Course Design Institute Workbook

This workbook provides a step-by-step process for either creating or redesigning a course based on the backward design process described by Wiggins and McTighe (2005). It is informed by the ideas proposed by Ambrose (2010) in *How Learning Works*. The purpose of backward design and this Course Design Institute (CDI) is to support the development of courses that encourage significant learning (Fink, L.D., 2003).

The appendix at the end of this workbook comprises a [CDI portfolio](#_Course_Design_Institute). We will also provide a separate portfolio document to use during the CDI.

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# Pre-course reading

## Course | Design | Institute

The Course Design Institute (CDI) provides instructors the opportunity to learn or review the **three stages of backward design** and its value for developing a course by first considering desired results, then designing the course to achieve those results.

An institute-based approach – typified by a strategically paced and deep engagement -- ensures the process focuses on **evidence-based instructional practices**, student **inclusion**, learning, and **assessment of learning** -- and facilitates **collaboration with colleagues from across the university.** Generative Artificial Intelligence (GenAI) is used as a tool to help draft CDI assignments in order to encourage reflection and support an iterative process.

### CDI Learning Goals

* Understand the course design process
* Appreciate the value of evidence-based inclusive teaching strategies
* Know how to access teaching and learning resources
* Leverage GenAI to draft course design artifacts.

### CDI Outcomes

Following completion of this CDI, participants will

* Describe the stages of backward design
* Articulate course learning goals
* Develop course learning outcomes
* Prompt GenAI using a reflective (SPARC) and structured (TRACI) process
* Establish course structure and critical components/assignments
* Integrate evidence-based instructional practices into course components
* Identify strategies for assessing student learning

### Backward Design

The backward design process encourages educators to think first about situational factors like the context, students, and purpose of instruction then align learning goals, assessment and instruction in order to achieve desired results (Fink 2003, 2013).

Here are the steps in the backward design process followed during the CDI:

|  |  |  |
| --- | --- | --- |
| Backward Design Stage | Tasks | Guiding Questions |
| **Step 1:** Identify desired results. | Create learning goals and outcomes. | What do you hope students will achieve by the end of your course? What should they *know, understand,* and *be able to do*? |
| **Step 2:** Determine acceptable evidence. | Develop assessments of student learning. | What opportunities will help students practice and achieve the learning outcomes? How will they demonstrate their learning? |
| **Step 3:** Reflect on course organization | Create a schedule for the course | How can you organize your course to promote student learning? |
| **Step 4:** Plan learning experiences and instruction. | Choose course content and teaching strategies. | What content supports the course learning goals and outcomes? What learning activities will help students engage with that content? What technologies can deliver the content or engage students in the learning experiences? |
| **Step 5:** Course evaluation | Plan course evaluation | What evidence of students’ achievement is there? What do measures of student learning tell you about the course? Are students learning? Where are their challenges? What changes to course design or instruction might improve student learning or experience? |

You will get an opportunity to learn about, practice, and get feedback on these steps as we progress through the CDI.

Ohio State history  
In the 1930's Ralph Tyler was working with fellow faculty at The Ohio State University in the [College of Education and Human Ecology](https://ehe.osu.edu/about/history) to improve data gathered from assessments. In his 1934 article, “Some Findings from Studies in the Field of College Biology,” Tyler details how he helped faculty sketch out the ideas of needs analysis, backward design, and setting behavioral objectives. In *Understanding by Design*, Wiggins and McTighe reference Tyler as the originator of behavioral objectives (2005, p. 20). Tyler was Benjamin Bloom’s (Bloom’s Taxonomy) dissertation advisor.

## Universal Design for Learning

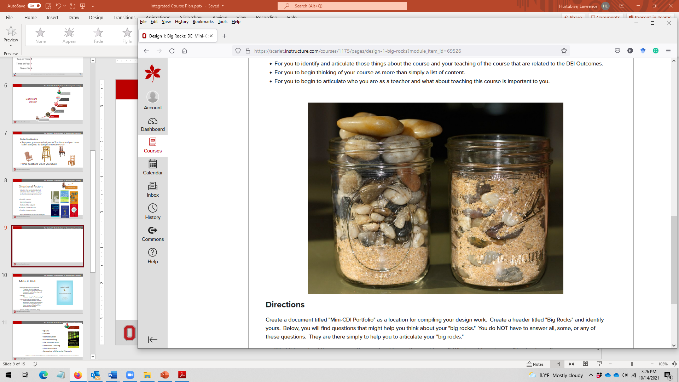
Universal Design for Learning (UDL) is a set of principles that aims to provide all individuals with equal learning opportunities, regardless of (dis)ability, gender, age, or cultural background. It encourages educators to undertake the design process assuming diverse learners with varying abilities and skills. The following table aligns the backward design process (Wiggins and McTighe) with UDL (Luke, 2021) and additional strategies promoting a productive learning environment (Ambrose 2010).

How might you incorporate these strategies into your course design process?

| **Backward Design** | **Universal Design for Learning** | **Promoting a Productive Learning Environment** |
| --- | --- | --- |
| Step 1: Identify desired results. | * Embed inclusive design from the start * Diversify the curriculum * Co-design with learners | * Examine your assumptions about students * Anticipate and prepare for potentially sensitive issues |
| Step 2: Determine acceptable evidence. | * Define clear/achievable learning outcomes | * Resist a single right answer * Make uncertainty safe |
| Step 3: Reflect on course organization | * Provide flexible opportunities for assessment and feedback | * Incorporate evidence into performance and grading criteria |
| Step 4: Plan learning experiences and instruction. | * Consider effective teaching strategies * Present diverse voices and perspectives * Offer multiple strategies to present information * Design opportunities for cooperative learning * Review the timetable and delivery * Use technology appropriately | * Use the orientation to establish the learning climate * Address tensions early * Establish and reinforce ground rules for interaction |
| Step 5: Course evaluation | * Evaluate course using an inclusive design checklist | * Set up processes to get feedback on climate/learning context |

## Big Rocks: The most important things

Imagine you need to fill a jar with some big rocks, pebbles, and sand. What do you put in the jar first? This is a commonly used metaphor that has been in a variety of contexts. If you start filling the jar by first adding sand, then pebbles, you will not have room for rocks.



The space in the jar represents the amount of time you have to spend on a variety of tasks during the session or semester. The big rocks represent the aspects of the course that are the most important. The pebbles represent everything of medium importance. And, finally, the sand represents all the smaller items that are less important. The lesson? if you don’t put the big rocks in the jar first, they won't fit in later.

