**What is Universal Design for Learning?**

**UDL can benefit all students, not just those with disabilities.**

Accessible instruction is most often referred to as Universal Design for Learning (UDL). UDL is based on the principles of universal design pioneered by architect Ronald Mace in the 1980s. Mace advocated for the design of buildings to be as accessible to as many people as possible. This has led to wider doorways, standardized heights for electrical outlets and switches, and door handles that don't require gripping and twisting. These principles expanded beyond the built environment to design in other fields.

In the 1980s and 1990s, there was a push to provide students with disabilities with access to education, in particular, post-secondary education. Much research and work was completed to adapt the student to the learning environment by providing accommodations for the student after the learning process was set.

Researchers determined that when principles of universal design were applied to the learning environment, it improved opportunities for learning for all students. When UDL principles are incorporated into the course during its design and development, they lay the foundation with learning outcomes, activities, assessments, and teaching methods that improve accessibility for all learners (Rose & Meyer, 2002). A course designed using UDL principles is more flexible and student-centred, enabling the students to make choices or be more involved in the learning process by providing multiple ways to access content and express their learning.

Not only does UDL support the Ontario government's mandate under the AODA legislation, it also supports the strategic direction of Fleming College for more learner-centric, enriching and innovative learning environments.

**What are the benefits of using UDL?**

* Reduces barriers to learning;
* Increases student engagement;
* Empowers students to be self directed;
* Helps students to 'show you what they know'; and
* Creates a flexible and responsive course design and delivery model.

**UDL is based on three main principles:**

1. Multiple Means of Representation
2. Multiple Means of Expression
3. Multiple Means of Engagement

View this [graphic organizer](http://www.udlcenter.org/sites/udlcenter.org/files/updateguidelines2_0.pdf) from the Centre for Applied Special Technology (CAST) for a detailed look at the guidelines used with Universal Design for Learning (UDL).

**Additional Resources:**

Book: **Teaching Every Student in the Digital Age** by David H. Rose, Anne Meyer, Nicole Strangman and Gabrielle Rappolt. Alexandra, Virginia: Association for Supervision and Curriculum Development, 2002.

E-book: **How People Learn: Brain, Mind, Experience and School** - by the Committee on Developments in the Science of Learning, eds. John D.Bransford, Ann L.Brown, and Rodney R.Cocking. (2000). Available at <http://www.nap.edu/openbook.php?isbn=0309070368>

Video: [Why Universal Design for Learning](http://www.youtube.com/watch?v=MbGkL06EU90&feature=relmfu), CAST co-founder David Rose

Video: TED Talk: [Jill Bolte Taylor's stroke of insight](http://www.ted.com/talks/jill_bolte_taylor_s_powerful_stroke_of_insight.html)

**Equity is not sameness.**

While we've spent the last 20 years improving the built environment to ensure physical access to our buildings, we now recognize that there are many other barriers to learning. For the most part, we realize that we have a very diverse student population with different languages, cultures, genders and age groups. As instructors we try to ensure we use appropriate language that does not discriminate against one group, and incorporate examples into our courses that are more inclusive.

Barriers to learning for students with disabilities can be attitudinal, organizational or practical. By recognizing and removing these barriers, we can assist our students in achieving a post-secondary education.

Often in higher education, particularly as classes get larger, the learning experience is based on the transfer of content from the instructor to the student. The emphasis on print materials (even most PowerPoint presentations are predominantly print), and the dominance of one-way communication in the lecture hall, can make learning more difficult for many students, particularly for those who have a learning disability or other form of disability. It also does not promote deep learning that can occur through learning activities that are collaborative and engaging and designed to enable students to construct meaning from the experience.

Think about your assignments, your learning activities, your tests; did you realize that if you use one method of evaluation in your course, **just multiple choice tests for example**, you are providing an advantage to about **25 per cent** of your students and disadvantaging the rest of the class? Some students will do really well on multiple choice tests whereas for others, it is not a true measure of their understanding of the materials.

Other barriers to learning can include time and money. Does your course provide flexibility for students who have to work in order to go to school?

There are also cultural barriers to learning, language differences, learning styles (for example, a kinesthetic or hands-on learner may have difficulty in lecture-based courses), attitudinal barriers which can include confidence or motivational issues and of course, disability-related issues. For example, a student with a particular learning disability may struggle in a text-based online course where the student may need more frequent access to an instructor and peers for clarification of materials.

These are just a few of the many barriers that our students experience in post-secondary education. Incorporating UDL principles can go a long way to assist in the removal of these barriers and improve learning.

