Course Design, Assessment and Constructive Alignment

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Course Outcomes

Course Outcomes

Course outcomes are statements of what students should be able to accomplish after completing the course and can be both content and non-content focused. They should be concise, and be written as something the student may achieve. To facilitate student's focus on their learning and achievement, keep one learning outcome per statement, and write as many statements as required (often five to ten) to prevent vagueness in individual statements. By sharing course outcomes with students, they can create a roadmap of the course and discover purpose for specific objectives.

Guidelines for Writing Course Outcomes

1. What are the most important things that students should be able to know or do by the end of the course?
2. What are the most important skills your students should develop and apply during and after the course?
3. When writing your course outcomes, consider whether you want students to be able to recall factual information, or to apply the learning in some way. The charts on Cognitive, Affective, and Psychomotor Domains include more detailed information.
4. Are there any affective learning outcomes for the course (i.e., what feelings and/or opinions should students develop)?

Course outcomes should be meaningful and achievable. In this context, achievable refers to whether or not students can assess how successful they were in meeting the outcome. Think about the big picture when writing course outcomes. Put yourself in the student's position and brainstorm for ideas as to why the course is valuable.

To get started with writing course outcomes, consider a formula that includes the three foundational elements of a course outcome:

<div align="center">

Audience + **Behaviour** + **Context/Content** = **Course Outcome**.

</div>

A = the audience, will be the people (students) accomplishing the outcome.
B = the behaviour, is what is expected of them and is directly related to Bloom's Taxonomy.
C = the condition, description and/or criteria, that elaborates on the behaviour.

For example, in a fourth year geology course, the instructor would like students to demonstrate an advanced understanding of the water cycle (water evaporates from oceans, clouds form over land and it rains, water then flows back to the ocean) by finding unique solutions to real-world issues.

A = the students
B = hypothesizing (Bloom's Taxonomy level is create)
C = the impact of climate change on the water cycle.

Putting the pieces together the outcome becomes "*By the end of the course, students should be able to hypothesize the impact of climate change on the water cycle*". Note that this is a course outcome, and therefore may take multiple classes, teaching and learning activities, and assignments in order for students to reach this final outcome.

When writing course outcomes, one method to ensure a strong outcome is to apply the SMART criteria. If one or more elements of the SMART criteria are missing consider revising the outcome.

S	**specific** and **student** focused
M	**measurable** in terms of student success
A	**attainable** by students (given their knowledge and skill level after learning takes place)
R	**relevant** to focus of the course
T	**time** frame for completion is realistic (consider the depth of knowledge required by students)

Applying the SMART criteria to the previous example, it is:

1. Specific in that it students need to hypothesis, or propose, new ideas
2. Measurable in that the instructor can gauge the level of students' abilities using assessments with grading criteria (such as rubrics)
3. Attainable by targeting the outcome (i.e hypothesize) at a level for fourth year students for the given course (Based on program goals, related courses, and course content)
4. Relevant to the course and program goals.
5. Students can realistically achieve this outcome during the course based on a overall course plan with practical timelines.

Examples specific to Psychology:

Describe ethical principles in conducting research as it relates to the accurate (non-misleading) presentation of research results.

Explain complex abstract processes in simple, clear, and jargon-free language, presenting ideas in a logical order, using concrete examples, and diagrams, graphs when necessary

> Retrieved from
> https://www.uoguelph.ca/psychology/sites/uoguelph.ca.psychology/files/public/1010-01%20F16%20CourseOutline_LT.pdf

Identify and explain classic and current issues within cognitive psychology (including but not limited to perception, attention, memory, knowledge, language, problem solving, and reasoning and decision making)

Identify and explain standard methodological approaches used in the study of human cognition and cognitive neuroscience.

Retrieved from
http://www.queensu.ca/psychology/sites/webpublish.queensu.ca.psycwww/files/files/Undergr
aduate/Course%20Syllabi/2016-2017/PSYC_221-Cognitive_Psychology_JAN_2017.pdf

Additional examples:

Students should be able to design and create a small applet or application using object-oriented design principles.

Students should be able to evaluate the differences between predicted and observed results obtained from conducting scientific experiments.

Students should be able to draw evidence-based conclusions from statistical analyses performed on collected data sets.

By the end of this course, students should be able to assess the relationship between two variables using the appropriate measure of association.

Students are expected to administer academic assessments (e.g., nomothetic, CBM) using standardized procedures.

Students should be able to identify the compositional elements of Art within a piece of artwork.

By the end of this course, students should be able to formulate a research hypothesis based on a critical evaluation of the current literature.

Students should be able to identify, articulate and practice elements that contribute positively to a safe and respectful learning environment in an inclusive classroom.

Students should be able to create a multi-layered piece of artwork using Adobe Photoshop, demonstrating technical skills, aesthetic principles of composition, and conceptual awareness.

Students should be able to summarize the historical context of development discourse from Colonialism to today.

By the end of this course, students should be able to perform and trouble shoot experimental methods in bioinformatics and molecular biology.

Students are expected to develop professional working relationships with their client, peers, parents, teachers and other relevant caregivers.

