

Would you like to add your story about neurodiversity? Whether you are neurotypical, neurodivergent, or still trying to figure it out - all voices and perspectives are welcome!

Use the link below or QR code at right: <https://forms.gle/JW9rA6aXZKAXM86>

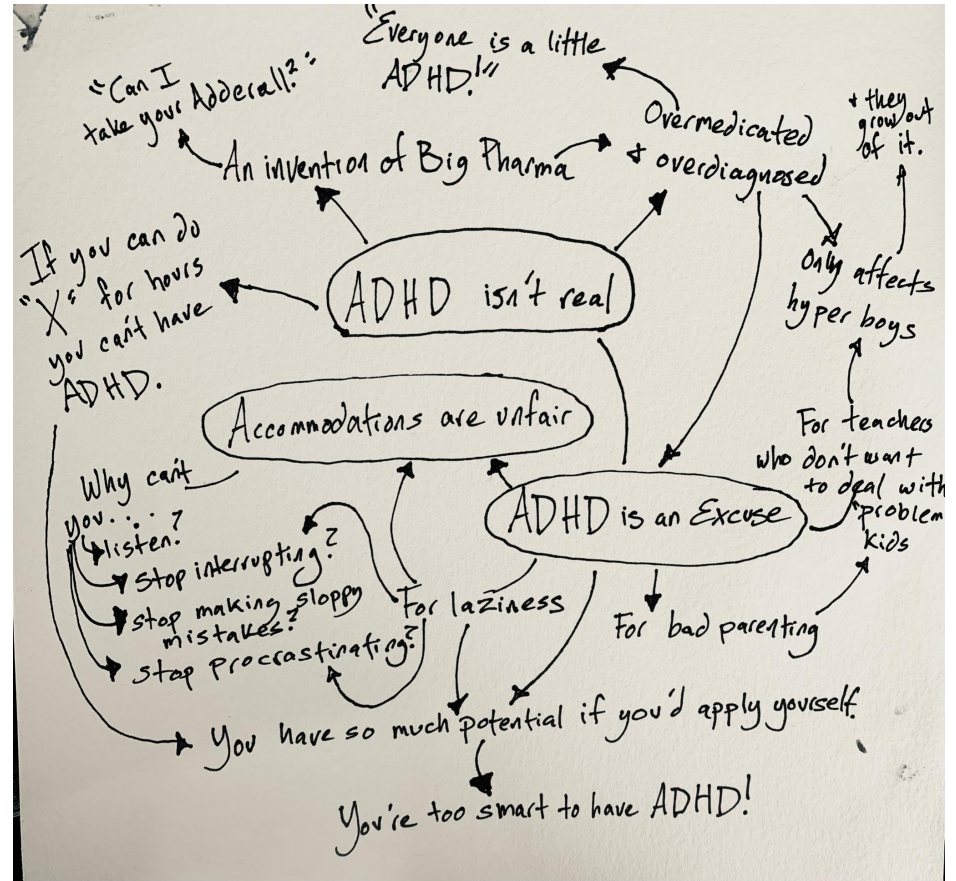


page 2 of 2

¹ <https://www.mines.edu/diversity/wp-content/uploads/sites/278/2023/04/Neurodiversity-Voices-and-Vignettes-Quotes.pdf>

Misconceptions about ADHD

Many people have misconceptions about ADHD, including, that it's not a real disorder or overdiagnosed, an excuse for laziness, or that is only affects hyperactive boys.