Barriers to learning vary widely. Even if diagnosed with the same disability, the impact on the students may be quite different. While most students with disabilities will be working closely with their counsellor or Learning Support Services on skills and strategies, it is recommended that the faculty member also discuss how best to meet the needs of the students. It is inappropriate to ask specifically about the diagnosis of the student, but conversations around assisting the student are encouraged. Also, feel free to contact your Learning Support Services regarding students with disabilities.

**Strategies for reducing/eliminating Barriers.**

|  |  |  |
| --- | --- | --- |
| **Disability** | **Difficulties/Barriers** | **Strategies** |
| Deaf or Hard of Hearing | * background noise can be distracting
* multiple tasks such as writing notes, viewing videos, completing tasks are difficult when trying to lip-read or use sign language
* new vocabulary, complex concepts may be difficult to comprehend within a limited class time period
 |  * consult with students as to how best meet his/her needs
* provide electronic copies of learning materials in advance so the student can familiarize themselves with the content and vocabulary. Lecture outlines, PowerPoint presentations, reading lists, instructions for practical work, glossaries and new vocabulary lists are helpful
* ensure that subtitles or transcripts are available for any audio-visual material you intend to use. Providing a written script and summary of a video can be very helpful
* Use visuals and text to enhance auditory information.
* Assign three to five notetakers per class. At the end of the class, each note taking student uploads their notes into the LMS. All students in the class can use their favorite or all of the notes to reinforce their learning and understanding of the lecture.
 |
| Blind or Visual Impairment | * accessing print or other materials that are presented visually
* difficulty reading, taking notes
* watching and learning from videos and demonstrations
* interpreting graphics and charts
 | * consult with students as to how best meet his/her needs
* post all electronic notes, handouts readings electronic textbooks prior to class.
* create documents in accessible format that can easily be read by a screen reader.
* use auditory descriptions of pictures and graphics to enhance understanding.
* ensure the classroom is free from clutter and encourage students to sit in an area of the classroom where noise is minimal.
* allow lectures to be recorded
* add an audio description to your assignments when you post online

   |
| Learning Disabilities (LD) | * difficulties vary and can include: short and working memory problems, persistent errors in numbers, spelling and grammar, note taking, organization, time management, misunderstanding, sensory overload.
 | * consult with students as to how best meet his/her needs
* chunk material into bite-sized pieces with lots of opportunity for practice
* provide clear learning outcomes and describe your expectations of how these will be achieved
* allow a choice of evaluation methods to allow students to "show what they know" in a way that highlights their strengths.
* consistency in course design
* encourage students with LD work closely with disability advisors to develop learning strategies
 |
| Mobility, dexterity, chronic pain | * poor pacing of workload can lead to fatigue
* classroom design can make it difficult to see the board, sit for long periods of time
* side effects of medication
* use of computers, tools, etc.
 | * consult with students as to how best meet his/her needs
* provide electronic notes for use with assistive technology
* pause long enough to allow students to ask questions
* give frequent breaks
* allow students to stand or walk around
* plan ahead for practicals and field work as adaptations may need to be made in advance.

  |
| Mental Health | * barriers to learning can be related to symptoms or side effects of medication both psychological (anxiety, disorientation) or physical (stiffness, nausea, dizziness)
* may have difficulty seeing the big picture
* difficulty concentrating, panic or anxiety attacks, memory problems
* sleep irregularities and fatigue
* attendance issues
 | * consult with students as to how best meet his/her needs
* give advance notice of activities you are planning such as group work, presentations, pracitcal work, outings and provide alternatives if possible
* use clearly structured course design
* provide electronic notes on the LMS so students can access during absences
* consider flexible or negotiated due dates
* communication with student as to how best achieve course goals
 |

## ****How technology can help****

One of the benefits of this time in education is the robust network and technological tools as well as the innovative support systems available to faculty members and students. Technology has enabled the practices of universal design for learning to become more diverse. Digital media are flexible, interactive and malleable. Digital media can enable faculty members to transform traditional learning materials like print-based readings into engaging, explorative or experiential activities that foster deeper learning.

Instructors and students using networked digital materials can select the most suitable medium or use multiple media simultaneously. They can also convert material from one media to another on the fly, modify the appearance of information within one medium, delve more deeply or connect laterally to other concepts through links, and communicate with many different people through networked computer (Rose & Meyer, 2002, p. 78).

Students who have difficulty moving around the classroom or holding a book, for example, can benefit from digital versions by allowing navigation on the computer, note taking, and communication. If writing is a problem, speech-to-text software can record their work and transform it into text.