By the end of the course, the students should be able to create a reliable scoring instrument or instruments to assess performance in the simulation they have designed using the Modified Ebel Procedure.

Students should be able to determine the effect of geographical location, climate and season on photovoltaic power generation.

By the end of the course, students should be able to distinguish between immune assays and defend their choice of a particular assay in a given situation.

Analyze various childhood behaviours using theories and theoretical frameworks of developmental psychology.

Choose appropriate developmental research designs and methods to answer a given research question.

One way to approach course outcomes is to look at Bloom's Taxonomy (1956), a classification of the knowledge, skills and abilities that you want students to learn. Lower level thinking skills include remembering and understanding. Since the model is hierarchical, students must have the basic knowledge in order to achieve higher levels of learning, including applying, analyzing, and evaluating concepts, and creating new ideas. These points give a basic description of the different levels of thinking:

- Remembering (knowledge): Retrieving pertinent knowledge from long-term memory
- Understanding (comprehension): Constructing meaning from information by interpreting, summarizing, inferring, comparing, or explaining
- Applying (application): Solve problems, use information in new situations and apply a procedure
- Analyzing (analysis): Breaking content into components, and determining the relationship of each component to one another and overall
- Evaluating (evaluation): Making judgments based on standards or criteria
- Creating (synthesis): Putting elements together to form meaning, generating new patterns or structure using existing elements

Bloom's Taxonomy of learning domains: Course outcomes by domain

The following charts can assist you in writing your course outcomes. The verbs in your course outcomes should align with the level of thinking students will need to do.

According to Blooms' (1956) theory, learning can be classified into three domains:

- **Cognitive**: mental abilities (*Knowledge*)
- **Affective**: attitudes, feelings, values, or emotional areas (*Attitude*)
- **Psychomotor**: manual or physical skills (*Skills*)

Verbs to Avoid

When you are writing learning outcomes, some verbs are better than others. The following verbs are vague in communicating to others the intention of, and what level of learning is expected:

Understand
Appreciate, gain an appreciation for
Have an awareness of
Know
Perceive

Bloom's Taxonomy

Cognitive Domain

The cognitive domain (Bloom, 1956) involves knowledge and the development of intellectual abilities. This includes the recall or recognition of specific facts, procedural patterns, and concepts that serve in the development of intellectual abilities and skills.

Please note that the charts are intended to give examples and ideas and are not an exhaustive list.

Category	Key Verbs	Examples	Example Student Assessments
Remember: Retrieve relevant knowledge from long-term memory.	tell, list, recognize, describe, recite, locate, label, identify, memorize, define, match, name, outline, recall, reproduce, select, state	Students should be able to: *Locate* different countries on the world map. *Identify* styles of architecture in urban settings, such as downtown Calgary.	Multiple choice exam questions Fill in the blank exam questions Matching exam questions Definitions Graphic organizers (such as concept maps or charts)
Comprehend: perceive meaning and grasp mentally	explain, describe, clarify, compare, generalize, summarize, extend, paraphrase, represent, exemplify, illustrate, classify, contrast, convert, distinguish, instantiate, estimate, give examples, infer, interpret, rewrite, arrange, match, paraphrase	Students should be able to: *Compare* different artistic painting styles. *Explain* the formation process of igneous rock.	

Apply: Carry out or use a procedure or process theory in a given situation	solve, show, classify, use, execute, carry out, implement, choose, report, apply, compute, construct, demonstrate, manipulate, modify, operate, prepare, produce	Students should be able to: *Solve* linear equations. *Use* rhetorical strategies to make arguments in writing.	Essay Research paper Case study assignment Online discussion questions Problem sets Labs Simulations (with write-up) Observation and analysis Written report Multiple choice exam question Written exam Matching exam questions
Analyze: Break material into its constituent parts and determine how the parts relate to one another and to an overall structure or purpose.	analyze, sort, contrast, investigate, separate, differentiate, break down, compare, diagram, deconstruct, illustrate, infer, outline, relate, organize, integrate, structure, calculate, modify, solve	Students should be able to: *Differentiate* between plant and dwarf plant. *Sort* a given set of plants by genus or species.	
Evaluate: Make judgments based on criteria and standards	judge, select, decide, debate, justify, verify, argue, assess, prioritize, predict, appraise, conclude, critique, defend, evaluate, estimate, test	Students should be able to: *Debate* the extent to which human activities might affect climate change. *Critique* the methodology section of a research article.	Create and implement a survey instrument Self-evaluation Inquiry project Poster presentation Oral presentation Predictions and estimates (on an exam, perhaps) Design projects Create an action plan Portfolio of work
Create: Put elements together; reorganize elements into a new pattern or structure.	create, invent, design, devise, formulate, hypothesize, produce, generate, plan, construct, compile, compose, organize, write	Students should be able to: *Generate* a business plan based on the clients' needs. *Produce* an Individual Program Plan (IPP) for students with a learning disability.	

Affective Domain

The affective domain (Krathwohl, Bloom,& Masia, 1973) includes the manner in which we deal with things emotionally, such as feelings, values, appreciation, enthusiasm, motivation, and attitudes.

