

# NEURODIVERSITY 101

Embracing neuro-differences in the classroom and the workplace<sup>1</sup>

## WHAT IS NEURODIVERSITY (ND)?

To put it simply, we all have different kinds 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 (which is a bias called **ableism**).

A broad spectrum of neuro-differences exists within humans. Neuro-differences between **neurodivergent** and **neurotypical** individuals may be invisible or hover at the edge of perception. For that reason, it is hard to understand implicit bias against ND people without specialized training.

## COMMON NEUROTYPES

It is estimated that 15-20% of the world population is neurodivergent, although there is controversy surrounding which **neurotypes** should be included under the neurodiversity umbrella (e.g. autism, attention deficit hyperactivity disorder or ADHD, dyslexia, dysgraphia, dyscalculia, dyspraxia, sensory processing disorder, sensory integration disorder, etc.).

These conditions were first understood as deficits and challenges. This deficit-based perspective is sometimes called the **medical model** of disability.

The neurodiversity paradigm reframes clinical diagnoses in terms of neuro-differences, with an emphasis on strengths. This is sometimes called the **social model** of disability. The social model identifies barriers imposed on ND people by neurotypical norms and reframes “disorders” as “differences.”

## COMMON NEURO-DIFFERENCES

Every individual is different and unique. That said, neurodivergent people may have a wide array of **strengths**, such as hyperfocus on preferred projects, passion for social justice, creative and non-linear thinking skills, pattern-recognition skills, and a capacity to work independently.

Despite these strengths, neurodivergent people may face significant **challenges**, such as feeling misunderstood, staying organized and meeting deadlines, coping with overt or subtle bullying, and masking atypical characteristics to better fit in. All of these challenges may lead to anxiety, depression, or mental burn-out.

## STRENGTHS-BASED APPROACHES

**Multi-exceptionality** is the confounding idea that individuals can be on both extremes of the bell curve: atypically strong in one dimension (e.g. *systems thinking*) and atypically challenged in another (e.g. *social communication*).

ND students and faculty at Mines are highly likely to be **multi-exceptional**. What’s more, their ND strengths can be a perfect match to engineering fields.

Neurodivergent people thrive in a **strengths-based** learning or working environment. Neurotypical people do too.

Traditional engineering education focuses on resolving comprehension deficits. A pedagogical pivot is needed to capitalize on a more diverse range of strengths.

The **Universal Design** (UD) philosophy can benefit all people (both neurotypical and neurodivergent). It provides for flexibility in the ways people learn, engage, communicate, and contribute.

<sup>1</sup> Prof. Susan Reynolds and Dr. Eliza Buhner; 2023 Celebration of DI&A at Mines; April 3, 2023; Colorado School of Mines, Golden, Colorado

# STRATEGIES AND EXAMPLES

to support neurodivergent students, faculty, and staff at Mines<sup>2</sup>

## APPLY PRINCIPLES OF UNIVERSAL DESIGN (UD)

- **In the classroom**, use a variety of instructional materials to disseminate information to students (readings, lectures, videos, in-person discussions, online discussions, hands-on activities, etc.)
- Be proactive if you see a student struggling with group work, or if you anticipate that a student will struggle with making an oral presentation (e.g. *offer an individual presentation in office hours*)
- To help students that may have executive function challenges, cognitive rigidity, and communication differences, provide clear and specific instructions for in-class and out-of-class assignments. Give students a detailed schedule of deadlines and consider breaking longer assignments into smaller chunks.
- Provide ample notice of changes to deadlines.
- **In the workplace**, poll colleagues for preferred communication styles (longer face-to-face meetings, shorter stand-up meetings, videoconferences, texting / chatting, short emails, long memos, frequent phone calls, etc.). For large meetings, always provide a hybrid option, and read the Zoom comments aloud.
- Provide multiple ways/modes for employees to work (e.g. *working from home, which may reduce anxiety for people that are socially anxious*)
- To help employees that may have executive function challenges, cognitive rigidity, and communication differences, provide clear and specific instructions for work expectations, especially for historically vague work (e.g. *writing a committee charge*).
- Provide ample notice of changes to policies.

## DIFFERENTIATE BASED ON INDIVIDUAL STRENGTHS

- **In the classroom**, design activities so that students can self-select into different roles. For example, if the learning outcome is to analyze a truss, have some students perform calculations, others build models, still others seek out patterns, and a final group that is responsible for communicating the meaning of the various explorations and synthesizing it for the group.
- **In the workplace**, form diverse committees and teams. Invite people to share their strengths. Devise work-sharing arrangements in which each individual can contribute meaningfully.
- Recognize that ND employees are likely to possess unique and valuable skill sets. Support and normalize those contributions, especially when atypical.

## VALUE RELATIVE GROWTH OVER ABSOLUTE PERFORMANCE

- **In the classroom**, if you perceive that a ND student is challenged by working in groups, give that student the option to work in a pair (perhaps with another ND student, as research shows that ND people communicate well with each other) or alone. This accommodation may alleviate social anxiety for ND students and allow them to focus on learning.
- Build deadline flexibility into course policies through extension banks and/or by dropping a certain number of assignments from the final grade calculation.
- **In the workplace**, when evaluating employee performance, guard against the implicit bias many bear against ND people. Provide employees with flexibility so that they may demonstrate their job contributions in the manner that best suits them.
- Be wary of rubrics and performance expectations that are written from the perspective of neurotypical norms. Create systems that value diversity in thinking and working styles; allow each employee to play to their strengths and to improve over time.

## SHOW RADICAL EMPATHY AND PRESUME GOOD INTENT

- ND people have often experienced a lifetime of exclusion and discrimination. They have likely suffered from bullying in various social contexts. Recognize the traumatic effects of this life history and show radical empathy.
- Understand that miscommunication between NT and ND people is common. Some ND individuals are misunderstood to be rude or difficult, when they are simply seeking information or acting in service of fairness.
- Recognize that older generations of ND people, people of color, and women are intersectional with respect to ND. They are less likely to have received a diagnosis, support, and accommodations than the general population.

<sup>2</sup> Some suggestions were adapted from The Center for Universal Design in Education at the University of Washington, Sheryl Burgstahler, "Equal Access: Universal Design of Instruction," <https://www.washington.edu/doit/equal-access-universal-design-instruction>