

An Overview

A core concept of *Universal Design* is that by anticipating and planning for the diverse needs of potential users during the design process, the resulting product or outcome will better suit the needs of all users. Common examples are the use of ramps into buildings, automatic doors and curb cuts in sidewalks. Though originally designed for the disabled, these features are in fact helpful for many, including parents pushing strollers, people carrying packages and children on bikes.

When applying the concept of Universal Design to instruction, the benefits are much the same. Anticipating and planning for the diverse needs of students, including but not limited to students with disabilities, results in a better learning experience for *all* students. Indeed, because fewer individual accommodations are needed when the principles of Universal Instructional Design (UID) are applied, UID can save time for instructors, reduce possible stigma associated with asking for special accommodation, and provide a greater sense of equity and fairness for students. The 7 Principles of UID are listed to the right.

7 Principles of UID

Instructional materials and activities should...

- 1. Be accessible and fair.
- 2. Be straightforward and consistent.
- 3. Provide flexibility in use, participation and presentation.
- 4. Be explicitly presented and readily perceived.
- 5. Provide a supportive learning environment.
- 6. Minimize unnecessary physical effort or requirements.
- 7. Ensure a learning space that accommodates both students & instructional methods.

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This workbook is for faculty and instructional developers who are in the process of planning or revising a predominantly "face to face" course and are interested in making it more consistent with UID principles. As such, it is structured to follow a basic course design and delivery framework. **Section A** deals with issues associated with course planning including course goals, course outlines, assessments, course materials, and learning activities. **Section B** deals with issues associated with course delivery including orientation, organization, students' prior knowledge, the development of learning skills, feedback, and effective lecturing. The issues contained within each section are presented as goal statements, which embody the principles of UID as follows:

A Planning Your Course

- Goal 1. Clearly articulate your learning objectives and create an integrative guiding framework.
- Goal 2. Ensure that your **course outline** clearly communicates what the students will be expected to <u>learn</u> and <u>do</u> in the course and what resources are available to them in completing this work.
- Goal 3. Ensure **assessments** are congruent with stated learning objectives and flexible in application, and that the criteria by which student work will be assessed are clear.
- Goal 4. Make course materials as accessible as possible.
- Goal 5. Make the **course website** as accessible as possible.
- Goal 6. Plan learning activities to maximize student learning both during and outside of class time.

B Course Delivery

- Goal 7. Provide students with an effective **orientation** to the course.
- Goal 8. Bring organization and structure to the learning experience and to every resource used in each class.
- Goal 9. Assess and adapt to students' **prior knowledge**, experience and learning preferences.
- Goal 10. Help students to develop their learning skills.
- Goal 11. Provide students with clear feedback on their performance throughout the course.
- Goal 12. In the presentation of material, use an **interactive approach** that is accessible to all students.

Completing the Workbook

Accompanying each of the 12 goals are ten concrete examples of how the principles of UID *might* be incorporated into a course. The specific UID principles (1-7) that each goal relates to are presented in parentheses following the goal statement. While these examples arguably represent sound instructional practice, they have been found to be of particular benefit in helping meet the learning needs of students with disabilities. They are *not* intended to represent an exhaustive list. Neither are they intended to be prescriptive; many of the examples provided will not be appropriate or possible in every instructional context. Rather, they are offered as potential ideas - a starting point - for faculty and program developers who are interested in better understanding how to implement UID and in creating a more *inclusive* teaching and learning environment.

In completing this workbook, begin by identifying which of your courses you would like to make more UID-friendly. Then, assess the examples under each goal and indicate which of the following statements best applies to your course.

- ($\sqrt{}$) I **already use** this approach (in whole or in part); it works
- (*) Sounds interesting; I'd like to try this approach
- (X) I don't think I'd try this idea (again); it wouldn't/didn't work in my course
- (?) I'm not sure what this means
- Use the table on page 17 and the summary provided at the bottom of each page to help keep track of the total number of √'s, *'s, X's, and ?'s that you have indicated for each goal.
- Under each goal, record any other ideas you have for incorporating UID principles into your course.
- When you have finished assessing all 12 goals, follow the instructions on page 18 to help you with further analysis.