Category	Key Verbs	Examples	Example Student Assessments
Receive: Open to experience; willing to listen	ask, listen, focus, attend, take part, discuss, acknowledge, hear, read	Students should be able to: *Listen* to new information with neutrality.	Portfolio Student reflections Journals Minute paper Peer evaluation Infographic Position paper Persuasive arguement
Respond: React and participate actively	react, respond, seek, discuss, interpret, clarify, provide additional examples, contribute, question	Students should be able to: *Participate* actively in a group by contributing to or building on new ideas.	
Value: Identify values and express personal opinions	demonstrate, differentiate, explain, justify, propose, affirm	Students should be able to: *Demonstrate* sensitivity towards individual and cultural differences.	
Conceptualize Values: Reconcile internal conflicts; develop value system	Build, develop, formulate, defend, modify, relate, prioritize, reconcile, contrast, arrange, compare, propose, verify	Students should be able to: *Prioritize* emergency responses after a disaster.	
Internalize Values: Adopt belief system and philosophy	act, display, influence, solve, practice, propose, revise, defend, organize	Students should be able to: *Revise* judgments and change behavior in light of new evidence.	

Psychomotor Domain

The psychomotor domain (Simpson, 1972) includes physical movement, coordination, and use of the motor skills.

Category	Key Verbs	Examples
Imitate: Copy action of another; observe and replicate	Copy, follow, replicate, repeat, adhere	Students should be able to: *Observe* and *copy* dance steps.
Execute: Reproduce activity from instruction or memory	Re-create, build, perform, execute, implement, follow	Students should be able to: *Follow* instructions to dissect a shark.
Perform: Execute skill reliably, independent of help	Demonstrate, complete, show, perfect, calibrate, control, measure	Students should be able to: *Fix* a leaking faucet.
Adaption: Adapt and integrate expertise to satisfy a new objective	Construct, solve, combine, coordinate, integrate, adapt, develop, formulate, modify, master, illustrate	Students should be able to: *Drive* a vehicle in various weather conditions.
Naturalize: Create new movement to fit a particular situation or specific problem.	Design, specify, manage, invent, convert, create, fix, generate, plan	Students should be able to: *Create* a new gymnastic routine.

Student Assessment

Once you have established course outcomes, the next step is to consider how to determine if students have met those outcomes, and more specifically, how well they have met the intended outcomes.

Students are always very concerned about how they will be assessed. There are many ways to assess students – including multiple choice exams, papers, presentations, learning journals, project reports, problem solving, and peer evaluation.

Assessment is an ongoing process, generally composed of two main parts: formative and summative. Formative assessment is the type of assessment that provides feedback so that people can understand their strengths and growth areas, and can be done at any point in the learning process. Summative assessment is the measurement we use to give students a grade, and is typically done at the end of a unit of instruction.

A good approach is to include both types of assessment: formative assessment allows students to do well on summative assessment. For example, getting feedback on a draft report allows students to improve the final product and receive a higher grade. So, when designing your course, you will want to build in opportunities for both types of assessment.

Purposes of Assessment

Summative assessment: Typically done at the end of a unit of instruction

- To pass or fail a student
- To grade a student
- To rank students
- To ensure a student is ready to progress with further study
- To ensure a student is ready to enter into a program or course
- To communicate to students how well they've learned the concepts of the assessment.
- To identify concepts that need further review
- To identify areas where improvement is needed in quality of teaching

Formative assessment: Can occur throughout the learning process

- To provide feedback to students about how well they understand course concepts
- To allow students to practice key skills (problem solving, applying concepts, writing tests, etc.)
- To motivate students in their learning
- To diagnose students' strengths and weaknesses
- To identify concepts that need to be reviewed (entire class or individual students)
- To identify areas where improvement is needed in quality of teaching

Valid Student Assessments

What is a valid student assessment?

- It assesses what it is supposed to assess
- Assesses student learning towards course outcomes
- It should also fulfill the purposes you have identified

Example of a valid student assessment:

Course Outcome	How it is Assessed
By the end of the course, students will be expected to describe the developmental issues encountered by school-aged children (Douglas College, n.d.)	Short-answer questions on the midterm Term paper

Example of student assessment lacking validity

Course Outcome	How it is Assessed
By the end of the course, students will be expected to evaluate classic and contemporary psychological findings related to emotion, stress and health (Thompson Rivers University, n.d.)	Multiple-choice exam questions

What assessments would be valid?

Course Outcome	How it is Assessed
By the end of the course, students will be expected to articulate how psychological research adheres to ethical and scientific principles, and communicate the difference between personal views and scientific evidence in understanding behavior (Portland Community College, 2017).	
By the end of the course, students will be expected to describe major theoretical perspectives and historical trends in psychology (Thompson Rivers University, n.d.)	
By the end of the course, students will be expected to gain a better understanding of the field of psychology, both historic and current (Woolf, 2007)	

Evaluating the validity of your assessments

- Pull out your course outline(s)
- Indicate how you assess student learning of each course outcome. If you assess student learning in multiple ways, jot them all down
- In a few minutes, discuss at your tables

Discussion Questions

1. To what extent are your assessments valid?

2. How might you improve validity of your student assessments?

3. Does the group have any ideas for improving validity of student assessments?

Essential Features of Student Assessments

When looking at the merit of student assessment strategies, check to make sure they have the following six features. If any of these are missing, your assessment item is bound to be problematic.

