# Best Practices in Course Design

**What you'll find in this resource:**

---

# Best Practices in Course Design

All courses at Toronto Metropolitan University must follow the policies set by the TMU University Senate. The most relevant policy to the course design process is Policy 166: Course Management [pdf].

Once you've reviewed the policy and embarked on the process of course design or redesign, it can be helpful to keep in mind the following **five principles of good course design** proposed by L. Dee Fink. Good course design should:

- Challenge students to higher level learning
- Use active forms of learning

- Give frequent and immediate feedback to students on the quality of their learning
- Use a structured sequence of different learning activities
- Have a fair system for assessing and grading students (Fink, L.D.).

# Getting Started

Carnegie Mellon's page on how to Design and Teach a Course has an excellent step-by-step plan for creating an effective course. We have modified their list of practical considerations to be TMU specific, with links to many of our relevant documents.

## Identify the situational constraints

- How does your course fit into your department's curriculum or course sequence?
- Is there material that must be covered to support later courses in the program?
- Is your class required or an elective?
- How many students can enroll in the course?
- What time of day is the class scheduled for?
- How long and how often will your class meet?
- Are your students first year undergraduates, upper level undergraduates, or graduate students?
- What are the time constraints on your course? How much flexibility will students have to complete the requirements for your course? Are they currently doing placements or working full time jobs? Will they be able to meet outside of class to complete group assignments? Are there major assignments for other courses in their program due at specific times? Are there any major holidays or university events in the midst of your course?
- What classroom will you be teaching in? Is it a large lecture hall, a small room with flexible seating, etc.?
- What technology will be available to you?

## Consider timing and logistics

- How will you make your textbook or course materials available to students?
  - Put necessary items on reserve at the library or order textbooks from the campus store.
  - Contact your subject librarian to see what kind of help they can provide for your students
- Will you be working with TA/GAs? What will you have to do to prepare them for the course?
- Will you be including any technical components, such as clickers, lecture capture, web conferencing, or course blogs?
- Request a D2L course shell

- Just before the course begins:
  - [Finalize and test your course shell with a dummy student account](#).
  - Check the status of your books and course materials
  - Meet with TAs
  - Visit your classroom
  - Get to know your students and their prior knowledge, learning goals, and motivations via some sort of [pre-assessment](#)

# 📄 Backwards Course Design

One effective model for the course design process is "backwards design." In backwards design "one first identifies the desired results, followed by determining acceptable evidence and planning for the appropriate learning experiences and forms of instruction" (Nomme & Birol, 2014). In the backwards model, "*how* you teach might become as important as *what* you teach" (Allen & Tanner, 2007).

Backwards design is effective because it centres the course design process on student learning and understanding. By focusing on the desired learning outcomes, instructors are encouraged to always "establish the purpose of doing something before implementing it in the curriculum." Because each activity and assessment is tied to a learning outcome, each "task and piece of instruction has a purpose that fits with the overarching goals of the course" and instructional methods become both transparent and explicit (Bowen, 2017).

See **Appendix A: Backwards Course Design Exercise** for a fillable table you can use to design your course using the following model.

## Stage 1: Identify Desired Results

In backwards design, the first step is to **identify your course learning outcomes** or what you hope students will achieve by the end of your course. Look ahead to what you "want students to have accomplished by the end of the unit of instruction" and "what will remain with them going forward" (Allen & Tanner, 2007). What should students "hear, read, view, explore, or otherwise encounter?" What "big ideas and important understandings" should students retain? (Bowen, 2017). This process is informed by the following questions:

- "To what extent does the idea, topic, or process being considered as an objective reside at the heart of the discipline?
- To what extent will the idea or process have enduring value beyond the classroom?
- To what extent does the idea, topic, or process offer potential for engaging students?" (Allen & Tanner, 2007).

# Articulate your learning outcomes

"Learning outcomes are statements that predict what learners will gain as a result of learning... A carefully thought-out learning outcome will give a solid indication of what kinds of assessment are appropriate, and of the skills and knowledge the learner will have to demonstrate to pass" (Trinity College Dublin).

An effective learning outcome is student-centred, breaks down tasks to focus on specific cognitive processes, and is measurable (Carnegie Mellon). When writing learning outcomes for your course, ask "By the end of this course, what should students **know**? What should they be able to **do** and are there any **attitudes** or **values** you are hoping they will develop?"