SECTION A. PLANNING YOUR COURSE

GOAL 1: Clearly articulate your learning objectives and create an integrative guiding framework. [2,4]

- Begin by identifying the learning objectives for your course. Consider the contribution your course makes to the broader curriculum.
- Be explicit about the generic skills your course is intended to foster (e.g., research skills, written and oral communication skills, computational skills, team skills, leadership skills, computer skills). You can use institutional or departmental learning objectives as a guide.
- Be clear about the intended depth for each learning objective (i.e., is the objective to be introduced, reinforced or mastered?). Is the objective at an appropriate level of sophistication according to Bloom's (1956) Taxonomy of Educational Objectives?
- □ Create a guiding framework or conceptual model (i.e., concept map, graphic syllabus) that visually links all the major learning objectives of the course.
- □ Use a guiding framework for planning the sequencing and integration of course components and for explaining the intent of the course (and each section) to students. Refer to this framework throughout the course.
- □ Ensure congruence among the learning objectives, learning activities, and methods of assessment.
- Develop learning and assessment activities that 1) require students to acquire essential building blocks or core concepts and then focus on their application and extension and/or 2) expose students to broad concepts and then require them to explore the various sub-components of the concept.
- □ Structure the course so that there are weekly activities (e.g., readings, quizzes, postings etc.) that are required in order that students keep pace with the material throughout the semester.
- Consider how instructors of pre- or post-requisite courses organize and present their course material (e.g., websites, manuals, course outlines) so that presentation is reasonably consistent from one course to the next.
- □ Talk to a colleague or instructional designer about your course plans. Ask for feedback on the clarity of your framework as well as the appropriateness of the learning activities and assessments.
- □ Your ideas:

- GOAL 2: Ensure that your course outline clearly communicates what the students will be expected to <u>learn</u> and <u>do</u> in the course and what resources are available to them in completing this work. [1,2,4,5]
- Personalize your outline by summarizing your teaching philosophy and indicating how it is reflected in the design of the course. Be explicit about your commitment to your students' learning and what you expect of them in support of their own learning. Use a conversational tone, write in the first person, and provide a link to your personal website.
- □ Be clear about any prerequisite knowledge and/or skill requirements for the course.
- List the learning objectives for the course, including relevant generic or discipline-specific skills.
- □ Include a schedule of dates with class topics, reading assignments, in-class activities and assessments.
- Indicate the evaluation scheme for each assessment. Include explicit instructions and expectations (i.e., grading rubrics) or indicate where this information is available (e.g., course website). Indicate if and where examples of old exams/assignments are available (e.g., on reserve in library, course website).
- List the contact information and types of assistance that are available from the faculty member, TAs, and student peers (e.g., e-mail / phone mail specify reasonable response time like within 48 hours, or a specified day each week; office hours specify protocol for making appointments outside of office hours; synchronous ("live") on-line chats held at specific times each week; asynchronous on-line conferences; Listserv for broadcast communications; face-to-face conferences for exploring major assignments).
- □ List any non-course specific assistance and/or resources that are appropriate for completing course requirements (e.g., help labs, peer helper programs, learning and writing services).
- □ List the required text(s) and supplementary reading materials (e.g., books, journals, websites) and whether or not electronic versions are available.
- □ Provide instructions for accessing the course website.
- □ Clearly state relevant course policies (e.g., late assignments, class attendance/participation, missed tests/exams, academic misconduct, referencing protocols).
- □ Your ideas:

GOAL 3: Ensure assessments are congruent with stated learning objectives and flexible in application, and that the criteria by which student work will be assessed are clear. [1,2,3,4,5]