1. Reliability

   The reliability of a student assessment is the extent to which it consistently and accurately measures learning. A reliable assessment tool will repeatedly provide consistent results.

   There are several things that can affect reliability:
   - Length of the assessment. A longer assessment generally has more reliable results than a shorter one.
   - Phrasing and terminology of the questions
   - Consistency in test administration. Are all students given the same conditions such as amount of time? Do they get the same instructions? Have they all had the same preparation before doing the assessment?
   - Marking schedule and procedures. For example, in a course with multiple lab sections, are all Graders using the same criteria to grade student lab reports?
   - Student readiness. If students are not adequately prepared for the assessment, it is not reliable. For example, if an exam tests them on units they haven't taken yet, it is not reliable.

2. Validity

   A valid assessment technique assesses what you want it to assess. For example, if you want to assess students' writing of academic research papers, that can only be done through writing an academic research paper.

   Validity also refers to specific test items. Are the questions matching the level of learning outlined in the outcomes? For example, if you want to assess students' analysis skills, you could include a case study on an exam. Students would need to analyze the case and answer short answer and multiple choice questions on it.

3. Utility

   Utility refers to how useful the assessment item is. If the assessment does not yield any useful information, it is problematic. For example, if you are conducting peer assessments of group projects and all group members give each other perfect scores, you might question the utility of that assessment.

4. Feasibility

   An assessment tool must be feasible in order to be effective. Feasibility relates to how suitable and reasonable the assessment is to implement. For example, the best way to test student learning in a specific course might be to implement an essay and short answer final exam. Even

though the exam is reliable and valid, if there are 300 students in the course and no TAs, this exam is not feasible.

Feasibility is often related to cost.

5. Acceptability

    Some student assessment techniques are not acceptable, based on either the instructor's viewpoint or department guidelines. An example of this might be that the final exam has to be at least 40% of the final grade in the course. A rationale for this policy is that the weighting allows students to improve their final grade in the course, especially if they are close to failing the course.

6. Cost

    Some assessment techniques are too expensive to implement, and therefore a modification or alternative must be found.

Sixteen Indicators of Effective Assessment in Higher Education

1. Assessment is treated by staff and students as an integral component of the entire teaching and learning process.
2. The multiple roles of assessment are recognized. The powerful motivating effect of assessment requirements on students is understood and assessment tasks are designed to foster valued study habits.
3. There is a faculty/ departmental policy that guides assessment practices. Subject assessment is integrated into an overall plan for course assessment.
4. There is a clear alignment between expected learning outcomes, what is taught and learned, and the knowledge and skills assessed.
5. Assessment tasks assess the capacity to analyze and synthesize new information and concepts rather than simply recall information that has been presented.
6. A variety of assessment methods is employed so that the limitations of particular methods are minimized.
7. Assessment tasks are designed to assess relevant generic skills as well as subject-specific knowledge and skills.
8. There is a steady progression in the complexity and demands of assessment requirements in the later years of courses.
9. There is provision for student choice in assessment tasks and weighting at certain times.
10. Student and staff workloads are considered in the scheduling and design of assessment tasks.
11. Excessive assessment is avoided. Assessment tasks are designed to sample student learning.
12. Assessment tasks are weighted to balance the developmental ('formative') and judgmental ('summative') roles of assessment. Early low-stakes, low-weight assessment is used to provide students with feedback.
13. Grades are calculated and reported on the basis of clearly articulated learning outcomes and criteria for levels of achievement.
14. Students receive explanatory and diagnostic feedback as well as grades.
15. Assessment tasks are checked to ensure there are no inherent biases that may disadvantage particular student groups.
16. Plagiarism is minimized through careful task design, explicit education, and appropriate monitoring of academic honesty.

(James et al., 2002, p. 9)

Student Assessment Guidelines for Higher Education

1. Give feedback (marks and other feedback such as written comments if possible) early, before the course drop date is ideal. Students need to know early in the term if they should drop the course. The assessment item shouldn't be so heavily weighted that students can't recover from a bad grade. An alternative to an instructor-graded assignment is to put a self-assessment quiz online for students to complete. They can then practice and see how they might do on a regular test.

2. Include 4-6 assessment items for a 3-credit course. Fewer than 4 will result in heavily weighted assessment items, while more than 6 tends to result in regression towards the mean. There will always be exceptions to this guideline, however; your course might fall in this category. Also, you might have several small weekly assignments that add up to one regular assignment.

3. Check with your department & faculty in case they have assessment guidelines you have to follow. For example, if the department head has the authority to change student grades, students need to know that the grade you assign them is not their final grade but their recommended grade.

4. Assessment should align with course outcomes. Your course outcomes will help you to define how to assess students: the types of assessment instruments to use, the level of learning to assess (according to Bloom's Taxonomy), and the type of questions to pose.

5. When thinking about exams and graded assignments, ask yourself if you're assessing what is important about the course. If not, you could be focusing on trivial details or peripheral learning, and this is where students will spend their time and what they'll learn.