The big rocks analogy is a reminder, that when you are designing your course, **PUT THE IMPORTANT THINGS IN FIRST.**

### Activity 1

Go to the CDI portfolio or the Carmen course and respond to the Big Rock questions (Assignment 1). Sharing your big rocks enables facilitators to provide feedback in light of your most important things. In your introductory post in the Carmen Discussions add one of your big rocks.

# Session 1 – Course Goals

The first step in the backward design process is to identify desired results. During this step we will build on the work you accomplished when you identified your Big Rocks to develop learning goals for your course. The process of developing learning goals comprises reflecting on your situational factors or course context and what you hope students will achieve by the end of your course? To help with this work we will use Fink’s (2003) Significant Learning model.

## Significant Learning

### Activity 2

To begin thinking about course goals, Go to your CDI portfolio and complete the following reflection.

Think of one of your most significant learning experiences:

* What Happened?
* Who was involved?
* Why was it significant?

### Significant Learning Definition

According to Fink (2013), significant learning is

* learning that lasts beyond the end of the course (retention)
* learning that has been personally or professionally transformative (changes how students think, feel, or act in their lives)

### Diagram of Fink's proximity diagram showing significant learning occurring at the center of foundational knowledge, application, integration, human dimension, caring, and learning to learn.Proximity Taxonomy

Fink (2013) proposes that significant learning is more likely to occur at the intersection of the following six domains and when the instructor has clearly articulated goals in the domains.

***Foundational Knowledge***

What key information (facts, terms, formulae, concepts, principles, relationships, etc.) is/are important for students to understand and remember in the future? What key ideas (or perspectives) are important for students to understand in this course?

***Application***

What kinds of thinking are important for students to learn? Critical thinking, in which students analyze and evaluate? Creative thinking, in which students imagine and create? Practical thinking, in which students solve problems and make decisions? What important skills do students need to gain? Do students need to learn how to manage complex projects?

***Integration***

What connections (similarities and interactions) should students recognize and make among ideas within this course? Among the information, ideas, and perspectives in this course and those in other courses or areas? Among material in this course and the students' own personal, social and/or work life?

***Human Dimension***

What could or should students learn about themselves? What could or should students learn about understanding others and/or interacting with them? What can you take forward with you from the course?

***Caring***

What changes/values do you hope students will adopt? Feelings? Interests? Ideas?

***Learning How to Learn***

What would you like for students to learn about learning? How to be successful students in a course like this? How to learn about this subject or discipline? How to become a self-directed learner of this subject? How to build a learning agenda of what they need/want to learn and a plan for learning it?

## Course Goals Definition

Now that you have articulated your big rocks, articulating the most important things a successful student will know or care about after your course, and reflected on one of your significant learning experiences, you are ready to start the process of planning a course by articulating course goals and aligning them to learning outcomes.

*Note: You may be familiar with these concepts by other names. During the CDI, labels are consistent with language used in Ohio State course approval processes.*

Course goals are **general descriptions** of what do you hope students will achieve by the end of your course? What should they know, understand, and be able to do? Attaining a learning goal may require achievement of a variety of learning outcomes.

Course goals use generally potentially unmeasurable verbs. Goals start with the phrase “students will.” Some good verbs for goals are know how, understand, grasp, appreciate, value. For example:

**Students will...**

* know how to make decisions about…
* understand a variety of…
* grasp or value an appreciation for the complexity of…
* appreciate the real-world issues relating to...
* value how to ask good questions about…

Below is a table listing Fink’s significant learning domains and examples of verbs to use when writing learning goals.

|  |  |
| --- | --- |
| **Significant Learning Domain** | **Learning Goals** |
| Foundational Knowledge | Understand and remember |
| Application | Know how to |
| Integration | Connect |
| Human Dimension | Know themselves Understand others |
| Caring | Appreciate |
| Learning to Learn | Grasp |

Consider which domains are common to your discipline and which might be more difficult to incorporate.

## Prompting Gen AI

Before writing our learning goals in the CDI we are going to take a break and discuss prompting AI to assist with the course design process. Then we will prompt AI to help us write our goals as our first practice with prompting as part of course design.

GenAI tries to predict an appropriate response to a prompt. The better the description of what you want (prompt) the better the prediction (response). To improve the prompts for the CDI, we advise using a reflective process we call AI-SPARC which incorporates a prompting structure called TRACI (<https://go.osu.edu/ai-start>).

AI-SPARC:

SPARC is an acronym describing the reflective and iterative process we use during the CDI. The components of SPARC are:

**S**- Self reflect on your teaching and yourself as an educator. What is important to you as an instructor and the designer of the course? What is your teaching philosophy, who are your learners and what is the context.

**P**-Prompt using a framework like TRACI.

**T**- Task you want AI to do

**R**- Role AI should take on

**A**- Audience it is written to

**C**- Create, response format

**I**- Intent of the response: Include academic

**A-**What academic requirements such as accreditation standards or discipline-based education research should inform the response to your prompt and pedagogical considerations.

**R-** What research on pedagogy like Bloom’s Taxonomy, Universal Design for learning, or Finks Significant Learning, should inform the response to your prompt**.**

**C-** Critique the response to determine if it is suitable for you and your course.

If you are not satisfied with the response, self-reflect on what you are hoping to improve and prompt again following the SPARC model.

### Activity 3

Go to your CDI portfolio and write course goals that articulate what you want students to know, understand, grasp, appreciate, or value after taking your course.

**Experiment with learning goals prompts like the following:**

(Role) You are an experienced educator in [describe your discipline. For example, Sports Management Education]. (Task) Write learning goals for a [Describe your course. For example, introduction to Sports management] for (Audience) [Describe your learners, for example, graduate students in a sports managements program. (Create) Learning goals should align with Fink’s proximity taxonomy and use non measurable verbs like understand or appreciate. [Add the Commission on Sport Management Accreditation standards]. (Intent) Learning goals should use a friendly professional tone to promote belonging and a growth mindset.

To see example prompts and CDI prompt chains go to: <https://go.osu.edu/ai-prompts>

## Expected Learning Outcomes

The goals you have just written guide the design of everything else in the course: assignments, assessments, content, course schedule, etc.

Expected Learning Outcomes (ELOs) are clear statements of the essential knowledge or skills students are expected to demonstrate by the end of a program, course, module, or assignment. ELOs help instructors make decisions about what and how to teach as well as how to assess learning. ELOs help learners understand why that knowledge and those skills will be useful to them.