- Ensure assessment activities are a deliberate consequence of the stated course objectives and not simply a reflection of personal preference or common practice.
- Provide detailed grading criteria/rubrics (or have students help develop them) so students know exactly what is expected of them and can make informed decisions about their learning approach.
- Allow sufficient time for students to complete assignments and exams so that their grades reflect what they've learned and not their ability to work quickly.
- Allow students to use appropriate support materials (e.g., formulas, calculators, review notes) when assessing higher order thinking skills (e.g., problem solving, application) so that grades reflect what they've learned and not their ability to memorize.
- Use a variety of assessment activities (e.g., papers, learning journals, projects, presentations, tests, quizzes, oral exams) to allow/encourage multiple ways of demonstrating learning.
- Within the parameters of the course and when congruent with learning objectives, allow students to give input into their own assessment (e.g., type of assessment, shared generation of test or assignment questions, weighting).
- □ Ensure an appropriate balance between individual work and group work.
- Use assessments to foster student growth and learning. Create activities and assignments that are iterative and/or provide opportunities for (formative) feedback as knowledge and skills are developing. Count the best results (e.g., worst result won't count) on a particular type of assignment.
- □ Accurately describe the format of the test or exam in advance and the material it covers. Have students practice responding to such questions in class.
- Provide clear wording on tests/exams. Unless warranted by the learning objectives, avoid complex sentence structures, double negatives and embedded questions.
- □ Your ideas:

GOAL 4. Make course materials as accessible as possible. [1,2,3,5,6,7]

- Have your course outline available (in print and on-line) well in advance of the first class meeting, so that students using screen readers can begin the process of getting textbooks and other materials scanned.
- Incorporate all required material directly into the learning activities. Ensure that each resource, whether it is purchased by students, given out in class and/or available through the course website, is explicitly referenced and serves a particular purpose.
- Create study guides and course notes specific to your course. Ensure that long documents have an index.
- □ Ensure documents are well laid out, e.g. with clearly labeled elements, easily read fonts, and minimal visual clutter.
- □ Provide a glossary of technical terms if not adequately provided in the course textbook.
- Make hardcopies of supplementary print materials and copies of audio-visual materials available through the Library reserve desk. Ensure that audio-visual materials are accessible by using captioned video or providing transcripts. Work with the Library to ensure that appropriate on-line journals and resources are also made easily accessible.
- □ Consider whether or not potential course texts are available in electronic and/or audio format.
- Ensure all printed course materials (e.g., course outline, class schedule, lecture notes, study guide/course manual, required and supplementary readings, assignments) are available in a variety of electronic formats.
- □ Ensure electronic materials are readily converted to audio by screen reading software such as *Jaws*:
 - RTF: Fully accessible, but lacks stability of formatting when opened with different word processing software packages and creates larger files (slower to download than other formats).
 - PDF: To be fully accessible pdf files should be created using Adobe version 5 with the accessibility feature turned on. Ensure that the source documents have consistent styles for creating bookmarks in Acrobat.
 - HTML: Accessible if minimize the use of tables, ensure all graphics have <alt> tags and follow consistent formatting.
 - $\circ~$ PowerPoint: Not accessible by screen readers. Convert to PDF or accessible HTML.
- □ Specifically ask students about any difficulties they may be having in accessing course materials.
- □ Your ideas:

GOAL 5. Make the course website as accessible as possible. [1,2,3,5,6,7]

- □ Provide a comprehensive course website. Possible items/features include:
 - o course outline
 - o detailed information about each class
 - o direct access to all required and supplementary course materials
 - o note-taking aids in advance of each class (e.g., a lecture outline)
 - \circ $\,$ information used in class $\,$
 - o detailed information about course assignments (e.g., due dates, rubrics, examples of past work)
 - o on-line discussion groups (asynchronous)
 - o summary of student grades
 - o regular course updates
 - o link to the faculty member's and TA's e-mail
- □ Keep the navigation simple and straightforward. Be consistent in your use of labels and icons and provide either a site map, a "search" function, or both. Ensure all links are well sized, clearly labeled, active and correct.
- Avoid horizontal scrolling and try to minimize vertical scrolling (i.e., try to make each page no longer than a screen or two). Create shorter pages and link them with navigational icons (e.g., "Forward", "Back", "Main").
- Ensure ease of readability by using appropriate font sizes, colours, and high contrast between text and background colour.
- □ Accompany any video or audio material with descriptive captions.
- □ Format all web materials so that they can be used with screen reading software (i.e. audio output of text often used by visually and learning disabled students) such as *Jaws*.
 - Ensure that course web pages coded with HTML use sufficiently descriptive <alt> tags for all graphics.
 - Format heading levels using the automated feature of your web page editing software. This makes your document easier for screen readers to interpret.
- □ Test accessibility of your web site (and those to which your site links) by:
 - Specifically asking students about any difficulties they may be having in accessing web materials.
 - Turning off the graphics feature on your web browser and assessing its readability and functionality.