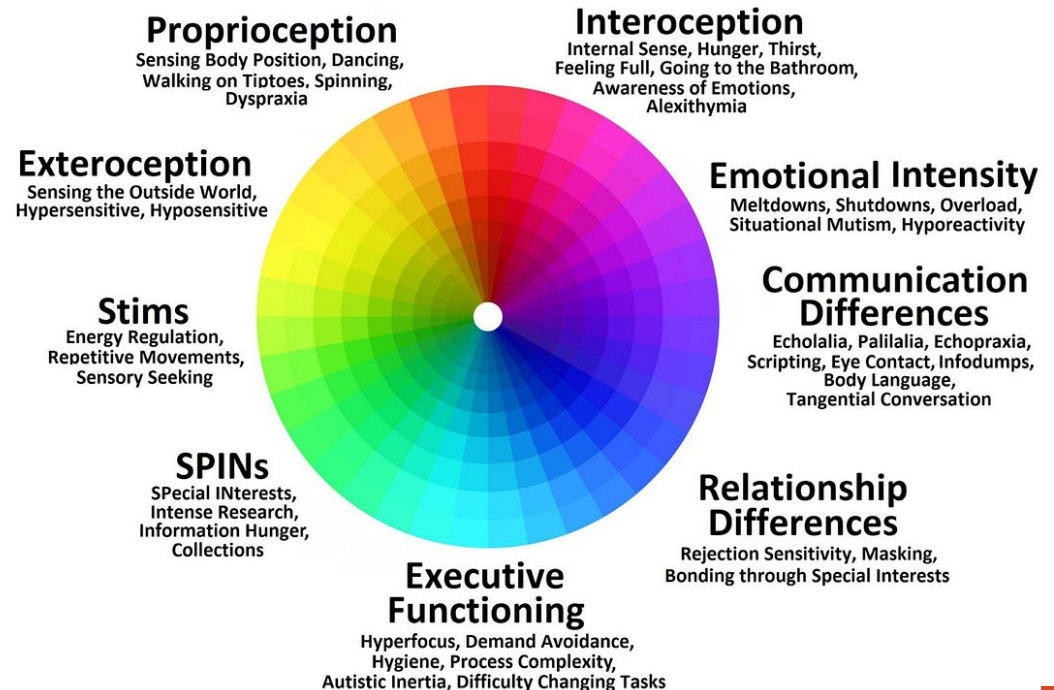


A little deeper → ADHD neuro-differences

- **ADHD is a neurobehavioral condition associated with low levels of norepinephrine that causes hyperactive/impulsive and inattentive symptoms.**
 - People with predominantly inattentive ADHD may have difficulty concentrating, sustaining attention, and prioritizing, starting and completing tasks. They may also forget deadlines and appointments, overlook small details, and appear not to be listening—even when they are!
 - People with predominantly hyperactive/impulsive ADHD may feel extremely restless (like they're driven by a motor), talk excessively, interrupt, blurt out answers, struggle to wait and take turns, and take risks without thinking.
 - People with combined type ADHD have a combination of hyperactive and inattentive symptoms.
 - People with all subtypes struggle with executive function, and may struggle with inconsistent performance in school or work, regulating and managing emotions, and low self-esteem.
- **People with ADHD can also be affable, creative, adventurous, outside the box thinkers. When a task aligns with their passions and interests they can focus on it for hours, and be passionate, driven, and hard working.**

A little deeper → autistic neuro-differences

- autism is often called a **spectrum**, but it's more radial than linear
- "if you've met one person with autism, you've met one person with autism"
- strengths: special interests, hyperfocus / fixation, detail-oriented, patterns
- challenges: social norms, emotional regulation, routines, sensory differences



Poll question

Based on your experience in this workshop so far . . .

- (1) What challenges do you think occur (at Mines) due to neuro-differences in our students, faculty, and staff?
 - In the (Mines) classroom?
 - In the (Mines) workplace?
- (2) Can you think of something you believed to be true (e.g. *students learn best in groups*) and revisit that belief through the lens of ND?

Accommodations

vs.