### Writing ELOs

ELOs are learner-centered and address four components: the ABCs (and a D).

1. **A**udience: To develop learner centered ELOs, start with the phrase “Students will be able to” (SWBAT). In some cases, it is useful to describe the audience. For example, if you have learning goals that are recursive, or you are teaching a group of interdisciplinary learners. (For example, graduating student in the Bachelor of Fine Arts program will be able to… or first year nurse practitioner and third year medical students will be able to….)
2. **B**ehavior: Follow the SWBAT phrase with an observable and measurable behavior or verb. You can find example verbs in the Bloom’s Taxonomy Table below.
3. **C**ontext: Next provide the context for the assessment (a recital, reflective essay, case study, or exam, for example).
4. **D**egree: Finally describe the degree of proficiency associated with meeting the ELO.

### SMART ELOs

Another way of approaching ELO construction is to use the SMART acronym, which was developed in the 1980s as a way to write management goals and objectives.

|  |  |
| --- | --- |
| **S** | Specific to what the learner will be able to do |
| **M** | Measurable and can be observed |
| **A** | Attainable for the learner within specified contexts |
| **R** | Relevant to the needs of the learner |
| **T** | Time framed and achievable by the end of the course |

As an aside, the acronym has also expanded to incorporate additional areas of focus for goal-setters. SMARTER, for example, includes two additional criteria:

* **Evaluated:** Assessing the extent to which an outcome has been achieved.
* **Reviewed:** Reflecting and adjusting behaviors.

ELOs must also be aligned with a learning goal. The following is an example of alignment.

|  |
| --- |
| Goal: By the end of this course, students will understand that societal institutions are sites of power, organized via intersections of identity. |
| **ELOs:**   * SWBAT identify the inequities of certain social institutions (e.g., media) * SWBAT describe how the injustices of these social institutions affect the lives of women * SWBAT analyze social institutions and social relationships |

Learners who meet the set of defined outcomes should attain the learning goal. In the above example, the suggestion is that if a student is able to do the activities described in each of those three listed outcomes, the instructor could have confidence that the same student now understands that societal institutions are sites of power, organized via intersections of identity (the goal).

## Bloom’s Taxonomy Verbs

Below is a table with suggestions for the behaviors (verbs) that align with various domains of Bloom’s Taxonomy, a framework for categorizing educational goals. Using tables like this can support designing instruction with a wider variety of assessment and teaching methods that are constructively aligned with learning goals and outcomes.

Consider the action verbs in the chart below next time you plan outcomes or assignments for your course.

**Sample Verbs for Cognitive (Knowledge) Learning Outcomes**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Remember ​** | **Understand ​** | **Apply ​** | **Analyze​** | **Evaluate ​** | **Create​** |
| Define​ | Classify​ | Choose​ | Question​ | Arrange ​ | Assemble​ |
| Duplicate​ | Describe​ | Use​ | Appraise ​ | Assemble ​ | Construct​ |
| List​ | Explain ​ | Demonstrate ​ | Test​ | Collect ​ | Create​ |
| Memorize​ | Express ​ | Dramatize ​ | Examine ​ | Combine ​ | Write​ |
| Recall​ | Identify ​ | Employ ​ | Compare ​ | Compose ​ | Formulate​ |
| Repeat​ | Locate ​ | Illustrate ​ | Contrast ​ | Conclude ​ | Develop​ |
| Reproduce ​ | Recognize ​ | Interpret ​ | Criticize ​ | Construct ​ | Design​ |
| State​ | Report ​ | Operate ​ | Debate ​ | Create ​ | ​ |
| ​ | Select​ | Solve​ | Discriminate ​ | Design ​ | ​ |
| ​ | Paraphrase​ | Schedule ​ | Differentiate ​ | Determine ​ | ​ |
| ​ | Discuss​ | Shop ​ | Distinguish ​ | Diagnose ​ | ​ |
| ​ | Translate ​ | Sketch ​ | ​ | Differentiate ​ | ​ |

**Sample Verbs for Psychomotor (Skills) Learning Outcomes**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Imitation** | **Manipulation** | **Precision** | **Articulation** | **Naturalization** |
| Assemble | Acquire | Achieve | Adapt | Arrange |
| Attach | Build | Accomplish | Alter | Compose |
| Attempt | Conduct | Automatize | Change | Create |
| Bundle | Dismantle | Calibrate | Combine | Initiate |
| Construct | Execute | Control | Coordinate | Design |
| Calibrate | Fix | Direct | Develop | Initiate |
| Care For | Harvest | Differentiate | Express | Invent |
| Feel | Implement | Edit | Formulate | Manage |
| Dissect | Improve | Grade | Integrate | Originate |
| Duplicate | Maintain | Inspect | Modify | Process |
| Follow | Make | Measure | Rearrange | Refine |
| Mimic | Manipulate | Prune | Revise | Select |
| Notice | Operate | Regulate | Simplify | Separate |
| Reproduce | Produce | Sharpen | Solve | Verify |
| Sketch | Harvest | Operate | Raise | Simplify |
| Try | Highlight | Organize | Recheck | Simulate |

**Sample Verbs for Affective (Attitudes) Learning Outcomes**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Receiving ​** | **Responding ​** | **Valuing ​** | **Organizing​** | **Characterizing** |
| Listen To | Reply | Attain | Organize | Believe |
| Perceive | Answer | Assume | Select | Practice |
| Be Alert To | Follow Along | Support | Judge | Continue To |
| Show Tolerance of | Approve | Participate | Decide | Carry Out |
| Obey | Continue |  | Identify With |  |

It is important to note that Bloom’s Taxonomy has been revised over the years. , [Anderson and Krathwohl’s (2001) revision](https://iastate.app.box.com/s/z0otio95lflaii1l2ro3h42kp8q6fdmm) introduced types of knowledge used in cognition was introduced. More recently authors have revised Bloom’s taxonomy in light of Gen AI.Oregon State University has created a resource [highlighting the differences between AI capabilities and distinctive human skills](https://teaching.resources.osu.edu/teaching-topics/ai-teaching-strategies-transparent) at each Bloom's level, indicating the types of assignments you should review or change in light of AI. [A Post-AI Learning Taxonomy - by Dr Philippa Hardman](https://substack.com/@learningfuturesdigest/p-149753103) suggests a change to Bloom’s taxonomy that minimizes lower level outcomes and emphasizes higher order thinking.