- If using a course management system such as WebCT, using the resources provided. See for example, the "WebCT Accessibility Checklist" at http://webct.com/accessibility/home, which contains excellent suggestions, most of which are applicable to other programs.
- Using free web-based tools, such as *Bobby* and *A-Prompt*. For further information on these tools, see <u>http://www.cast.org</u> or the Adaptive Technology Resource Centre SNOW Project at U of T http://snow.utoronto.ca/.
- During the first week of class, demonstrate the course website, highlighting how to log on, the various components, and the advantages of various file formats.
- Have students complete an exercise during the first few weeks of class that requires them to visit all aspects of the website and allows you to verify that all students are able to access the materials fully.
- Discuss netiquette for on-line conferencing, including the need to put new comments at the top of replies, so that students using a screen reader do not have to re-listen to old information.
- □ Your ideas:

GOAL 6: Plan learning activities to maximize student learning both during and outside of class time. [1,2,4,6,7]

- Structure learning activities so that students are encouraged to have "first contact" with course material outside of class time and thereby have the opportunity to learn this material at their own pace. Clearly identify which course material is to be read in advance of each class and provide questions to help direct/focus student reading (e.g., ask students to explain key concepts, summarize main arguments, compare two articles).
- Use clearly articulated expectations for class participation or the assignment of grades to encourage the completion of pre-class work. Use on-line quizzes and discussion groups to enable students to assess their own level of comprehension of assigned material prior to class.
- Use class time to focus on identified points of difficulty with the pre-class work and to apply and extend course concepts.
- □ Allow students to audiotape classes.
- □ Use a variety of active learning strategies (e.g., discussion, think/pair/share, role-play, case studies, debates, student led seminars, demonstrations, problem-based learning). Ensure students clearly understand what is expected of them with respect to each type of learning activity. Provide this information in multiple formats.
- □ Allocate an amount of time for each class learning activity that reflects its importance and complexity.
- Plan to switch the pedagogical approach used in class at least every 20 minutes, or provide a stretch break, to optimize student attention and motivation.
- Build time into every class to accommodate the unexpected (e.g., discussion of a relevant current event, student questions, reviewing points of difficulty from a previous class).
- Incorporate out-of-class learning activities (individual and/or group) that promote reflection and application of course concepts (e.g., learning journals, research papers, community-based projects, computer simulations).
- Endeavour to be assigned to a classroom that will support multiple modes of teaching and learning. If you know your classroom and/or lab assignment beforehand, pre-plan activities that take full advantage of the physical space and technology.
- □ Your ideas:

SECTION B. COURSE DELIVERY

GOAL 7. Provide students with an effective orientation to the course. [1,2,4,5]

- Introduce yourself to the class. Tell students about your excitement for the subject, your background and your research interests.
- Describe your teaching philosophy and your commitment to your students' learning. Explain your expectations of them.
- Present yourself as approachable and accessible. Encourage students with special learning needs or course concerns to meet with you privately.
- □ Indicate your commitment to learning your students' names and to helping them learn each others' (e.g., distribute name cards; play a "name" game; encourage students to introduce themselves to others sitting near them).
- □ Establish ground rules for classroom and online behaviour and discussions that reinforce tolerance and respect.
- Distribute a hardcopy of your course syllabus and ask students to review all of its elements. Ask questions about the content of the syllabus (e.g., course requirements, resources and policies) to check for comprehension and foster discussion.
- Present a visual representation of the course's guiding framework/conceptual model when explaining the intent of the course and the sequencing and integration of course components.
- Connect/help them to connect your stated learning objectives with what they already know, what they'll learn in other courses and what they need to know for possible careers. Emphasize the course materials' importance and relevance.
- □ Explain how the stated learning objectives connect with the course's learning activities and methods of assessment.
- Have several students who took the class the previous year/semester join the first class to provide their reactions and advice for getting the most out of the course.
- □ Your ideas:

GOAL 8. Bring organization and structure to the learning experience and every resource used in each class. [1,2,3,4,5,6,7]