Universal Design (UD)

- Modifies course policies and assessments to meet the specific needs of an individual with a disability
- Courses are generally designed with a homogenous audience of learners in mind
- Requires students who need accommodation to self-advocate
- Reactive

- Policies and assessments are designed with the goal of making the class accessible to a broad array of learners
- Assumes a heterogeneous audience
- Preempts the need for many individual accommodations
- Proactive

Embracing neuro-differences in the **classroom**

- **Provide multiple ways for students to learn**
 - Examples: readings, lectures, videos, collaborative learning, in-person discussions, online discussions, hands-on activities, etc.
- **Provide multiple ways for students to participate and engage**
 - Beyond in-class participation, examples might include small group discussions, discussions during office hours, and comments submitted in writing, electronically, or on an in-class smartboard.
- **Provide multiple ways for students to demonstrate what they have learned**
 - Options might include: Traditional tests, group work, portfolios, projects, term papers, and presentations.
 - When appropriate, provide students choices in assessment methods.
- **Clearly communicate expectations**
 - for the course, for assignments, for deadlines, and for assessments
- **Build accommodation, tolerance for error, and flexibility into course design**
 - Consider other options for assessment besides timed in-class exams
 - Consider using extension banks (students get to take an extension on one assignment, or each student gets a specific number of extension days that can be applied toward multiple assignments), and/or drop a certain number of grades
 - Offer feedback on parts of large projects before they're due and give students chances to revise and resubmit.

Embracing neuro-differences in the **workplace**

- **First, adapt the recommendations on the prior slide to the workplace!**
 - Provide multiple ways / modes for employees to work (e.g. *working from home*)
 - Provide multiple ways for employees to participate and engage (e.g. *facilitate hybrid meetings*)
 - Provide multiple ways for employees to demonstrate their work performance (e.g. *flexible rubrics*)
 - Clearly communicate expectations (e.g. *work responsibilities*)
 - Build accommodation and flexibility into workplace policies and procedures (e.g. *opting-out of activities, soliciting faculty preferences for committee assignments, etc.*)
- **Second, embrace diverse contributions to the workplace**
 - Recognize that diverse teams are better than homogenous teams, learn to recognize ND super-powers and harness the unique strengths of ND people when building strong teams and committees
 - Train the department / unit to understand that ND is a form of diversity
 - Create a culture in which ND people feel safe to self-disclose, but never “out” a person perceived to be ND
- **Most importantly, recognize that older generations require more empathy:**
 - They are more likely to be un-diagnosed, and less likely to have received accommodations or support
 - More likely to have experienced a life history of exclusion / bullying; may operate under fear / anxiety

The BIG THREE of inclusive classrooms / workplaces:

first:

listen

(follow others' lead)

second: think in terms of

differences

(not deficits)

then: accommodate, proactively, leveraging

s t r e n g t h s

Project vision + next steps

The vision of *ND @ Mines* is to **foster dialogue so that we may cultivate a more inclusive environment for ND students, faculty, and staff.**

Want to stay involved with *ND @ Mines*?
mines.edu/diversity/neurodiversity

Want to be an ally? Reach out to
Susan Reynolds (reynolds@mines.edu)

Want us to bring this presentation to your unit/department? Just ask.



WHAT IS NEURODIVERSITY (ND)?