## Aligning Goals and Outcomes

The table below includes the significant learning domains and is included to help you see the connection between learning goals outcomes and the significant learning proximity taxonomy.

|  |  |  |
| --- | --- | --- |
| Significant Learning Domain | Learning Goals | Blooms Domains |
| Foundational Knowledge | Understand and remember | Cognitive |
| Application | Know how to | Cognitive, Psychomotor |
| Integration | Connect | Cognitive, Psychomotor |
| Human Dimension | Know themselves and Understand others | Cognitive, Affective |
| Caring | Appreciate | Cognitive, Affective |
| Learning to Learn | Grasp | Cognitive |

### Activity 4

Go to your CDI portfolio and the page titled "Learning Outcomes." Write 2-5 learning outcomes for each of your goals. If you are using GenAI, once you have refined your learning goals, try using the following prompt with GenAI to develop ELOs:

You are an experienced educator in [describe your discipline. For example, Sports Management Education]. You have developed the learning goals below. Please write 2-3 learning outcomes that are aligned with each learning goal. Use verbs that are observable and are aligned with Anderson and Krathwohl revision of Blooms Taxonomy. Create a two column table. Put the learning goals in column one and add the expected learning outcomes in column two.

[Paste your final learning goals in after the prompt]

# Session 2

## Assessment

Now that you have drafted your learning goals and outcomes, it is time to determine appropriate evidence that students have achieved the outcome and begin thinking about the sequence of your course.

Below is an overview of the process for organizing a course that the CDI follows. The process is usually iterative with course designers reflecting on and refining goals and ELOs after considering assessment of learning.

1. Selection of assessments that are aligned with specific ELOs.
2. Scaffold to assessments to support experiential learning.
3. Organize a course to allow for experiential learning and draft a course skeleton.

In the Blooms Taxonomy Appendix at the end of the portfolio is a table that provides examples of action verbs, assessment strategies, and learning activities aligned with Blooms cognitive domain. This is a helpful resource as you think about aligning assessment and learning activities to your learning goals and ELOs.

## Scaffolding Assignments

Assignments should be varied, meaningful, purposeful, relevant, and authentic. One of the ways that assignments can be made more authentic is to consider audiences that extend beyond the classroom and thinking about how to scaffold assignments to support experiential learning and preparing students to interact with authentic audiences, for example: how future employers may use GenAI to solve problems. Experiential learning is a model that leverages scaffolding assignments and authentic tasks.

### Experiential Learning

Learning that is considered “experiential” contain all the following elements:

* Reflection, critical analysis and synthesis.
* Opportunities for students to take initiative, make decisions, and be accountable for the results.
* Opportunities for students to engage intellectually, creatively, emotionally, socially, or physically.
* A designed learning experience that includes the possibility to learn from natural consequences, mistakes, and successes.

How does it work?

Kolb’s (1984) cycle of learning depicts the experiential learning process (see figure below).  This process includes the integration of: knowledge—the concepts, facts, and information acquired through formal learning and past experience; activity—the application of knowledge to a “real world” setting; and reflection—the analysis and synthesis of knowledge and activity to create new knowledge”

The table below provides an example of scaffolding assignments and considering audience to prepare learners for an authentic task. Across the top of the table are four categories of audience: the teacher, the student (self/reflection), an anticipated local audience (your students may or may not show their work to this audience, but they have those persons in mind when creating the work), and an authentic audience (people who will actually see the students’ work).

Example ELO: Students will be able to write a journal article.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Audience  (wk) Emphasis | Teacher Only | Self/Reflection | Local Audience | Authentic Audience |
| (1) Knowledge |  | Literature review |  |  |
| (2) Apply | Create an outline |  |  |  |
| (3) Analysis |  | Modify outline based on feedback |  |  |
| (4) Evaluate |  |  | Develop a poster for a student show case |  |
| (5) Create |  | Revise based on feedback |  | Submit an article to a journal |

### Activity 5

Go to your CDI portfolio and the page titled "Scaffolding Meaningful Assignments." Brainstorm a series of assignments, considering the scaffolding of assignments to prepare learners for an authentic task.

Sample Prompt

[Provide the role and audience] Please develop a table with the learning outcomes below in the first column. In the second column add authentic assessment strategies that are aligned with the outcomes and could be used to provide evidence that the learners had achieved the learning outcomes. In the third column add active learning strategies that would promote experiential learning.

## Organizing Course Content

Now it’s time to think about how a course is organized. Below are some reflection questions to help you begin thinking about your course organization.

**How is content (both writing and thematic) usually structured in your discipline? In your courses?**

Ways to organize content

|  |  |
| --- | --- |
| * + Chronologically   + Simple to complex   + Concrete to abstract   + Macro/micro   + distal/proximal   + How students learn   + Theory to applications   + Disciplinary classifications | * + How students will use the information in social/personal/career   + How major concepts and relationships are organized in discipline   + How knowledge has been created in the field   + around a set of questions/problems/case studies   + How relationships occur in the real world |

**Reflection Questions:**

* Why is content structured this way?
* What are the benefits and/or limitations of the above structure of course content?
* How can you incorporate input from learners and colleagues in your choices?
* What are some possible new ways of structuring the content of this course?
* Why would this be most beneficial?

### Activity 6

Go to your CDI portfolio and the page titled "Complete a Course Skeleton.” Develop an initial course skeleton by adding your ELOs and Assessments to the Integrated Course Plan (ICP).

Sample Prompts I

For the [insert one of your complex assessments, for example, “Development and defense of a strategic plan for a sports organization assessment” develop a set of assignments using Anderson Krathwohl's-Blooms taxonomy that scaffold learning enabling students to successfully complete the strategic plan.

Sample Prompt II

Please develop a 14-week schedule for this class organizing from simple to complex. Create a four-column table. In column 1 put the week, in column 2 add the learning goals, in column 3 add the topic, and in column 4 add assessment strategies that are aligned with the goals.

Reflect on the results and make any changes you need then cut and paste the results into yoiur CDI portfolio.

# Session 3

## Mapping Your Course

Course skeletons or outlines are the basis for an ICP (Wiggins and McTighe, 2005). During this step you will make discipline specific decisions regarding which content to include in a course, focusing on major content topics/themes/theories etc. that will be covered. This content should be organized to help students meet designated learning outcomes.

## Parallel content

If course goals and learning outcomes require students to master or have mastered other foundational skills or abilities first, then instructors may have to plan for what is known as “parallel content.” Simply put, parallel content is “stuff students need to know in order to do something else.” These skills, abilities, and foundational content pieces are often crucial components of our disciplinary work but are overlooked as course content.