A typical learning outcome begins with a phrase such as "By the end of this course, students will be able to..." followed by a **verb** that defines a **specific** action that students will have to complete in order to achieve the outcome.

For example, if you are teaching a course in which students are exposed to sustainable construction and its principles, a learning outcome for this course could be "By the end of this course, students will be able to **describe** a variety of sustainable construction methods and **articulate** the underlying principles." Outcomes should be phrased in a way that is **measurable**, so that evidence can be provided to substantiate learning. Avoid vague expressions that are difficult to measure such as "appreciate" or "understand."

By selecting the appropriate verbs for your learning outcomes, you can precisely set the level of difficulty of your course. These verbs can be chosen using a learning framework. Learning frameworks organize the many potential forms of learning into a concise structure detailing what is to be learned and at what level. One of the most well-known learning frameworks is **Bloom's Taxonomy of Educational Objectives**.

Bloom identified three domains of educational objectives:

1. **Cognitive** (Knowledge) - to know
2. **Psychomotor** (Skills) - to do
3. **Affective** (Attitude) - to value (Bloom, B., 1956. Revised by Krathwohl et al., 2002).
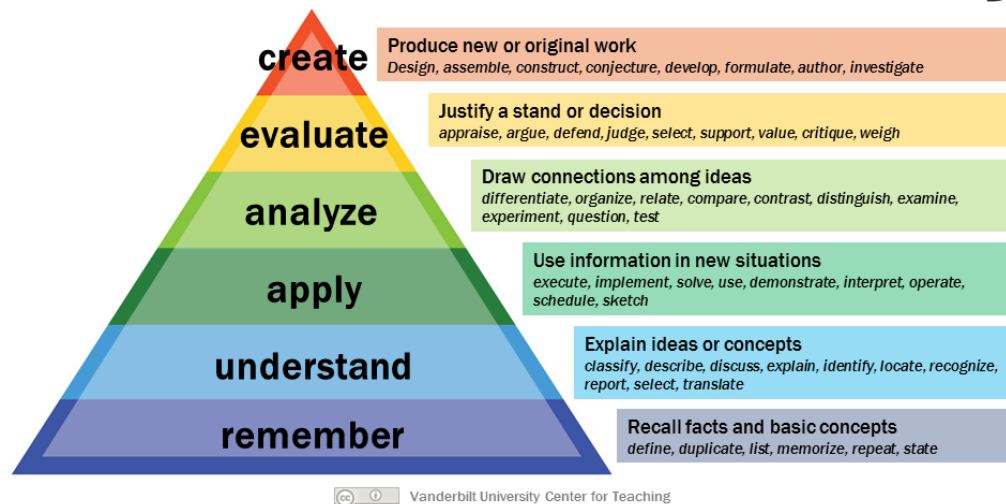
# Bloom's Taxonomy

**create** — Produce new or original work
*Design, assemble, construct, conjecture, develop, formulate, author, investigate*

**evaluate** — Justify a stand or decision
*appraise, argue, defend, judge, select, support, value, critique, weigh*

**analyze** — Draw connections among ideas
*differentiate, organize, relate, compare, contrast, distinguish, examine, experiment, question, test*

**apply** — Use information in new situations
*execute, implement, solve, use, demonstrate, interpret, operate, schedule, sketch*

**understand** — Explain ideas or concepts
*classify, describe, discuss, explain, identify, locate, recognize, report, select, translate*

**remember** — Recall facts and basic concepts
*define, duplicate, list, memorize, repeat, state*

Vanderbilt University Center for Teaching

Fig. 1: "Bloom's Taxonomy," Vanderbilt University. CC BY 2.0

For each domain, there is a framework of six categories. Visualized as a pyramid, these categories lie along a continuum that moves from "simple to complex," "concrete to abstract" (Armstrong).

For each step in the pyramid, a new set of verbs are available. By selecting one of these verbs for your learning outcome, you determine the level of your course. First and second year courses, for example, might only require students to meet learning outcomes from the categories of remember, understand and apply, while a capstone project in a fourth-year course will ask students to create something new.