6. There should be congruence between the exam questions and the learning activities students have been doing leading up to the exam. In other words, students should have the chance to practice the sort of questions that will be on the exam. If students have been listening to lectures exclusively, and then for the exam they are expected to apply the principles that were presented to them, there is a disconnect between the learning activity and the student assessment technique. This can be fixed by posing questions in class for students to answer individually or in groups, putting practice self-assessment quizzes in Blackboard for students to complete on their own time, using clickers to check for understanding, etc.

7. If at all possible, student grades should be made up of different types of assessment instruments. Exams should have more than one type of question, such as multiple choice, short answer, and problem solving. In addition to written exams, can you include a student project or portfolio piece in the course? Having different types of assessment techniques will allow students to demonstrate their competence in different ways.

8. Graded student assignments that don't include feedback are not very helpful in terms of improving student learning. If detailed written feedback to each student isn't feasible, consider pulling out some major themes and addressing them in class orally. Before the assignment is due, consider showing some examples of past student work in class (it can be on a different

topic or assignment), commenting on why the assignment got the grade it did and how it might be improved. This gives students an idea of the level of work you expect.

9. When creating your assessment plan for your course, construct an assessment blueprint. This will help you to keep you on track in terms of the level of understanding for the various topic areas, and the amount of course time you devote to particular topics. An assessment blueprint can also be used for an individual exam.

10. When conducting a multiple choice exam, do an item analysis on the results to see which questions are problematic.

Course Outcome Alignment Chart

For each course outcome, state the methods used to measure student learning

Course Outcome	Assessment Item(s)	Teaching and Learning Activities	Level of Bloom's Taxonomy		
What should students be able to do, know, or value by the end of the course?	*What assessment methods will provide evidence that students have achieved the course learning outcome?* *How will feedback be given to students regarding their performance?*	*What teaching methods will you use to support student learning of the course outcomes?* *What learning activities will students be doing to enhance learning of the course outcomes?*	Remember/ Comprehend	Apply/ Analyze	Evaluate/ Create

Course Learning Outcome	Assessment Item(s)	Level of Bloom's Taxonomy		
What should students be able to do, know, or value by the end of the course?	*What assessment methods will provide evidence that students have achieved the course learning outcome?* *How will feedback be given to students regarding their performance?*	Remember/ Comprehend	Apply/Analyze	Evaluate/Create

Teaching and Learning Activities

In this session you will learn about one way to approach the selection of teaching and learning activities for your course. Due to time constraints, we will not be exploring a comprehensive approach to teaching and learning activities. If you are interested in improving your classroom teaching skills, we recommend that you sign up for the Instructional Skills Workshop, through our website at:

http://ucalgary.ca/taylorinstitute/edu/

Key topics that are addressed in the Instructional Skills Workshop include:

- Questioning skills
- Constructive feedback
- Learning styles
- Classroom assessment techniques
- Learning environment

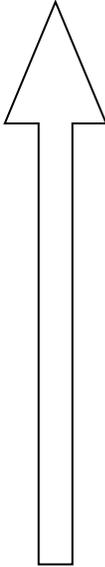**Linking Teaching and Learning Activities to Course Outcomes and Student Assessment**

You should have fidelity between your course outcomes, student assessment, and teaching and learning activities. Therefore, when selecting teaching and learning activities, think about what will best support your course outcomes and student learning. For example, if one of your course outcomes is for students to analyze conflicting or incomplete information, yet your student assessment instruments are multiple choice exams, students will spend time where they get the biggest payoff and prepare for the exams.

Looking back at the section on course outcomes, you wrote some statements about what you wanted students to know or do at the end of the course. Later you identified some ways in which you could evaluate whether or not students achieved those outcomes. In this section, you will generate some ideas for teaching and learning activities that will support the course outcomes.

Selecting teaching and learning activities that will support your course outcomes can be challenging, given some of the practical constraints you might face, such as class size. You may find you have to make some changes such as revising your course outcomes, lobbying your department head for a Teaching Assistant, or coming up with some creative approaches to the course design. Lecturing is often a critical part of a course and a way to deliver essential content. However, if your teaching and learning activities are restricted to lecturing, most of your students will not progress to higher level thinking skills with the course concepts. When the time comes to assess students on the course concepts, they won't have had any experience applying, analyzing, or evaluating concepts, making it difficult to justify examining them on anything other than factual recall.

The following chart is an extension of the one in Course Outcomes, with an extra column outlining some examples of teaching and learning activities for the various levels of thinking. This is meant as a starting

point for you to think about what teaching and learning activities would be appropriate in order to support your course outcomes.