Because parallel content includes skills that must be developed by students who successfully complete a course, it is important to give them the opportunity to develop and practice these skills or abilities.

During the content organization process, instructors should look for assignments where parallel content already exists but hasn’t yet been made explicit. Sometimes a new assignment may need to be developed to facilitate this parallel content development (for example, a library assignment building up to a research paper or a low stakes homework using a Carmen feature before a high stakes assessment with the same tool).

Occasionally parallel content needs to be added to the course learning outcomes, particularly if it relates to a broader skills we expect students to build over several courses. Parallel content skills might include the following:

|  |  |  |
| --- | --- | --- |
| * communication skills * rhetorical skills * collaborative skills * technological skills | * research skills * analytical skills * critical thinking skills * problem-solving skills | * cognitive skills * creativity * professional dispositions |

## ICP Development

An Integrated Course Plan will include learning outcomes, assignments, course/disciplinary content, and parallel content. It will also articulate teaching strategies associated with these elements. The table below supports alignment and identification of these elements.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Week | ELOs | Assessment | Content | Parallel Content | Teaching Strategies |
| 1 |  |  |  |  | Ignore for now |
| 2 |  |  |  |  | Ignore for now |
| 3 |  |  |  |  | Ignore for now |
| 4 |  |  |  |  | Ignore for now |
| 5 |  |  |  |  | Ignore for now |

### Activity 7

Go to your CDI portfolio and the page titled "Integrated Course Plan.” Develop content for your Integrated Course Plan.

## Rubric Development

A rubric is a grading guide that makes explicit the criteria for evaluating students’ work. Rubrics inform students of expectations while they are learning. These tools also enable teachers to grade efficiently, judge student work against a standard, and communicate readily with each student. Three common examples are holistic, analytic, and single point.

* **A holistic rubric** breaks an assignment down into general levels at which a student can perform, assigning an overall grade for each level. For example, a holistic rubric might describe an “A” essay using the following criteria: “The essay has a clear, creative thesis statement and a consistent overall argument. The essay is 2–3 pages long, demonstrates correct MLA formatting and grammar, and provides a complete works cited page.” Then the holistic rubric would list the criteria for a B, a C, etc.
* **An analytic rubric** breaks down general levels even further to include multiple categories, each with its own scale of success. Using the example above, the analytic rubric might have four grade levels, with corresponding descriptions, for each of the following criteria points: thesis, argument, length, and grammar and formatting.
* Like holistic and analytic rubrics, **the single-point rubric** breaks the aspects of an assignment into categories, clarifying to students what is expect of them in their work. Unlike other rubrics, the single-point rubric includes only guidance on and descriptions of successful work without listing a grade. It might look like the description of an A essay in the holistic rubric with space for the teacher to explain how learners have met the criteria or how can still improve.

### Creating a Rubric

1. Write a brief description of the assignment at the top of the rubric.
2. Brainstorm a list of qualities or criteria you expect students to demonstrate? Ask yourself what is evidence of learning?
3. Review your list. Choose 4-5 primary criteria. List these criteria in the left column of the rubric.
4. Describe what top-level student work might look like for these 4-5 criteria. Write these descriptions in the “A” column.
5. Use examples of student work to refine the rubric (and the assignment).
6. Try it out in a course. Refine the rubric based on your evaluation of effectiveness and student feedback.

### Activity 8 (Optional)

Go to your CDI portfolio and the page titled "Rubric Development.” Draft a rubric for a complex assignment.

Sample Prompt

For the [insert a complex assignment for example “Development and defense of a strategic plan”], develop a rubric that has a column for five categories that are aligned with the objectives of the scaffolded assignments, and columns for beginner, growing, and competent, levels of observable behavior. Assign points to the rubric that add up to 100 points for if competence is attained in all categories.

# Session 4

## Transparency in Learning and Teaching (TILT) Framework

Studies have identified that providing greater transparency about academic work results in increases in areas that are established predictors of student success: their academic confidence, sense of belonging, and awareness of their improved mastery of the skills that employers value most when hiring (Winkelmes et al. 2015).

Instructors creating assignments using the TILT framework noticed increases in students’ motivation in class, higher-level class discussions with sharper focus, more on-time completion of assignments, and fewer disputes about grades.

Transparent assignments communicate clearly to students the task, its purpose, and the criteria for task evaluation before they begin work.

**Purpose:** Explain how the assignment links to one or more course learning outcomes. Understanding why the assignment matters and how it supports their learning can increase student motivation and investment in the work.

**Task:** Outline steps of the task in the assignment prompt. Clear directions help students structure their time and effort. This is also a chance to call out disciplinary standards with which students are not yet familiar or guide them to focus on steps of the process they often neglect, such as initial research.

**Criteria:** Provide a rubric with straightforward evaluation criteria. Rubrics make clear parts of an assignment you care most about. Sharing clear criteria sets students up for success by giving them the tools to self-evaluate and revise their work before submitting it. Be sure to explain your rubric, specifically unpacking new or vague terms (Language like "argue," “close reading,” "list significant findings," and "document" can mean different things in different disciplines.) It is helpful to show exemplars and non-exemplars along with your rubric to highlight differences in unacceptable, acceptable, and exceptional work. Engage students in reflection or discussion to increase assignment transparency. Have them consider how assignment outcomes connect to their personal lives or future careers. In-class activities that ask them to grade or compare sample assignments and discuss the criteria they used, engage in self- or peer-evaluation, or complete steps of the assignment when you are present to give feedback can all support student success.

### Activity 9 (Optional)

Go to your CDI portfolio and the page titled “Transparent Assignments.” Develop an assignment using the TILT framework.

## Teaching Strategies

An Integrated Course Plan also includes teaching strategies to support learners as they attain the course learning outcomes.

When considering evidence-based instructional strategies to support learning, you might consider how to provide opportunities for students to interact with

* Course content
* Themselves/reflection
* The instructor
* Their classmates
* Anticipated Audiences
* Authentic Audiences

Additionally, consider what activities are useful for students to do with you (and with each other) in class (or online), as well as how you might structure student learning outside of class? What can students do on their own to practice the skills (while using the content) necessary for successful completion of assignments?

Studies have demonstrated that active learning benefits all students and can reduce or eliminate achievement gaps in STEM courses and promote equity in higher education. Below is a list of some active learning strategies and links to resources for learning more.

