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

differences in communication

non-linear thinking

memory differences

intense emotions

focus and attention

differences in social

differences

sensory differences

processing differences

executive functioning differences

empathy

common neuro-differences @ Mines
common neurotypes

- autism
- dyslexia
- ADHD
- OCD
- Tourette's
- dyspraxia
- dyscalculia
- bipolar
- sensory processing disorder
- sensory integration disorder
- extremely sensitive person
- pathological demand avoidance
- stuttering
- acquired ND
- disassociative identity disorder
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.

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)

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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

Image source: Matt Lowry, LLP
https://www.mattlowrylpp.com/meme-gallery
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?

Start presenting to display the poll results on this slide.
## Accommodations vs. Universal Design (UD)

<table>
<thead>
<tr>
<th>Accommodations</th>
<th>Universal Design (UD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modifies course policies and assessments to meet the specific needs of an individual with a disability</td>
<td>Policies and assessments are designed with the goal of making the class accessible to a broad array of learners</td>
</tr>
<tr>
<td>Courses are generally designed with a homogenous audience of learners in mind</td>
<td>Assumes a heterogeneous audience</td>
</tr>
<tr>
<td>Requires students who need accommodation to self-advocate</td>
<td>Preempts the need for many individual accommodations</td>
</tr>
<tr>
<td>Reactive</td>
<td>Proactive</td>
</tr>
</tbody>
</table>
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
**strengths**
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.
Additional reading:

Browse the ND featured section at the main entrance of Lakes Library in April 2023
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

Note: these slides (and links) will be posted at mines.edu/diversity/neurodiversity
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.
Q&A Session

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Start presenting to display the audience questions on this slide.