Don't feel you have to do this on your own. Fleming College has a talented Learning Support Services and Teaching and Learning Centre with Counsellors, Learning Technologists, e-coaches, and consultants who can assist you in incorporating interesting and engaging learning materials and activities into your courses. To discuss the possibilities, please contact: the Centre for Learning and Teaching at [flemingclt.ca](http://flemingclt.ca/).

### ****Additional Resource****s

 [Adding value to web instruction,](http://www.washington.edu/doit/Brochures/Technology/universal_class.html) by Sheryl Brugstahler, PhD

[The future is in the margins: The role of technology and disability in educational reform](http://www.cte.jhu.edu/accessibility/primer/resources/data/universaldesign/future_is_in_the_margins.pdf), by David Rose, Ed.D. and Anne Meyer, Ed.D.

References:

Rose, D., Meyer, A., Strangman, N., and Rappolt, G. (2002). **Teaching Every Student in the Digital Age.** Alexandra, Virginia: Association for Supervision and Curriculum Development.

The Open University. (2006). **Making Your Teaching Inclusive**. Available at: <http://www.open.ac.uk/inclusiveteaching/pages/inclusive-teaching/barriers-to-learning.php>

## Accessibility vs. accommodation

**The goal is not to modify the curriculum but to maintain the standards and rigor through an accessible curriculum.** It is essential that all students can reliably demonstrate your course learning outcomes to achieve a passing grade.

Remember, changing a course to ensure it is accessible does not require the instructor to reduce its rigor or place the integrity of the course or credential in jeopardy. The goal is **not** to modify the curriculum to reduce the requirements, but to maintain the learning goals and allow more flexible methods for learning and achieving those goals. There may be times when an accessible course will require accommodations for a student with a disability (eg. longer test times), but an accessible course design improves the learning opportunity for all students and significantly reduces the need for accommodation.

For example, if you are using videos in your course, those videos may require captioning depending on the needs of the students (eg. a student who is hard of hearing or deaf). What research has found is that captioning not only benefits students who have hearing disabilities, but also assists students whose first language is not English, those who may have processing difficulties, or those who may be watching the video in a noisy area such as a bus, cafe or cafeteria where hearing it may be difficult.

**Accommodation** refers to changes made to the course after the course has been set to enable a student who has a disability to gain access to the learning. For example, a sign language

**Let's learn more about how UDL can benefit our students**

**UDL Principle 1: Multiple Means of Representation**

**Present information and content in different ways.**

Learners differ in the ways that they perceive and comprehend information. For example, those with sensory disabilities (e.g., blindness or deafness); learning disabilities (e.g., dyslexia); language or cultural differences, require different ways of accessing content. Others may simply understand information quicker or more efficiently through other means rather than printed text. Learning and transfer of learning occurs when multiple representations are used because they allow students to make connections within, as well as between, concepts. In short, there is not one means of representation that is optimal for all learners; providing options for representation can improve the learning opportunity in your course (National Center on Universal Design for Learning, 2012).

Learning is most effective when it is **multimodal** - when material is presented in multiple forms. Students benefit from having multiple means of accessing and interacting with material and demonstrating their knowledge through evaluation.

For example, an audio description that accompanies the text description of an assignment, provides students with another modality to increase comprehension of the assignment criteria. If they have difficulty with the text, the audio format may increase their understanding of the expectations of the assignment

**Recognition Network**

The recognition networks are essential in most higher order thinking tasks. For example, reading requires pattern recognition, decoding and comprehension. In mathematics they are necessary to recognize numbers, shapes and equations (Rose & Strangman, 2007). The recognition network in the human brain requires exposure to a variety of examples. The Internet can provide a wealth of examples that can be linked to from the course materials. Faculty members are no longer required to build it all - sharing information, the backbone of the Internet, provides ample opportunity to access information from sources around the world.

Instructors can use media such as video to highlight critical features of readings, assignments or when marking. Computers have the capacity to zoom in on graphics or "spotlighting" on important aspects can be used when creating videos. As another example, an audio file of the marked students' assignments can provide a more human touch to the marking process and provide more in depth feedback.

Digital media can increase access to written work by enabling the fonts to be enlarged or adjusting the colour or contrast; screen readers can read the text aloud or transform it to Braille. Screen readers can highlight certain words, provide definitions, correct spelling and grammar, search for terms or link to similar information.