* Peer Instruction (see it <https://www.youtube.com/watch?v=wont2v_LZ1E> )
* Jigsaw (hear about it <https://www.youtube.com/watch?v=Nrylh_-40ng> )
* Think-Pair-Share (hear about it <https://www.youtube.com/watch?v=bYoZLcfMHC4> )
* Debate (hear about it <https://www.youtube.com/watch?v=I1IeF7D7kkY> )
* Case Studies (hear about it <https://www.youtube.com/watch?v=kwjx1PV9RjI> )
* Fishbowl Strategy (learn about it <https://www.youtube.com/watch?v=p1q7WbWc8dE> +-)
* Lightening Round

(hear about it <https://www.youtube.com/watch?v=I7_PfCBBcFI> )

* Analogy (read about it <https://www.tandfonline.com/doi/full/10.1080/10691898.2003.11910705> )
* Discussion Boards (read about it <https://teaching.resources.osu.edu/examples/effective-online-discussion> )
* Polling (see it <https://www.polleverywhere.com/videos/in-the-wild/poll-everywhere-at-university-of-westminister> )
* Gallery Walk (see it <https://www.youtube.com/watch?v=dPLk_aVhYwg> )
* Simulations/Simulated Discussions (explore it <https://www.kent.edu/ctl/simulation-teaching-strategy> )
* Classroom Assessment Techniques (CATs)
  + Muddiest Point
  + Minute Paper
  + Entry/Exit Tickets
  + Concept Mapping

### Activity 10 (Optional)

Choose an active learning strategy to use in your course. Go to your CDI portfolio and the page titled "Active Learning Planning Table.” Draft a plan for implementing an active learning strategy.

# Planning Course and Instructional Assessment and Evaluation

As is the case with courses, a backward design approach considering multiple domains of learning, as well as situational factors, should be adopted in planning the assessment and evaluation of the course and instruction.

## Desired Outcomes for Instruction

In consideration of Bloom’s Taxonomy, you may have outcomes that are strictly course content/skills-focused (Knowledge, Comprehension, Application), but you may also have one or more outcomes that fall into the Fink’s significant learning domains (Human Dimension, Caring, Learning to Learn). Those alternative domains may not have direct forms of assessment that occur as part of the course. In those cases, it may be important to consider other forms of assessment that can provide evidence of and insights into achievement.

## Aligned Assessment to Measure Impact of Instruction

Below is a list of methods to collect data and information aligned to desired outcomes of instruction.

* Direct student performance measures (for example, assessment scores, rubric-based metrics)
* Student perceptions of learning (via custom surveys)
* Student perceptions of experiences in the course (via custom surveys)
* Student reflections (learning journals, portfolios)
* Personal (instructor) reflections on teaching
* Mid-term feedback (for example, Small Group Instructional Diagnosis or via custom surveys)
* Observations of Instruction

### Activity 11 (Optional)

Go to the “Planning Evaluation of Instruction” page in your CDI portfolio. Draft an evaluation plan including course outcomes, sources or data, and alignment rationale.

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Reynolds and Kearns (2017). A Planning Tool for Incorporating Backward Design, Active Learning, and Authentic Assessment in the College Classroom. *College Teaching, 65(1), 17-27.*

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# Course Design Institute Portfolio

This CDI portfolio can be used during the institute, as well as anytime you plan a course in the future.

## Activity 1 Big Rocks: The most important things

**Purpose:** The big rocks analogy is a reminder to put the important things in your course first. Reflecting on your big rocks helps you to articulate the purpose of your course holistically. Writing them down will help colleagues understand your purpose as they provide input on your course design.

**Task:** Reflect on what is most important to you. Consider the questions below and which ones resonate with you most. Write your reflections in response to the questions prompts below.

**Criteria for success:** Your reflections should help you align your course design with your values and help others provide you with more meaningful feedback.

**Question 1:** What things about the course and/or your teaching matter most to you? What would you be unwilling to give up?

**Question 2:** How do you want your students to be different after taking your course? What would you hope they would say about the course 5 years later?

**Question 3:** What must happen for you to feel that the course has been successful?

**Question 4:** What is it about this course that makes it your course?

**Question 5:** What is the heart and soul of this course?

## Activity 2 Significant Learning

**Think of one of the most significant learning experiences you have ever had.**

* What Happened?
* Who was involved?
* Why was it significant?

## Activity 3 Course Goals

**Purpose:** Well written course goals provide the foundation for course mapping and the constructive alignment informs the design of teaching and assessment that supports student learning.

**Task:** Write down possible course goals. There is no perfect number of goals, but you likely will have 3-7 goals for each course you design.

**Criteria for success:** (Self and Facilitator)

* Are verbs broad and do they describe the internal change that happens in the student as a result of learning?
* Are they written from the student point of view?
* Do they assume successful completion of the course?
* Do they align with multiple dimensions from Fink's significant learning?

**Reflection:** How can you examine your assumptions about learners and co-design with learners?

**Goal A:**

**Goal B:**

**Goal C:**

**Goal D:**

**Goal E:**

**Goal F:**

**Goal G:**

## Activity 4 Learning Outcomes (ELOs)

**Purpose:** ELOs help instructors make decisions about what and how to teach as well as how to assess learning. They help learners understand why that knowledge and those skills will be useful to them.

**Task:** For each goal, write corresponding learning outcomes. You have space to get started; add or delete as you need for your course planning. You will likely need more space. Each goal will have 1-3 learning outcomes. If there are many outcomes for one goal, or you find that you have outcomes that don’t fit with your goals, there may be another unarticulated goal for this course.

**Criteria for Success:** (Self, Peer, Facilitator) Use the ELO Writing Checklist:

* Uses student-centered language (Students will be able to ... SWBAT)
* Includes one observable verb. (see Appendix Bloom’s Taxonomy)
* Is clear and achievable (SMART)
* Focuses on one goal at a time
* Reflects the highest level of achievement expected in the course

|  |  |
| --- | --- |
| Goal | Learning Outcomes |
| (A) | 1.  2.  3. |
| (B) | 1.  2.  3. |
| (C) | 1.  2.  3. |
| (D) | 1.  2.  3. |
| (E) | 1.  2.  3. |
| (F) | 1.  2.  3. |
| (G) | 1.  2.  3. |

## Activity 5 Scaffolding Meaningful Assignments

**Purpose:** Scaffolding assignments can support experiential learning experience that provide opportunities for students to:

* Reflect, critically analyze, and synthesize
* Take initiative, make decisions, and be accountable for the results.
* Engage intellectually, creatively, emotionally, socially, or physically.
* Learn from natural consequences, mistakes, and successes

Considering how you will scaffold assignments can inform how you will organize your course.