The cognitive domain is the most commonly applied framework in higher education. "Bloom's Taxonomy" (Fig. 1) lists verbs that can be used to write learning outcomes at every level of the cognitive framework (Remember, Understand, Apply, Analyze, Evaluate, Create). For example, a learning outcome set at the bottom level of "remember" might only ask students to "define" or "list," while a learning outcome set at the highest level of "create" might ask students to "design" or "construct."

## Stage 2: Determine Acceptable Evidence

The next step is to think about the best way to **assess whether or not students have met the desired learning outcomes** or how they will demonstrate competency. This is a question of evidence—in backward design, you must "determine what constitutes evidence of competency for each of the outcomes envisioned for students in Stage 1" (Allen & Tanner, 2007). You can ask yourself "How will I know if students have achieved the desired results?" and "What will I

accept as evidence of student understanding and proficiency?" (Bowen, 2017). The kind of assessment that is implemented must align with the learning outcomes in order to accurately measure students' understanding.

Evidence of student learning should be valid, reliable, feasible, and authentic (Wiggins & McTighe). Each outcome should therefore be assessed with one or more of the following types of assessment:

- **Criterion-referenced assessments**: exams, quizzes, or writing "administered on a reiterative basis so that progress toward development of understandings can be monitored"
- **Unprompted assessment and self-assessment**: "observations of students working together, journals, portfolios, dialogues, class discussions, etc."
- **Performance tasks**: "concrete demonstrations of ability to perform a procedure, design and implement projects and experiments, etc" (Allen & Tanner, 2007)

## Identify potential assessments

When determining the assessment methods for your course, ask yourself:

- "What will the students' work on the activity tell me about their level of competence on the targeted learning objectives?
- How will my assessment of their work help guide students' practice and improve the quality of their work?
- How will the assessment outcomes for the class guide my teaching practice?"

Each desired outcome should be assessed at least twice, ideally as part of a formative and then summative assessment. A **formative assessmen**t is a low-stakes assessment used to monitor student learning and provide ongoing feedback. A **summative assessment** evaluates student learning against a standard or benchmark at the end of an instructional unit.

## Stage 3: Plan Learning Experiences

The third step in the backwards design process is to ask, "Which approaches promote understanding, interest, and competency in the subject matter" (Nomme & Birol, 2014) or "**What activities, materials and resources will equip students with the needed knowledge and skills?**" (Bowen, 2017). The answer to these questions will help you determine the most appropriate way to teach your content in order to ensure student success in the course (Wiggins & McTighe).

## Identify appropriate instructional strategies

What instructional activities will both "engage students with the material and enable them to meet the objectives" set for the course? As described above in the section on backwards design, you can choose instructional strategies based on the answer to the following questions:

- "What kinds of activities will students need to engage in to acquire the necessary skills and knowledge?"
- "How can you organize these activities to provide sufficient practice?"
- "How can you sequence them so that skills build upon one another?"

By using the backwards design process, you will be able to get a clear sense of your current practice and realize where your "teaching repertoire must be expanded" (Allen & Tanner, 2007). You will also get a sense of where a reliance on using textbooks or course readings to guide instructional choices has "inadvertently led to padding of the curriculum with far more topics, subtopics, and vocabulary than the typical person can reasonably hope to grasp within the context of an ongoing learning experience" (American Association for the Advancement of Science, 2001, as cited in Allen & Tanner, 2007). It is only once you have a sense of where the teaching methodology needs to be modified or updated, and what material must be included and what can be left out, that meaningful and significant learning experiences can be developed.

## 🗒 Course Redesign

Barbara Gross Davis has provided an outline for revising pre-existing courses in her book Tools for Teaching (2009). When trying to determine what course content to include she suggests starting by:

- Distinguishing between essential and optional material
- Emphasizing the core concepts
- Stressing the classic issues, or the most enduring values or truths
- Giving students a conceptual framework on which to hang major ideas and factual information

When thinking about redesigning an existing course, the National Center for Academic Transformation (NCAT) have identified five principles that lead to a successful course redesign, contributing both to student learning and to reduced instructional costs (NCAT, 2005).

1. **Redesign the whole course**: the focus of the redesign process must be the whole course, not just one class, or one section. The course should be worked on collectively, continuously, and systematically.