Level of Thinking	Verbs	Teaching and Learning Activities
Create	Create, invent, predict, design, devise, formulate, infer, hypothesize, produce	Design a survey (or a course), construct a concept map, do a role play, generate a plan, compose a song or poem
Evaluate	Judge, select, decide, debate, justify, verify, argue, assess, prioritize	Participate in a debate, panel discussion, prepare a case to present your view
Analyze	Analyze, sort, contrast, investigate, separate, defend, predict, differentiate, break down	Derive information from a flowchart, write an investigative paper, defend a statement
Apply	Solve, show, illustrate, model, draw, classify, use	Use a formula to solve a math problem, construct a model, classify items according to given criteria
Comprehend	Explain, discuss, describe, compare, generalize, summarize, extend, paraphrase, match	Illustrate a main idea, summarize, match, do a diagram, graph
Remember	Tell, list, describe, locate, label, identify, memorize, define, describe	Write multiple choice questions, read, listen to lectures, write an item list, make a timeline

The Teaching and Learning Environment (TLE) is where the teaching and learning activities (TLA) take place. Multiple environments highlight the fact that learning can take place both inside and outside of the classroom and depends on who manages the learning:
1. Teacher managed: lecturing, tutorials, assigned readings
2. Teacher managed with student participation: peer teaching, interactive class work
3. Student managed: learning groups
4. Individual student managed: reading, websites, interviews, listening to lecture

Teaching and learning activities can be divided into two components: **Teaching activities** and **learning activities**. Teaching activities are what the instructor does to facilitate student learning. For example, during class an instructor might assign readings, do a presentation, lead a discussion, and assign homework. Learning activities are what the students do throughout the process. This might include readings, studying, listening to lectures, participating in discussions and group activities, working through examples, completing homework, and preparing for exams.

The following TLA form should help in deciding which teaching and learning activities are most appropriate for students to meet the course outcomes. This TLA form is intended to ensure TLA's are aligned with your course outcomes and student assessment plans, and should be completed as general as possible. This form can also be used to plan TLA's that take place outside of class. To plan the finer details of each lesson or activity, refer to lesson plans, which is covered in ISW.

Course Outcome	Teaching and Learning Activities	Student Assessment
	Teaching: Learning:	
	Teaching: Learning:	
	Teaching: Learning:	

	Teaching: Learning:	

Example:

Consider both the outcome and student assessment when strategizing which teaching and learning activities will best prepare students to achieve the course outcome, "By the end of the course, students should be able to hypothesize the impact of climate change on the water cycle".

This outcome is written at the Create level of Bloom's Taxonomy. Student assessments will enable students to demonstrate their ability to hypothesize, generate solutions to, or formulate ideas on how or if climate change impacts the water cycle. Therefore, teaching and learning activities could be small group discussions, watching movies, reading the text, lecturing, demonstrations, worksheets, and answering questions in class. Activities should align with assessments to give consistency to the course design.

Course Outcome	Teaching and Learning Activities	Student Assessment
By the end of the course, students should be able to hypothesize the impact of climate change on the water cycle.	Teaching: lecture on climate change and water cycle details, provide resources such as movies or diagrams, setting up small group discussion and have them work on case studies or other problems. Learning: take notes during lecture, completing in-class activities, group discussions, answering questions, complete out of class readings and assignments.	Midterm: Case study having student analyze a situation and propose solutions. Some short answer and multiple-choice questions to assess foundational knowledge on topics. Final Project: Poster Presentation of a real-world issue. Students also submit a brief summary.

Active Learning Strategies

Think – pair – share
Each person considers the topic/question and writes down some ideas/answers. S/he joins with one other for discussion. This provides a good basis for wider discussion.

'Buzz' groups
Working in small groups, people discuss an issue. Topics can include:
- How much they already know about a topic
- What they are not sure about
- Opinions on a topic

Round
Every person takes a turn to make a statement. Useful topics:
- One thing I need to know about …
- Something that I learned today
- One important point (about the topic) …

Case studies
A 'story' or scenario is presented to the group. Groups discuss the story or work together on questions.

Group discussion
Groups (up to 6 people) talk about a topic. A set of questions from the lecturer helps to structure the discussion and focus the group. The larger the group, the more difficult it is for everyone to participate actively.

Continuum
Everyone cooperates to form a line according to their capabilities/confidence/whatever the topic is. For example, the length of time their families have been in NZ, their ages, the number of times they have attended an interview, etc..

Fishbowl
One group discusses a topic. The second group observes the discussion and each person records:
- A partner's contributions (and gives individual feedback afterwards), or
- The important parts of the discussion (may be identification of issues, applications, generalisations, etc., depending on the task instructions)

Presentations
Individuals or small groups find information on a topic, then prepare and deliver a short informative session to the wider group.

Panel
Several 'experts' are invited to the session and answer questions from the class.

Question and answer session
This is a useful activity to check students' understanding. A time is set aside for a discussion/answer session. Questions may be submitted in writing at the previous session (good for shy students), or they may be oral.

Group Project
Groups of students work together on a project(s) which entails researching and presenting (written and/or oral) information. Useful for focusing on group and cooperative skills while covering discipline content.

Brainstorming
Everyone thinks of as many different ideas as possible. All ideas are accepted and recorded without comment. The ideas are evaluated after a set time period or when inspiration ends.

Student/teacher role swap
The facilitator asks students to write their ideas/information on the white board and then explain them. S/he places several white board pens on the desk and sits with class members.

Matching
This activity is one way to divide a large group into pairs. Members of the group are given cards which contain either a title or a definition. They have to find the person with the complementary card. In finding their partners, they come across a range of definitions and have to think about the topic. Content can be simple or complex depending on people's abilities. The pairs then work together on an exercise/problem related to their title and definition. Reporting back afterwards widens the learning.