Here are some examples of how you can provide options (represent material in many ways) in your classroom:

* Design documents with accessibility in mind - [use style sheets for Word documents](http://accessibility.uoit.ca/tutorials/index.php) so they are more easily navigated by screen readers. It is a simple process and makes designing all documents easier;
* Post course materials such as syllabi or handouts prior to class;
* Provide students with materials in multiple formats;
* Consider using a variety of strategies during lecture periods including problem-solving, discussion, hands-on exercises, interactivity, presentations, etc.;
* Present information in three different ways: i.e. complementary formats such as text, graphics, audio, and video--or at the very least, provide digital equivalents of hardcopy handouts;
* Review your written materials including PowerPoint slides for clarity, consistent formatting, and cognitive cues; ensure they are free from unnecessary jargon;
* Develop a clear course outline that provides policies, procedures, expectations, assignment descriptions and rubrics;
* Use online resources so students can access materials in electronic formats as needed.

Some technological suggestions:

* Collaboration can play a key role in deep learning. Engage students with the materials, manipulate, work and discuss the information, it requires the students to be involved;
* Create Twitter hash tags for your class or even the concept they are learning. Encourage students to post ideas to Twitter;
* Develop Facebook study groups;
* Compile resources using digital bookmarking, etc.;
* Collaborate on documents with Google Docs; and
* Create collaborative assignments, videos, papers, learning objects, web sites, wikis, blogs, journals, etc.

|  |
| --- |
| **Multiple Means of Representation****Do you create a learning environment in which material and content are presented in a variety of ways?** |
| **UDL Guideline** | **Example** |
| Your course syllabus clearly describes the content and your expectations of the students.   (e.g. measurable outcomes, weekly learning objectives) | Use your outline as an advance organizer to go over expectations for the following week i.e. reading, videos to watch, etc.  |
| You present information in multiple formats (e.g., lecture, text, graphics, audio, video, hands-on exercises) | Add an audio file explaining a major assignment. |
| You begin each lecture with an outline of what will be covered.  | Start every class with an agenda so students know what to expect during class. |
| You summarize key points throughout the lecture, and tie these points to the larger course objectives.  | Use an active learning activity such as clickers, a game or review questions to review the key points of your lesson.       |
| You post electronic equivalents of paper handouts and required reading assignments in alternative formats such as audio and video.  | Post all course documents on the learning management system so students can access them whenever needed.Documents should be in an accessible format ie. Microsoft Word, Excel, PowerPoint (see tutorials below). |

# Let's learn more about how UDL can benefit our students

## UDL Principle 1: Multiple Means of Representation

### ****Present information and content in different ways.****

###

Learners differ in the ways that they perceive and comprehend information. For example, those with sensory disabilities (e.g., blindness or deafness); learning disabilities (e.g., dyslexia); language or cultural differences, require different ways of accessing content. Others may simply understand information quicker or more efficiently through other means rather than printed text. Learning and transfer of learning occurs when multiple representations are used because they allow students to make connections within, as well as between, concepts. In short, there is not one means of representation that is optimal for all learners; providing options for representation can improve the learning opportunity in your course (National Center on Universal Design for Learning, 2012).

Learning is most effective when it is **multimodal** - when material is presented in multiple forms. Students benefit from having multiple means of accessing and interacting with material and demonstrating their knowledge through evaluation.

For example, an audio description that accompanies the text description of an assignment, provides students with another modality to increase comprehension of the assignment criteria. If they have difficulty with the text, the audio format may increase their understanding of the expectations of the assignment

## Recognition Network

The recognition networks are essential in most higher order thinking tasks. For example, reading requires pattern recognition, decoding and comprehension. In mathematics they are necessary to recognize numbers, shapes and equations (Rose & Strangman, 2007). The recognition network in the human brain requires exposure to a variety of examples. The Internet can provide a wealth of examples that can be linked to from the course materials. Faculty members are no longer required to build it all - sharing information, the backbone of the Internet, provides ample opportunity to access information from sources around the world.

Instructors can use media such as video to highlight critical features of readings, assignments or when marking. Computers have the capacity to zoom in on graphics or "spotlighting" on important aspects can be used when creating videos. As another example, an audio file of the marked students' assignments can provide a more human touch to the marking process and provide more in depth feedback.

Digital media can increase access to written work by enabling the fonts to be enlarged or adjusting the colour or contrast; screen readers can read the text aloud or transform it to Braille. Screen readers can highlight certain words, provide definitions, correct spelling and grammar, search for terms or link to similar information.

