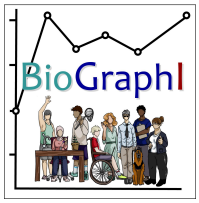

Biologists and Graph Interpretation Network

Resources for Learning About the UDL Framework

By: Derek Braun, Stanley Lo, and Pat Marsteller

The Universal Design for Learning (UDL) framework is a relatively new, translational framework built upon principles shown through previous research. It was developed by the Center for Applied Special Technology (CAST.org), which hosts authoritative resources describing the framework.

1. **About Universal Design for Learning** [website]
2. **UDL At A Glance** [video]
3. UDL On Campus [website]. Includes step-by-step guides on how to develop an UDL syllabus, media and materials, etc
4. Getting started with Universal Design for Learning (UDL) [helpful infographic - good for adding to a slide deck]
5. Image accessibility tutorial [website]

UDL provides evidence-based solutions that address barriers to student success ranging from physical accessibility of the classroom to cognitive access to cultivation of learner self-efficacy (Meyer et al., 2014). Removing these barriers can create more inclusive STEM classrooms which can increase motivation and improve learner outcomes (Dewsbury & Brame, 2019; Rao et al., 2014; Schreffler et al., 2019; Yeager et al., 2019). UDL can address the likely future need of more flexible and adaptable learning experiences (Meyer et al., 2014; Wong, 2020). UDL principles also help students develop critical thinking skills, problem solving skills and metacognition (Orndorf et al., 2022).

The UDL framework presents its guidelines through a goal-focused approach that allows faculty to identify where they have already implemented UDL and identify future applications that will be most impactful to their learners (Tobin & Behling, Kirsten T., 2018). This approach leads to better outcomes for learners and reduced frustration for instructors (Kumar & Wideman, 2014; Rao et al., 2014).

UDL specifically addresses access to ensure learners can engage with materials. Access also includes ensuring the learning environment provides relevance and authenticity for students, offers multiple formats for interacting with material (e.g. text and audio), and uses technology that is designed for a broad range of users (e.g. options for using mouse commands and keyboard shortcuts). UDL advocates that faculty provide learning environments that support student

persistence, provide disciplinary expertise by clarifying and "decoding" disciplinary information, and scaffold students' ability to demonstrate mastery of disciplinary practices. It focuses on the development of higher order learning and metacognitive skills that support students in becoming experts in how they learn. Emphasized skills include self-regulation, coping skills and strategies, ability to transfer knowledge across domains, engagement in disciplinary core concepts, and the application of appropriate metacognitive practices to enhance learning. The UDL Framework is available on the CAST website, and a rubric exploring each aspect deeply is available (Novak and Rodriguez, 2018).

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