2. **Encourage active learning***: the course should be shifted from a passive model toward a learner-centred, active model, incorporating interactive materials and activities that provide "frequent practice, feedback, and reinforcement of course concepts."

3. **Provide students with individualized assistance***: an expanded support system should be created, making students feel like they are part of a learning community where they can receive assistance in an individual or small group format, as well as encouragement and praise when they are on the right track.

4. **Build in ongoing assessment and prompt (automated) feedback***: low-stakes self-grading quizzes can be built into the learning management system, providing students with the opportunity to practice and receive frequent feedback on their work.

5. **Ensure sufficient time on task and monitor student progress***: a concrete learning plan is combined with "specific mastery components and milestones of achievement." Performance standards can be set at various points in the course, allowing students who are falling behind to be identified and given help before it's too late for them to catch up.

## Determining the effectiveness of a redesigned course

Because the process of course redesign may change the assessments used in the course, it becomes difficult to compare student achievements between the older and newer version of the course. One potential measure that can be used to determine the effectiveness of a redesigned course is to "investigate student beliefs and attitudes towards the subject" (Perkins et al., 2005, as cited in Nomme & Birol, 2014). Student attitudes, beliefs, and values toward the subject matter, as well as their perceptions of the course can be captured with "informal conversations, structured focus group discussions, or surveys" (Ramsden, 1998, as cited in Nomme & Birol, 2014). Questionnaires can also be used to gather quantitative data on student attitudes and the impact of new teaching strategies (Nomme & Birol, 2014).

# Work Cited

Armstrong, P. Bloom's Taxonomy. Vanderbilt University Center for Teaching. https://www.vanderbilt.edu/advanced-institute/

Bowen, Ryan S., (2017). Understanding by Design. Vanderbilt University Center for Teaching. https://cft.vanderbilt.edu/wp-content/uploads/sites/59/Understanding-by-Design.docx

Allen, D., & Tanner, K. (2007). Putting the Horse Back in Front of the Cart: Using Visions and Decisions about High-Quality Learning Experiences to Drive Course Design. *CBE— Life Sciences Education*, 6(2), 85–89. doi:10.1187/cbe.07-03-0017

National Center for Academic Transformation. (2005). *Five Principles of Successful Course Redesign.* https://www.thencat.org/Workshops/MOSys/Workshop%20I%20Packet%20%28MO%29.pdf

Nomme, Kathy and Birol, Gülnur (2014) "Course Redesign: An Evidence- Based Approach," *The Canadian Journal for the Scholarship of Teaching and Learning 5(1)*. doi:http://dx.doi.org/10.5206/cjsotl- rcacea.2014.1.2

Wiggins, G. & McTighe, J. (1998). *Understanding by Design.* Association for Supervision and Curriculum Development.

---

**This document was prepared by** Michelle Schwartz, Educational Developer, Centre for Excellence in Learning and Teaching. Questions or suggestions for future topics can be directed to: teachingcentre@torontomu.ca

**Please note:** This document was originally published by the Learning and Teaching Office in 2019 and has since been updated into a more accessible version. If you require further assistance viewing this document, please contact: teachingcentre@torontomu.ca

# Appendix A: Backwards Course Design Exercise

Fill out the table below for each learning outcome in your course.

## Stage 1: Identify Desired Results

| Learning Outcome |
| --- |
| Your learning outcome should answer at least one of the following questions:<br><br>● What do you want students to know? (Knowledge)<br>● What should your students be able to do? (Skills)<br>● How should students enact knowledge and skills? (Attitude) |
|  |

## Stage 2: Determine Acceptable Evidence

| Assessment |  |
| --- | --- |
| How will you assess whether your students have achieved the learning outcome? | |
| **Formative Assessment**<br><br>(low stakes assessment method that monitors student learning and provides feedback) | **Summative Assessment**<br><br>(high stakes assessment method that evaluates student learning against a benchmark) |
|  |  |

## Stage 3: Plan Learning Experiences

| Teaching and Learning Activities | | |
|---|---|---|
| What activities will help your students achieve the learning outcome? | | |
| **In-class**<br><br>(face-to-face activities) | **Online**<br><br>(blended learning activities) | **Offline**<br><br>(course work outside of class) |
| | | |

Adapted from the Blended Course Design template, Centre for Teaching Excellence, University of Waterloo