Here are some examples of how you can provide options (represent material in many ways) in your classroom:

* Design documents with accessibility in mind - [use style sheets for Word documents](http://accessibility.uoit.ca/tutorials/index.php) so they are more easily navigated by screen readers. It is a simple process and makes designing all documents easier;
* Post course materials such as syllabi or handouts prior to class;
* Provide students with materials in multiple formats;
* Consider using a variety of strategies during lecture periods including problem-solving, discussion, hands-on exercises, interactivity, presentations, etc.;
* Present information in three different ways: i.e. complementary formats such as text, graphics, audio, and video--or at the very least, provide digital equivalents of hardcopy handouts;
* Review your written materials including PowerPoint slides for clarity, consistent formatting, and cognitive cues; ensure they are free from unnecessary jargon;
* Develop a clear course outline that provides policies, procedures, expectations, assignment descriptions and rubrics;
* Use online resources so students can access materials in electronic formats as needed.

Some technological suggestions:

* Collaboration can play a key role in deep learning. Engage students with the materials, manipulate, work and discuss the information, it requires the students to be involved;
* Create Twitter hash tags for your class or even the concept they are learning. Encourage students to post ideas to Twitter;
* Develop Facebook study groups;
* Compile resources using digital bookmarking, etc.;
* Collaborate on documents with Google Docs; and
* Create collaborative assignments, videos, papers, learning objects, web sites, wikis, blogs, journals, etc.

|  |
| --- |
| ****Multiple Means of Representation******Do you create a learning environment in which material and content are presented in a variety of ways?** |
| **UDL Guideline** | **Example** |
| Your course syllabus clearly describes the content and your expectations of the students.   (e.g. measurable outcomes, weekly learning objectives) | Use your outline as an advance organizer to go over expectations for the following week i.e. reading, videos to watch, etc.  |
| You present information in multiple formats (e.g., lecture, text, graphics, audio, video, hands-on exercises) | Add an audio file explaining a major assignment. |
| You begin each lecture with an outline of what will be covered.  | Start every class with an agenda so students know what to expect during class. |
| You summarize key points throughout the lecture, and tie these points to the larger course objectives.  | Use an active learning activity such as clickers, a game or review questions to review the key points of your lesson.       |
| You post electronic equivalents of paper handouts and required reading assignments in alternative formats such as audio and video.  | Post all course documents on the learning management system so students can access them whenever needed.Documents should be in an accessible format ie. Microsoft Word, Excel, PowerPoint (see tutorials below). |

# Additional Resources

**Faculty Focus**: [How a graphic syllabus can bring clarity to course structure](http://www.facultyfocus.com/articles/teaching-professor-blog/a-graphic-syllabus-can-bring-clarity-to-course-structure/?utm_source=cheetah&utm_medium=email&utm_campaign=2012.05.2%20-%20Faculty%20Focus%20Update)

# References:

National Center on Universal Design for Learning. (2012). UDL Guidelines – Version 2.0. Available at: <http://www.udlcenter.org/aboutudl/udlguidelines/principle1>

Rose, D. and Strangman, N. (2007). Universal Design for Learning: meeting the challenge of individual learning differences through a neurocognitive perspective. **Universal** **Access in the Information Society**, 5:381-391. DOI 10.1007/s10209-006-0062-8

**UDL Principle II: Multiple Means of Expression**

Provide options for how students express what they have learned.

Learners differ in the ways that they can navigate a learning environment and express what they know. For example, individuals with significant movement impairments (e.g., cerebral palsy), those who struggle with strategic and organizational abilities (executive function disorders), those who have language barriers, all approach learning tasks very differently. Some may be able to express themselves well in written text but not speech (National Center on Universal Design for Learning, 2012).

It should also be recognized that action and expression require a great deal of strategy, practice, and organization - another area in which learners can differ. In reality, there is not one means of action and expression that will be optimal for all learners; providing options for action and expression can greatly improve learning in your class. To provide multiple and flexible means of expression is to provide students alternatives for demonstrating what they have learned.

Allowing students to choose can be an effective method for students to demonstrate their learning, however, there are times when the purpose of the assignment is to challenge the student to go beyond their comfort zone and try something new in order to expand their abilities. An option is to provide, for example, four different types of assignments in the semester and students are required to complete three. Another example is having a test or exam that is divided into sections where each section has different types of questions such as, multiple choice, short answer, case study, essay or calculations. Each section is weighted the same. Students must complete three of the five sections to complete the test.

|  |
| --- |
| ****Multiple Means of Expression**** |
| **Do you create a learning environment in which students can express their comprehension in multiple ways?** |
| **UDL Guideline** | **Examples** |
| You encourage students to demonstrate knowledge and skills in ways other than traditional tests and exams (e.g., written essays, projects, portfolios, journals).  | Use a variety of evaluation methods to allow students to express what they know in multiple ways. Example: Introductory Biology may include quizzes, case studies, model building, and oral presentation rather than just traditional tests and a final exam. |
| You provide students with choice in evaluation methods to demonstrate their learning.  | Provide students options to demonstrate mastery of the course learning outcomes.   Provide students the opportunity to choose which type of assignment they would like to complete, for example, you may choose one of the following evaluation methods:   a poster presentation, research report or creating a video. |
| You incorporate technologies that facilitate class communication and participation.  | Use of discussion boards or blogs also allow students who need more time to reflect on a topic and have the ability to participate. Use of virtual clickers allows all students to participate without feeling centred out.  |