**Task:** Choose one of your more complex learning outcomes (Analyze/ Evaluate or Create) and use the blank table below to brainstorm how you might scaffold assignments to support experiential learning.

**Criteria for Success:** (Self and peers)

* Do assignments build from simple to more complex?
* Is student learning and success in the completing the complex assignment supported?
* Are multiple audiences involved during the semester?

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Audience  Emphasis | Teacher Only | Self/Reflection | Local Audience | Authentic Audience |
| Knowledge |  |  |  |  |
| Comprehension |  |  |  |  |
| Analyze |  |  |  |  |
| Evaluate |  |  |  |  |
| Create |  |  |  |  |

## Activity 6 Complete a Course Skeleton

**Purpose:** Creating a course skeleton should help you draft the structure of the entire course.

**Task:** Think back through the previous modules, your notes, and the work that you've done so far. Create a course skeleton by adding the ELOs, assessment, and content, to the first three columns of the [integrated course plan](#_Integrated_Course_Plan) (below) with potential types of assessments.

Ways to organize content:

* Chronologically
* Simple to complex
* Concrete to abstract
* Macro/micro
* distal/proximal
* How students learn
* Theory to applications
* How students will use the information in social/personal/career
* How major concepts and relationships are organized in discipline
* How knowledge has been created in the field
* around a set of questions/problems/case studies
* Disciplinary classifications
* How relationships occur in the real world

**Criteria for Success:** (Self, Peer, Facilitator) Each assessment should align with at least one outcome, and all of your outcomes should be met by what you assign students to do in the course. Ask yourself the following:

* How have you considered student learning in developing the timetable and delivery?
* Are there flexible opportunities for assessment and feedback?

## Activity 7 Integrated Course Plan

**Purpose:** The table below will ultimately inform the development of your syllabus. An integrated course plan (ICP) encourages constructive alignment of all elements of your course.

**Task:** Begin to complete this table by transferring the elements of your course skeleton. As you do, consider any changes in the order you would like to make. Add in the content and parallel content aligned with the assignments. Don’t complete the teaching method column on this iteration.

You may want to make an entry for every major topic first and then fill in what you can fit, or each big question or theory you'll explore, and then see which smaller content topics are needed to support those larger blocks.

There is no "right" final integrated course plan look. Remember that the goal is to first CHOOSE which content structure best serves the course, and then to communicate that in a way that will support students.

**Criteria for Success:** (Self, Peers, Facilitator)

**Questions to consider:**

* Does the organization match your big rocks and goals?
* Do all the elements of the course align?
* Are assessment scaffolded?
* What parallel content is necessary?

### Integrated Course Plan

| Week | ELOs | Assessment | Content | Parallel Content | Teaching Strategies |
| --- | --- | --- | --- | --- | --- |
| 1 |  |  |  |  |  |
| 2 |  |  |  |  |  |
| 3 |  |  |  |  |  |
| 4 |  |  |  |  |  |
| 5 |  |  |  |  |  |
| 6 |  |  |  |  |  |
| 7 |  |  |  |  |  |
| 8 |  |  |  |  |  |
| 9 |  |  |  |  |  |
| 10 |  |  |  |  |  |
| 11 |  |  |  |  |  |
| 12 |  |  |  |  |  |
| 13 |  |  |  |  |  |
| 14 |  |  |  |  |  |
| 15 |  |  |  |  |  |
| Finals |  |  |  |  |  |

Notes:

## Activity 8 Rubric Development (Optional)

**Purpose:** Rubrics make it clear to learners how assignments will be evaluated. Effective rubrics can take a variety of forms. Creating a clear rubric is a great way to begin the process of clarifying the task and can also help as you begin thinking about how to share effective examples of the criteria for success.

**Task:** Consider the assignment you have selected to create or improve through application of the TILT framework. Decide what type of rubric would be most useful to you and to your students and begin drafting using the rubric templates found below.

**Criteria for Success:** (Self, Facilitator)

* Is the type of rubric selected appropriate for the assignment?
* Does it clarify expectations for learners?
* How will you gather data to evaluate and revise the rubric?

**Analytic Rubric Example:**

<https://cft.vanderbilt.edu/wp-content/uploads/sites/59/Rubric-Opinion-Paper-DB.pdf>

**Holistic Rubric Example:**

<https://cft.vanderbilt.edu/wp-content/uploads/sites/59/Rubric-Research-Paper-Winona-State.pdf>

**Single Point Rubric Example:**

<https://www.cultofpedagogy.com/single-point-rubric/>

**Holistic Rubric Template**

|  |  |
| --- | --- |
| Level | Rating scale value/metric |
| A level | Describe appropriate performance indicator |
| B level | Describe appropriate performance indicator |
| C level | Describe appropriate performance indicator |
| D Level | Describe appropriate performance indicator |

**Analytical Rubric Template**

|  |  |  |  |
| --- | --- | --- | --- |
| Criterion | Insert first rating scale value/metric | Insert second rating scale value/metric | Insert third rating scale value/metric |
| Insert first rubric criterion/attribute | Describe appropriate performance indicator | Describe appropriate performance indicator | Describe appropriate performance indicator |
| Insert second rubric criterion/attribute | Describe appropriate performance indicator | Describe appropriate performance indicator | Describe appropriate performance indicator |
| Insert third rubric criterion/attribute | Describe appropriate performance indicator | Describe appropriate performance indicator | Describe appropriate performance indicator |
| Insert fourth rubric criterion/attribute | Describe appropriate performance indicator | Describe appropriate performance indicator | Describe appropriate performance indicator |

**Single Point Rubric Template**

|  |  |  |  |
| --- | --- | --- | --- |
| Criterion | Things to improve | Rating scale value/metric | Things that are amazing |
| Insert first rubric criterion/attribute |  | Describe appropriate performance indicator |  |
| Insert second rubric criterion/attribute |  | Describe appropriate performance indicator |  |
| Insert third rubric criterion/attribute |  | Describe appropriate performance indicator |  |
| Insert fourth rubric criterion/attribute |  | Describe appropriate performance indicator |  |

## Activity 9 Transparent Assignments (Optional)

**Purpose:** The Transparency in Learning and Teaching (TILT) Framework provides instructors with a practical way to develop and implement transparent assignments.

**Task:** Choose an assignment to develop or revise using the TILT Framework. Complete the table below by briefly describing the assignment at the top. Then list the learning outcomes from the course that align to this assignment. Continue to fill in rows 2, 3, and 4 as you describe the Purpose, Task, and Criteria for Success, and Examples.