- □ In the course outline, provide an overview of each class. Make every effort to stick to this plan.
- □ Specify in the course outline any materials needed or advance preparation for each class. Consider setting up automated reminders (course news on a website or group emails).
- Signal the beginning of each class by using a consistent routine (e.g., turn off music, turn on data projector, move to the board, blow a referee's whistle).
- Present an outline for the class (i.e., an overview of the learning activities and key concepts) and refer to it at key points during the class (particularly during transitions).
- Explain and visually demonstrate how the current class connects to the guiding framework for the course.
- □ Use a structured approach for exploring material: Present core concepts and then involve students in their application; present broad concepts and ask students to explore supporting detail; present two concepts and ask students to compare and contrast them.
- Reinforce key points using multiple formats (e.g., verbally, graphically, demonstration) and explain why they are important/relevant/interesting.
- Ensure there is sufficient time at the end of each class to summarize what has been learned. Ask for student volunteers to provide the summary or ask students to record and submit what they perceived to be the main points (to check for comprehension). These points can be summarized and revisited at the start of the next class.
- Ask students to remind you to say out loud key information otherwise presented through visual aides or comments made by other students (that might not be amplified).
- Prior to and/or directly after each classroom session, make available through the library reserve desk and/or a course web site materials such as: course notes, overheads, PowerPoint slides (hardcopy, PPT and HTML) (Note: using partial notes can be more effective than complete notes in order to encourage active learning); and audio or video recordings.
- □ Your ideas:

GOAL 9. Assess and adapt to students' prior knowledge, experience and learning preferences. [3,5,7]

- Assess students' incoming level of knowledge (e.g., review the course outlines for all pre-requisite courses, have students complete a quiz, ask students to brainstorm everything they know about a topic). Use this information to determine what level to teach to and where "catch-up" and "advanced" materials may be required.
- Explicitly recognize commonly held faulty knowledge and work to dispel all identified mistruths (e.g., create a handout or website of "myths and realities").
- Provide the entire class with optional remedial activities (i.e., readings, quizzes, exercises etc.) to compensate for missing fundamentals.
- In the first week, ask students to introduce themselves to the class, in person or on-line, and to share relevant experiences. Have students prepare a brief biography for submission (to which a picture can be attached). Review this information and incorporate it into class discussions, calling on particular students as appropriate.
- Have students assess their own learning preferences and analyze the implications of these preferences for completing course activities/assignments. Explain to students the importance of sometimes working outside of their comfort zone.
- Have students form heterogeneous groups for completing collaborative work, in order to benefit from the diversity of experience and learning preferences represented (provide groups with the tools and training for resolving group conflicts that will inevitably arise).
- □ Use language at a level appropriate for the students avoid technical jargon or formal language not required for an understanding of the subject matter.
- Provide assignments and examination questions that explicitly ask students to apply course concepts to their own experiences.
- □ Use examples for explaining course concepts that reflect popular culture (e.g., TV shows, music).
- □ Formalize a process for gathering student feedback during the course. Appoint ombudspeople or conduct a midsemester evaluation in order to ascertain how the course could better meet student-learning needs.
- □ Your ideas:

GOAL 10. Help students to develop their learning skills. [5,7]

- □ At the beginning of the course have students articulate their personal goals for the course and why they are important to them. Have them identify the learning skills that their goals will require them to develop.
- □ Have students assess their current skill level in areas of relevance to the course and record any concerns they might have for completing course work. Ask them to share this with you.
- □ Ask students to write a paragraph describing how they learn best. Have students share their responses. Have the class generate a list of "best learning practices."
- Describe your own (or have the course TA describe) strategies for learning difficult course concepts. Provide students with suggestions for overcoming conceptual hurdles.
- Model how academics approach and solve problems in your field. Talk about the research process and share personal examples of both successful and unsuccessful projects.
- □ If requiring a research paper, spend time in class discussing how you typically approach writing a research paper. Include a discussion of citation protocol (e.g., its history, why its important, the conventions for your discipline).
- Invite providers of various learning services (e.g., researching, writing, time/stress management) to class to demonstrate the types of support they provide and details for accessing their services. Or, hold office hours in the support provider's space the week a report or paper is assigned. Make online and print support resources available.
- If using group work, teach students about group dynamics and how to be successful team members. Have students analyze and evaluate the effectiveness of their groups as well as their own contributions and behaviours. For online group activities, make specific suggestions for students in effective online collaboration.
- Develop activities that provide students with the opportunity to develop learning skills in preparation for testing situations (e.g., review games that encourage integration of course concepts, spend time in class reviewing questions of a similar format to those that will be on the exam).
- □ Personally follow-up with students who appear to be struggling and encourage them to seek support if applicable.
- □ Your ideas:

GOAL 11. Provide students with clear feedback on their performance throughout the course. [1,2,4,5,6]

- □ When grading written work, use rubrics to ensure consistency of assessment criteria and feedback.
- Provide clearly legible (e.g., typed), informative and prompt feedback on both the student's demonstrated strengths and areas for improvement. Ensure the privacy of this feedback.
- When using multi-part assignments, require students to build upon past work and take formative feedback into account.
- Meet with students who don't do well on graded work to explore potential reasons and strategies for overcoming the problems identified.
- □ Involve students in self and peer assessment on both learning processes and outcomes. Use online conferencing, email or file exchange (e.g., tools such as Turnitin.com facilitate this) to organize peer review of assignments.
- □ Use the course website for posting student grades.
- Use web-based practice exercises/quizzes with automated marking for students to self-assess their understanding.
- When designing computer-generated feedback, write it so that it provides an explanation for both the right and wrong responses.
- □ Use e-mail or the course website to facilitate the submission and return of assignments.
- Use an exam review game to demonstrate the type of questions that will be asked and to give students feedback on how well they have learned the material.
- □ Your ideas:

GOAL 12. In the presentation of material, use an interactive approach that is accessible to all students. [1,2,3,6,7]

- Develop a clear framework for your lecture and provide this framework to your students in multiple formats (e.g., orally, partial lecture notes).
- Limit the number of concepts/topics covered to three or four main ideas (don't overload the students with facts).
- □ Write key concepts and associated terms on the board to highlight their importance and clarify their spelling. Use only dark markers (no red or green) to ensure visibility throughout the room.
- Provide examples or analogies for each concept. Have students participate in defining, illustrating and/or applying the concepts/terms using pre-class work, prior experience/knowledge and/or current events.
- Pause regularly, especially after presenting key points. This allows students time to take notes, process the basic information and reflect on what they've heard.
- Use open-ended questions to check for comprehension. Prior to calling on someone to respond, allow all students the opportunity to formulate a response by: 1) pausing for a count of 10; 2) having students record their responses; or 3) having students share their responses with their neighbour(s).
- Read key information presented on slides, blackboard, overheads etc. aloud to ensure effective communication to all, including those with visual impairments. Note that tables can be translated into Braille.
- □ Use a variety of presentation media (e.g. PowerPoint slides, videos, overheads).
- Ensure that you face the class (as opposed to the blackboard or overhead) when you are speaking to assure effective communication to all students, including those with hearing impairments. Use a microphone in larger rooms. Repeat student comments, to ensure these are heard.
- Encourage students to ask questions throughout the lecture in order to clear up points of confusion as they arise. Speak privately to anyone who begins to abuse this invitation by repeatedly asking derailing questions.
- □ Your ideas:

Worksheet Summary- Planning and Delivering Your Course

Goals 1 – 12	\checkmark	*	X	?	Total
Goal 1: Objectives/Framework					10+
Goal 2: Course outline					10+
Goal 3: Assessments					10+
Goal 4: Course materials					10+
Goal 5: Course website					10+
Goal 6: Learning activities					10+
Goal 7: Orientation					10+
Goal 8: Organization					10+
Goal 9: Prior knowledge					10+
Goal 10: Skill development					10+
Goal 11: Feedback					10+
Goal 12: Interactive					10+

Follow-up Questions:

1. In which goals is your course the most UID-friendly? (most \sqrt{s}) Why might this be the case?

2. In which goals is your course the least UID-friendly? (least number of check marks) Why might this be the case?

3. Which goal areas/examples am you most interested in trying? (most *'s)

4. Which goals/examples are you most interested in learning more about? (most ?'s)

5. What barriers might you encounter in trying to make your course more UID-friendly? What, if anything, can be done about these barriers?