**The following Assigment shows how we can give students choice while still meeting the Course Learning Outcomes.**

 [**Sample Assignment using UDL guideline Multiple Means of Expression**](http://flemingcollege.ca/ITS_Accessibility_Educators/Sample%20Assignment%20using%20UDL%20guideline%20Multiple%20Means%20of%20Expression.pdf)

## Strategic Network

Strategic networks are required for executive functioning such as: selective attention, planning, organization, and self-monitoring. They guide our behaviours and in response to learning, are used to set goals, focus, and monitor progress. If there are problems, it is the strategic network that will evaluate the situation and develop a plan (Rose & Strangman, 2007). Digital media can provide opportun ties for multiple means of practice in order for a student to develop the strategic skills required to learn the concept. Links to different models or modes can assist a student's understanding of the concept. This enables the student to create better mental models of the concept, and therefore, be more strategic in further learning such as determining relevance or concentrating on more difficult aspects, etc.

Communication technologies can be used to give immediate feedback such as the discussion board, email, Skype, online office hours. Technology has improved accessibility to the professor enabling quicker clarification of issues, connection to other students, and collaboration (Rose, et al, 2002).

**Additional Resources:**

Faculty Focus - [Think Alouds shed light on how students grapple with content](http://www.facultyfocus.com/articles/teaching-professor-blog/think-alouds-shed-light-on-how-students-grapple-with-content/)

Faculty Focus: [A Role for Student Choice in Assignments?](http://www.facultyfocus.com/articles/teaching-professor-blog/a-role-for-student-choice-in-assessment/)

References:

National Center on Universal Design for Learning. (2012). **UDL Guidelines - Version 2.0**. Available at: <http://www.udlcenter.org/aboutudl/udlguidelines/principle2>

Rose, D., Meyer, A., Strangman, N., and Rappolt, G. (2002). **Teaching Every Student in the Digital Age.** Alexandra, Virginia: Association for Supervision and Curriculum Development.

Rose, D. and Strangman, N. (2007). Universal Design for Learning: meeting the challenge of individual learning differences through a neurocognitive perspective. **Universal** **Access in the Information Society**, 5:381-391. DOI 10.1007/s10209-006-0062-8

# ****Principle III. Provide Multiple Means of Engagement****

**Stimulate interest and motivation for learning.**



In reality, there is not one means of engagement that will be optimal for all learners in all contexts; providing multiple options for engagement increases the potential for learning. Some learners are highly engaged by spontaneity and novelty while other are disengaged, even frightened, by those aspects preferring strict routine. Some learners might like to work alone, while others prefer to work with their peers (National Center on Universal Design for Learning, (2012).

**Here are some examples of how you can provide options to engage students in your classroom:**

|  |
| --- |
| * Provide lecture outlines online that students can annotate during class;
* Break large assignments into components so that students can receive formative feedback to minimize or correct errors;
* Provide frequent opportunities for assessment and feedback during a semester;
* Where it is possible, use circular seating arrangements during discussion to allow students to see one another's faces; and
* Offer choices of content and tools to provide diverse learners with the opportunity to engage in learning that is most meaningful and motivating to them.

  |

We each learn most effectively when the challenge is enough to stretch us beyond our current level of functioning while still being within our capacity to learn effectively (Vygotsky, 1962). Offer multiple resources at a variety of levels to meet the unique needs of individual learners. For example:

* Learning software/games with multiple difficulty and content levels;
* Choices in explicit learning goals that allow learners to set realistic goals and appropriate challenges themselves; and
* Variety of scaffolds to support learning (e.g. audio to support print text, graphics to illustrate complex information, etc.)