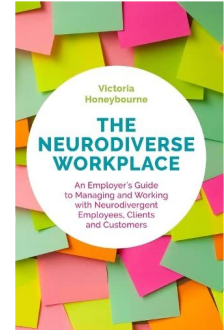
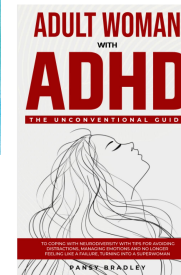
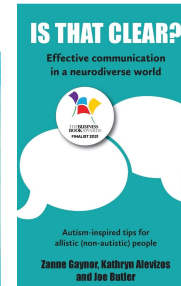
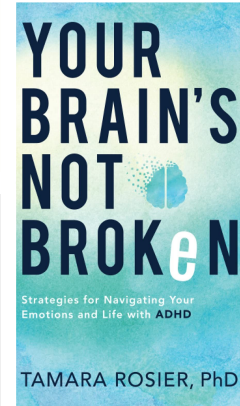
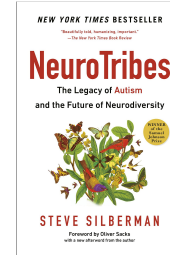
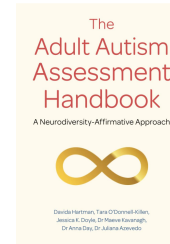
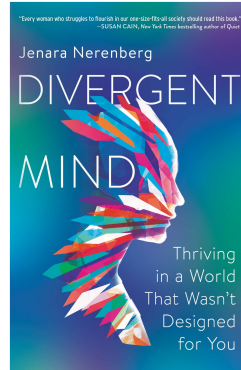
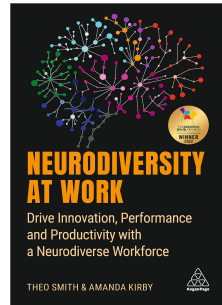
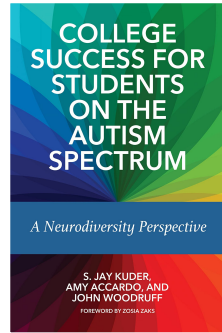
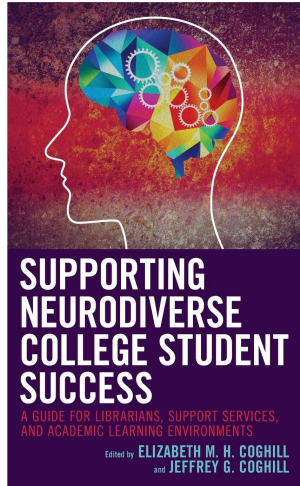
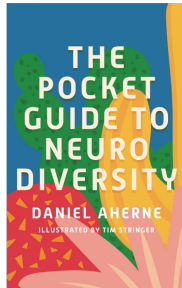
Simply put, we all have different types of brains. Neurotypical people have brain behavior that is similar to the rest of the human population; other people may identify as neurodivergent when their brain is wired a little differently. Neurodiversity is a positive and affirming concept that signals that all people – both neurotypical and neurodivergent – deserve respect and inclusion.

Neurodivergent individuals are all different – but may have a wide array of strengths, such as incredible focus on preferred projects, strong passion for social justice, an ability to think broadly and creativity, excellent pattern-recognition skills, and the capacity to work independently. Despite these strengths, neurodivergent people may face significant challenges, such as feeling misunderstood, staying organized, meeting deadlines, coping with overt or subtle bullying, and masking neurodivergent characteristics to better fit in – all of which may lead to anxiety, depression, or mental burn-out.

VISION STATEMENT

The vision of the Neurodiversity@Mines project is to create dialogue around neurodiversity and to foster an environment in which neurodivergent people are supported and celebrated as a core part of our community. Stay tuned to this site for updates; this a brand new initiative at Mines in Spring 2023.

Additional reading:



Additional reading:

All about neurodiversity

- [Explainer: What is neurodivergence? Here's what you need to know](#)
- [Neurodiversity is a competitive advantage](#)
- [Stop asking neurodivergent people to change the way they communicate](#)
- [Neurodiversity and intersectionality](#)
- [What we do and don't talk about when it comes to ADHD](#)
- [Greta Thunberg responds to Asperger's critics: 'It's a superpower'](#)
- [The way we manage conflicts needs to take neurodiversity into consideration](#)

Neurodiversity in the classroom

- [Compassionate pedagogy for neurodiversity in higher education](#)
- [How to teach your \(many\) neurodivergent students](#)
- [Reframing neurodiversity in engineering education](#)
- [Redesigning Engineering Education for Neurodiversity: New Standards for Inclusive Courses](#)
- [Universal Design for Learning Guidelines](#)
- [Accessible syllabus](#)

Neurodiversity in the workplace

- [Is your company inclusive of neurodivergent employees?](#)
- [How to make room for neurodivergent professors](#)
- [Autism doesn't hold people back at work: discrimination does](#)
- [Avoiding misunderstandings in the neurotypical workplace](#)

Please help us assess the design of the workshop:

**I understand what neurodiversity is
and can apply strategies for
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strongly
disagree

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disagree

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neutral

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Q&A Session

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