Three Principles of UDL

These three principles are summarized below along with examples of how they were implemented in an actual course (Rose, 2006).

Principle 1: Multiple Means of Representation
This principle puts forward that no one means of representing knowledge or one mode for transferring that knowledge will work for all students. As a result, presenting course content using more than one approach can be very helpful.

Suggested Considerations	*Example in Practice*
• consider how students access information in your course and whether they are able to use this information effectively to learn • consider teaching practices in the course; are these practices effective and fully accessible to all students?	• Provided choice of two textbooks, one more graphically based another more based on prose. Students could pick which ever worked best for them. • Videotaped all lectures and posted the full lecture on the course website for later viewing • Required that all students in the class take turns providing copies of their notes to their classmates for reference. These notes were posted on the class website for all to view • Worked to ensure that lectures were conducted in structured ways that reduced cognitive load and highlighted main ideas • Supported lectures with powerpoint slides that highlighted key concepts in alternate ways. These slides were also posted to the class website • Introduced case studies in discussion groups to help make content learned in class meaningful to students

Principle 2: Multiple Means of Expression
This principle puts forward that no one means of supporting student learning and expression will work for all, again providing several alternatives is essential.

Suggested Considerations	*Example in Practice*
• Consider providing students with options around how they demonstrate their knowledge and understanding of course content	• Student contributions to class notes allowed students to demonstrate their understanding of lectures in their own unique ways and affirmed their ways of representing content (some provided detailed outlines, others provided graphical representations, etc) Students learned from each other as well through this

	process
• Consider providing a range of alternative tools or ways to support student learning in your class	• A range of options for discussion groups were provided to support learning; both in terms of content (focused on review, or advanced to extend knowledge), and by venue (either in person or online). Students were able to choose whether these opportunities would be helpful to them, and if so, which they wished to participate in.
	• Assessment through assignments focused on students' ability to apply their knowledge. Students were required to present their approach as a website involving both written, graphical, and design components. Students were encourage to support each other in areas they were strong in.

Principle 3: Multiple Means of Engagement

Rose and others (2006) note that students can be very different in "the ways in which they are engaged or motivated to learn.

- Some students are highly engaged by spontaneity and novelty (e.g., students with ADD/ADHD)
- others are disengaged or even frightened by those aspects in a learning environment (e.g., students with Asperger's Syndrome or autism).
- some students are engaged by risk and challenge in a learning environment
- others seek safety and support.
- Some are attracted to dynamic social forms of learning,
- others shy away and recede from social forms.

There is no one way of engaging students that will work best for all.

Suggested Considerations	*Examples in Practice*
• Consider providing several ways for students to apply what they are learning • take into account that students can have very different emotional and attitudinal backgrounds and dispositions around learning	• provided different approaches to class discussions. They found that students with English as a second language were attracted to the online discussion forums while students with dyslexia tended to attend the face-to-face discussion groups more often. • the sharing of note-taking responsibilities and the sharing of these notes also allowed some students to have their first experience of seeing the value of their approaches. For example, some students with learning disabilities had believed that they were not capable of taking good notes, but after seeing the variety of note taking styles in their class and that their notes were also valuable to

	others, their belief changed. • By asking students to share their work and collaborate around their strengths and weaknesses on assignments, a climate was created where students learned from one another, applied this knowledge, and had the opportunity to see their skills and the results of their work valued by their peers. • the course website also provided access to additional resources and links that further explained course topics. This provided opportunities for students who are accustomed to accessing additional sources to cement their knowledge, to further engage with their learning and the course.