**Choice of Learning Context**

Diverse learners have unique preferences and requirements regarding their learning context. Address this diversity by offering a variety of options:

* Individual, small group and whole group tasks, discussions and projects;
* Choice of environments that offer a range of noise and activity levels (e.g. interactive classroom environment, quiet study areas, etc.); and
* Multiple levels of scaffolding, instructions and/or task structure (e.g. designing a web quest or Internet research project with several levels of structure, from independent web searches to instructor-guided links with scripted questions and tasks).

|  |
| --- |
| ****Multiple Means of Engagement**** |
| **Do you create a learning environment in which learners are challenged, excited and motivate about what they are learning?** |
| **UDL Guideline** | **Examples** |
| You challenge students with meaningful assignments.  | Create evaluations that are performance based and allow students to demonstrate the learning outcomes.   |
| You create a class climate in which student diversity is respected.  | At the beginning of the semester, have students generate a list of "ground rules" for classroom conduct.Be sure to post the agreed upon list on the course site and refer to when necessary in class. |
| You give prompt and instructive feedback on assignments.  | Post grades as soon as possible on the LMSAllow students to hand in a "rough draft" of a paper or assignment. Have peers assess them based on a rubric. |
| Do you supplement lecture and reading assignments with visual aids (e.g., photographs, videos, diagrams, interactive simulations)?  | Use advance organizers to help students read with intent and purpose. Provide students with a list of questions to answer when reading. Have students watch a video on the topic as well as reading the chapter. |
| Do you make yourself available to students during office hours in flexible formats (e.g., face-to-face, email, online chat, telephone)?   | Post your office hours on the LMS as well as on your office door.Realize that many students cannot meet with you face-to-face for various reasons i.e. work, children, etc. Online meetings may be a solution. |
| Do you provide tasks that allow for active participation, exploration and experimentation?  | Use a variety of active learning strategies to engage a variety of learners in your classroom.   Book an appointment with the faculty development consultant, or curriculum consultant. |
| Do you invite personal response, evaluation and self-reflection to content and activities?  | Use course evaluation surveys to help you determine aspects of your teaching that are working and which need to be changed |

## ****Affective Network****

The affective network is required to interpret the world in terms of emotional impact and significance. They act as an emotional filter as we view everyday actions and make decisions based on emotion, motivation and biological drives. They assist in prioritizing and influence the decision to persist or shut down when things get difficult (Rose & Strangman, 2007).

Emotional difficulties may impede a student's ability to interpret text and concepts. Images or visual media can convey strong emotional messages and may assist the student to understand the information. Frequent feedback can provide incentive and motivation to improve. Graphic organizers and a well-structured course can assist with a feeling of being overwhelmed by the requirements.

Digital versions of materials can mean multiple ways of accessing and processing the information. Reading, viewing, or interactive activities can assist in learning. Students can choose how they are assessed whether it is from creating their own responses with a video or multimedia presentation, writing a paper, responding to direct questions, web sites, concept maps, posters, etc. A bank of online resources provided by the textbook manufacturer can provide the instructors with many opportunities to choose the level of challenge for the students.

References

National Center on Universal Design for Learning. (2012). UDL Guidelines - Version 2.0. Available at: <http://www.udlcenter.org/aboutudl/udlguidelines/principle3>

Rose, D. and Strangman, N. (2007). Universal Design for Learning: meeting the challenge of individual learning differences through a neurocognitive perspective. **Universal** **Access in the Information Society**, 5:381-391. DOI 10.1007/s10209-006-0062-8

Vygotsky, L. (1962). **Thought and language**. Cambridge, MA. MIT Press.

# UDL in Large Classes

One of the most common complaints about UDL is that it can be difficult to implement in large classes. There is no doubt that large classes are becoming more common in post-secondary and that offering choice to 100 students can seem overwhelming, but it is possible. Faculty members question how they can make the marking fair across a variety of different assignments. You may be able to use one rubric to mark all assignments as the objectives of each assignment may be the same. For example: students have demonstrated their understanding of the concepts; students have applied the concepts, students have analyzed the concepts, etc. in order to complete the assignment.

Student supports through UDL:

* To help students prepare for mid-semester exams have them do short exercises that they can work on in pairs in class. Solutions are discussed in the next class session and then posted to the course site. These solutions are evaluated using a simplified grading system so that they can be compared with later test scores. Because there is a close correlation, students are motivated to attend class regularly and participate in the exercises.
* Have students at the end of class write one exam question based on that day's lecture. This variation on the minute paper not only gives the instructor instant feedback but may also result in some good questions that could be included on exams.
* Many instructors include some writing component on their exams, from an occasional essay question that can be answered correctly in many different ways to partial credit, one-line explanations of multiple-choice answers.
* Provide students a choice between multiple-choice and essay versions - it has been found that students often do better on essay-type questions.

When teaching, keep in mind those characteristics of some of the worst classes or teachers that you've had - and don't repeat them. For example:

* The monotone voice;
* Reading from the text or PowerPoint slides;
* 75 minutes of non-stop lecturing;
* Little or no eye contact with audience;
* Outdated or incorrect information;
* Disorganized and confusing lecture;
* Technology that doesn't work;
* A repetition of what is in the textbook so why is the class necessary?