Withdrawal
While groups work together or alone on set work, the lecturer spends time with individual students or small groups. The individual assistance can be rotated through the course so that everyone gets a turn, or it can focus on people who need extra help.

Concept maps
A topic is written on the board. The class/group suggests and organizes ideas and information, presenting them visually, often in clusters. Students often enjoy writing on the board (bring several whiteboard pens); where numbers are large, this activity is better carried out in groups with a display of the results at the end.

Organizing information
Information items are provided out of sequence. Students work (in pairs or small groups) to arrange them in order. The results can then be reported by each group and/or discussed by the wider group. The information can be given to students on a single worksheet or already cut into pieces for them to arrange in order.

'Ignorance'
Before the class begins, students consider what they would like to know by the end of the session. They write down some questions - five is a good number to aim for. Some students may like to share their questions, which can be recorded on the board. The students write more questions at the end of the session. These questions are likely to be different from the earlier ones; they should involve a higher level of thinking; there may well be more of them; and they can be a useful basis for further private study.

Reference:

Teaching and Educational Development Institute. (2006). Strategies for doing small group work in large classes. University of Queensland. Retrieved February 18, 2011 from http://www.tedi.uq.edu.au.largeclasses/.

Scaffolding

A primary goal of course design is to design a learning experience that helps students achieve goals, outcomes and learn new content and skills. Students bring their own experiences and prior knowledge to the course that provides the foundations for a rich learning experience. Still, many students still require support as they continue to learn and expand on their past experiences and knowledge (Hogan & Pressley, 1997, Ambrose et al., 2010). Vygostsky (1978) termed the gap between where students are and where they should be, the zone of proximal development. For students to achieve the intended course learning outcomes, they need practice and feedback, yet often there is too much cognitive load that distracts students with the potential to cause frustration and demotivates students.

Scaffolding is a strategy to temporarily remove or adjust the cognitive load so students can focus on the central tasks. Ambrose et al. (2010) describe two types of cognitive load to consider when scaffolding student learning. Extraneous load refers to the aspects related to a task that are not necessarily related to what students need to learn. Germane load refers to what students eventually need to know yet creates a challenge to student progress. Much like creating stepping-stones or a staircase for student learning, scaffolding provides direction, focus, and the foundations for success. As students master the early steps, they build a foundation towards mastery of larger, more complex tasks. By revisiting the course learning outcomes, cognitive load can be adjusted to facilitate student learning. Scaffolding can be applied to an entire course, an activity or even an assessment. A key to successful scaffolding is time for practice and feedback that helps foster student development.

Examples of scaffolding:
1. Instructor modeling
2. Providing clues or hints at key stages
3. Adapting course material to help students focus on key aspects
4. Creating activities using manageable steps with feedback
5. Cumulative assessments
6. Providing feedback on draft work
7. Using examples in class
8. Small assessments such as one-minute paper, reflection papers, confusion statements
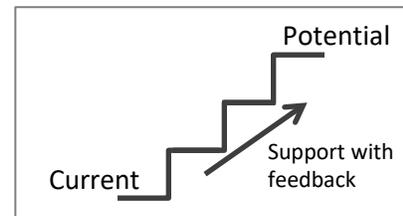
Psychology Department
Program-Level Learning Outcomes

1. Demonstrate knowledge of psycholocial sciences

- convey key concepts and theoretical approaches in several areas of psychological science
- describe biological, psychological, and social foundations of typical and atypical behaviour and mental processes
- identify historical trends, recent advances, and the limits of psychological knowledge

2. Think critically and solve problems

- assess and critically evaluate information, ideas, and assumptions comprehensively and from a variety of perspectives
- use relevant sources of scientific knowledge to identify, frame, and generate novel solutions to problems or issues
- contribute to knowledge and problem solving using integrative and creative approaches

3. Conduct research and analyze data

Research methods

- understand the advantages and limitations of different research methods
- generate research questions and implement appropriate research methods to answer them
- draw appropriate inferences from obtained findings

Data analysis

- identify and apply appropriate quantitative and/or qualitative data analysis techniques
- use statistical software to analyze data and solve data analysis problems
- communicate research findings effectively using figures, graphs, and tables

4. Communicate effectively

Written communication

- write correct, clear, concise, and convincing research reports and papers
- convey psychological theories and findings to both scientific and non-scientific audiences
- describe, compare and contrast, and synthesize psychological theories, ideas, and research findings

Oral communication

- give presentations to increase knowledge, foster understanding, and impact the target audience
- use technology and graphics to facilitate the transmission of information and ideas
- articulate and explain key messages and concepts clearly and credibly

Teamwork and interactions with others

- communicate and contribute in group activities and in discussions to facilitate goals
- demonstrate accountability and integrity in professional and peer relationships

5. Demonstrate information literacy

- locate, interpret, evaluate, and communicate psychological information and findings
- assess the relevance, reliability, validity, and utility of different sources of information
- operate as an informed consumer, generator, and disseminator of research findings

6. Understand and implement ethical principles

- identify ethical issues and ramifications of actions and policies in research and other settings
- adhere to and apply ethical principles, and demonstrate social responsibility
- recognize different perspectives that can be applied to ethical dilemmas

7. Apply psychological knowledge and skills

- use psychological principles to generate solutions to personal, social, organizational, and societal problems
- understand the practical importance and uses of the concepts and methods of psychology
- transfer learning and psychological knowledge to novel contexts and situations

Evaluating Course Design

Most people evaluate their courses at different points in time. This will yield different information at each phase of the design process. For example, at the beginning you will look at factors such as whether or not you're placing the proper emphasis on important concepts. After delivering the course, you will examine things such as the extent to which students were able to achieve the objectives of a course.