How to improve learning in the large class:

* Before class begins, write key words/concepts/names/dates (whatever is appropriate) on the board or prepare an outline in advance to facilitate note taking. This simple document can be posted on the course web site.
* Consider posting PowerPoint presentations and other notes well in advance of the class to allow students to begin working on the material before they begin classes. Not all students will take advantage of this, but those with disabilities or those whose first language is not English may find it very useful.
* For complex subjects or topics unavailable to the students in textbooks or other sources, have some written or multimedia resource available for students to review.
* Provide diagrams, online or in class, which would be difficult for students to copy in their notes;
* Consider using virtual clickers throughout the class to check student understanding;
* Try to provide hints or "cues" during the course of the lecture that students may use to remember important points. Attach the concept to a word, phrase, or image for better recall;
* Use examples and images when explaining concepts and principles;
* Divide your lectures into segments (do not lecture for more than 15 minutes at a time) and break the constant talk with active learning techniques like Think - Pair - Share, discussions, or problem solving, to reinforce learning;
* Try to be enthusiastic and expressive when lecturing. Vary your voice, move around, use gestures;
* Today's students are visual creatures. Use visual as often as possible such as graphics, charts, mind maps, concept drawings, etc.;
* If a student asks a question - welcome it. Be enthusiastic in your response. This will encourage more participation. And tell students when they have responded correctly;
* Avoid continuous note taking by providing handouts or outlines. Note taking can require considerable mental processing which is why a break with a short learning activity is often welcome. You may want to consider having assigned note takers where notes are posted to course site so students can check their notes against those of others;
* At the end of the class, summarize the important points which were covered during the lecture and give the students some idea of what to look forward to for the next time.

Source: University of North Carolina, Charlotte. Faculty Center for Teaching and e-Learning.

**Getting Started Using UDL**

When first getting started it is best to use the UDL guidelines when developing new material. The UDL principles and resources can assist you making decisions about current and new learning materials, lessons, and assessments and curriculum.

For example, if you include a variety of active learning strategies, post notes in multiple formats, and allow students to choose a variety of assessment options in your course you will have implemented some of the principles. These approaches are linked in that they share the same goal of creating curriculum that meets the diverse needs, strengths, and interests of your students to improve overall learning.

You can begin by applying the following questions to your curriculum:

**Learning Materials and Activities**

1. Does the course present material in a variety of formats i.e. printed text, lecture, graphics, audio, multimedia etc?
2. Are key concepts outlined or highlighted for learner?
3. Is background knowledge supported?
4. Are learning activities varied i.e. lecture, discussion, group work, collaborative projects, hands-on activities, etc?
5. Are learners provided choice in selecting learning activities?

**Feedback and Assessment**

1. Are learners provided the opportunity to demonstrate their learning in a variety of ways in addition to traditional test and exams i.e. research papers, oral presentations, projects, portfolios etc?
2. If feedback provided to learners as they are learning (formative feedback) and is in a timely manner?
3. Is feedback provided to learners in a variety of ways?
4. Is feedback provided to learners from a variety of perspectives i.e. self, peer and instructor?

Trying to rethink one's curriculum and employing the UDL principles can seem like a daunting task. We encourage you to start small and work your way through your courses. Use the checklists provided below to guide the process. Feel free to get feedback from your students. A more accessible curriculum can benefit all your students.

The materials and methods teachers use can either present students with barriers to understanding or enhance their opportunities to learn. By developing and applying UDL, we can minimize barriers and realize the promise each student brings to school (Rose and Meyer, 2002, p. 8).

### ****Additional Resources:****

Checklists:

[A checklist for making distance learning programs welcoming and accessible to all students](http://www.washington.edu/doit/Brochures/PDF/equal_access_uddl.pdf), by Sheryl Burgstahler, PhD

[An Educators Checklist](http://www.udlcenter.org/sites/udlcenter.org/files/Guideline_Ed_Chklst_7_26_10.doc) by CAST.org

[UID Quick-Start Checklist](http://www.tss.uoguelph.ca/uid/uidchecklist.cfm) by the University of Guelph

MERLOT: [Video Case studies of UDL in the classroom](http://elixr.merlot.org/case-stories/understanding--meeting-students-needs/universal-design-for-learning-udl)

Reference:

Rose, D., Meyer, A., Strangman, N., and Rappolt, G. (2002). **Teaching Every Student in the Digital Age.** Alexandra, Virginia: Association for Supervision and Curriculum Development.