You'll probably find that you're never really done evaluating or modifying your course design: the content of the course might change, or you find better activities than the ones you're using, or any of a number of other factors could prompt you to alter certain aspects of the course. Every offering of the course could be a slightly different iteration.

It's a good idea to create an evaluation plan early on; this program will help you to do that. For more information about evaluation, you might consider taking the University Teaching Certificate or the Faculty Teaching Certificate.

Prior to the Course

While in the preliminary planning stages, you can assess your course according to a number of factors such as workload, content, and diversity of teaching and learning activities. A worksheet is included in this section to prompt you to think about your course design.

You may be required to send your syllabus to your Department Head, Dean, or another individual who will read and approve it or send it back to you with suggested changes.

If time permits, you may also want to get feedback from other people, such as a colleague who has taught the course or an instructional designer. People who specialize in educational technology, student assessment, or other educational fields may be able to provide feedback as well. At the end of this workbook you will find a page with contact information for various people at the Educational Development Unit who can offer guidance.

Evaluating Your Course Design

Instructor's Name: _____ Course Number and Name:_____

Criteria:	Notes:
Course Outcomes	
☐ Does each course outcome use an active verb consistent with levels in Bloom's taxonomy (see https://tinyurl.com/bloomsverbs) that can be measured with at least one scored assessment?	
☐ Is each of the course outcomes adequate in terms of articulating expectations of student learning in the course? ☐ Represents a fundamental result of the course ☐ Represents university level work ☐ Reasonable given the time constraints of the course ☐ Aligns with other courses in a sequence, if applicable	
☐ Are students likely to understand each learning outcome?	
Student Assessments	
☐ Is each assessment clearly aligned with at least one course learning outcome?	
☐ Are the assessment methods valid? (i.e., does each assessment **effectively** assess the intended course learning outcome(s)?)	
Do the assessments emphasize (check all that apply) ☐ foundational understanding? ☐ critical thinking? ☐ applying theories and concepts? ☐ innovation?	
☐ Do the assessment weightings reflect the degree of work required and the importance of the work?	
☐ Can the assignments be reasonably completed within the given time frame?	
Teaching and Learning Activities	
☐ Does your course include a variety of teaching and learning activities (e.g., lecture, discussion, case study, group work, projects, presentations, etc.)?	
☐ Do the teaching and learning activities support student learning of the course outcomes? (e.g., if you want students to apply concepts, do they have opportunities to practice prior to a graded assignment?)	
Mental Health and Wellness	
Approximately how many hours/week are students expected to work on the course? ☐ Is this reasonable?	
☐ Is the course free from "high-stakes" assessments (i.e., one item weighted 40% or more towards final grade)?	
☐ Do course policies support wellness rather than being punitive?	

During the Course – Formative Evaluation

While it is being offered, you can use formative evaluation to collect important information that will help you to strengthen the course. In addition to your own observations, students can provide a lot of feedback about the course. The most important thing is to assess student learning: are they learning what they should be learning?

There are a number of different strategies you could use to solicit student feedback throughout the course. Some instructors have students write comments on paper and hand them in a couple of times during the course. Other instructors put a survey in Blackboard, which is useful for large classes as the tool will compile student answers and percentages for Likert scale questions. The survey doesn't have to be complex; a few basic questions should provide some illuminating information. Below is a simple example:

State how strongly you agree or disagree on the following statements:
1. I have a good grasp on the major concepts of this unit/module/topic. (strongly agree to strongly disagree)
2. What concepts are still unclear to you? (essay format)
3. Please add any additional comments you have about the unit/module/topic. (essay format)

End of Course – Summative Evaluation

After the course is done, there are a number of ways you can examine its success based on different criteria.

Student satisfaction:
- Universal Student Ratings of Instruction (USRI) surveys
- How do USRI scores compare with previous course offerings?

Student learning:
- Student work can give you an indication of what they're learning in your course. Assignments, exams, and even the questions they are asking as they progress through the course can enlighten you on the following:
  o Are students learning the same amount as they were prior to the course redesign? Or perhaps more than before? Less?
  o Is student learning broader or deeper than it was prior to course redesign?
  o Are students learning at the desired level of outcomes according to Bloom's Taxonomy?

Retention/ attrition rates:
- What percentage of students is able to pass the course? Is this reasonable? How does this compare to previous years?

Learning goals:
- What percentage of students is able to achieve the course outcomes? How does this compare to previous years?

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Contact Information

If you would like individual consultation after the program, related to any aspect of your course design, please contact me to arrange a meeting with an Instructional Designer.

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