**Criteria for Success:** (Self, Peer, Facilitator) Refer to the [Transparent Assignment Template and Checklist](https://tilthighered.com/assets/pdffiles/Checklist%20for%20Designing%20Transparent%20Assignments.pdf).

Assignment Description

|  |  |
| --- | --- |
| Component |  |
| Aligned ELO(s) |  |
| Purpose | *Skills*  *Knowledge* |
| Task |  |
| Criteria for Success |  |
| Examples |  |

## Activity 10 Active Learning Planning Table (Optional)

**Purpose:** Studies have demonstrated that active learning benefits all students and can reduce or eliminate achievement gaps in STEM courses and promote equity in higher education. The table below will help you plan instruction that supports active learning.

**Task:** Begin to complete the Active Learning Planning Tool\* by considering your ELOs and choosing an active learning strategy that aligns with your ELOs and assessment methods. Develop your daily plan by developing descriptions of the activities, student work,

location, media, and materials

Space is available for you to plan three days of activities. However, you may need to plan activities that take more of less time.

**Criteria for Success: (Self, Peer, Facilitator)**

Do all the elements of the activity align? Is any parallel content necessary?

\*Table modified from Reynolds, H. and Kearns, K. D. (2016). A Planning Tool for Incorporating Backward Design, Active Learning, and Authentic Assessment in the College Classroom. College Teaching, 65:1, 17-27, DOI: 10.1080/87567555.2016.1222575 (http://dx.doi.org/10.1080/87567555.2016.1222575)

**Active Learning Planning Tool**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Design Step** | **Elements** | **Description** | | | | | |
| Identify desired results | Learning Goals/ Outcomes | Specify the knowledge, skills, and/or values that students will acquire. | Knowledge, Skill | | | Value | |
|  | | |  | |
|  | | |  | |
|  | | |  | |
| Determine acceptable evidence | Assessment | Specify how students will demonstrate their learning, considering formative vs. summative assessment and authentic context. |  | | | | |
| Plan learning experiences and instruction | First Exposure | Identify pre-class homework to introduce basics & prep students for more sophisticated & active learning in class |  | | | | |
|  | | Hook Specify an engaging entry point into the unit or class period | Day or Time 1 | Day or Time 2 | | Day or Time 3 |
| Activities | Building from the first exposure homework, identify teaching & learning activities to promote the learning goals and enable authentic assessment |  |  |  | |  |
| Student Work | Describe active vs. passive work that students will do |  |  |  | |  |
| Location | Specify where each activity will take place |  |  |  | |  |
| Media and Materials | Specify the types of teaching aids needed for each activity |  |  |  | |  |
| Reflection | Critique the learning experiences and instruction in light of the actual results. What worked well versus what would you do differently next time, in terms of student preparation, classroom activities and student work, media and materials, and time management. | | | | | | |

## Activity 11 Planning Evaluation of Instruction (Optional)

Reflect on the Big Rocks, Goals and ELOs defined earlier. Identify which of these are to be used for evaluation of your course design/redesign effort. You may choose to focus on a single element/domain or to evaluate all of the outcomes defined. Remember that for every outcome selected for evaluation, one or more aligned opportunities for assessment should be identified. As a reminder, examples include, but are in no way limited to, the following:

As a result of the instruction provided,

1. Students are able to demonstrate learning effectively on assessments aligned to course learning outcomes.
2. Students report motivation to engage and to learn.
3. An environment of inclusion and equity is created for all learners.
4. Members of student groups communicate consistently and effectively.

List each of the selected outcomes for evaluation of instruction in the first column of the table below. In the second column, list sources of data that align to each selected outcome. In the third column, briefly state a justification for how the suggested measure works to assess achievement of the aligned outcome. Be sure to include at least one source of data for each selected outcome. Multiple data sources are desirable to allow for potential triangulation.

### Data Sources and Outcome Alignment Table

|  |  |  |
| --- | --- | --- |
| Outcomes for Instruction | Aligned Data Sources | Justification of Alignment |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

## Appendix Blooms Taxonomy

The table below provides examples at various levels of Blooms Taxonomy of information used to complete an integrated course plan including:

* Verbs used for creating ELOs
* Types of assessments used that provide evidence that is appropriate for demonstrating attainment of the learning outcomes
* Sample assignments.

| Bloom’s | Action Verbs | Assessments | Assignments |
| --- | --- | --- | --- |
| Knowledge  Recall or recognition  of specific information | * Describing * Finding * Identifying * Listing * Locating * Naming * Recognizing * Retrieving | * Definition * Fact * Label * List * Quiz/Test * Reproduction * Test * Workbook * Worksheet | * Objective test items that require students to recall or recognize information:   + Fill-in the blank   + Multiple choice items with question stems such as “what is a…” or “which of the following is the definition of”   + Labeling diagrams   + Reciting (orally, musically, or in writing) |
| Comprehension   Understanding of given information | * Classifying * Comparing * Exemplifying * Explaining * Inferring * Interpreting * Paraphrasing * Summarizing | * Collection * Example * Explanation * Label * List * Outline * Quiz/Test * Recitation * Show/tell * Summary | * Papers, oral/written exam questions, problems, class discussions, concept maps, or other homework assignments that require (oral or written):   + Summarizing readings, films, speeches, etc.   + Comparing and/or contrasting two or more theories, events, processes, etc.   + Classifying or categorizing cases, elements, events, etc., using established criteria   + Paraphrasing documents or speeches   + Finding or identifying examples or illustrations of a concept, principle |
| Application | * Carrying out * Executing * Implementing * Using | * Demonstration * Diary * Illustration * Interview * Journal * Performance * Presentation * Quiz/Test * Sculpture | * Activities that require students to use procedures to solve or complete familiar or unfamiliar tasks and/or determine which procedure(s) are most appropriate for a given task. Activities include:   + Problem sets,   + Performances   + Labs   + Prototyping   + Simulations   + Clinical skills demonstration |
| Analysis  Breaking information  down into its  component elements | * Attributing * Comparing * Deconstructing * Integrating * Organizing * Outlining * Structuring | * Abstract * Chart * Checklist * Database * Graph * Mobile * Outline * Quiz/Test * Report * Spreadsheet * Survey | * Activities that require students to discriminate or select relevant from irrelevant parts, determine how elements function together, or determine bias, values or underlying intent in presented materials. These might include:   + Case studies   + Critiques   + Labs   + Papers   + Projects   + Debates   + Concept maps   + Differential Diagnosis |
| Evaluation  Judging the value of ideas,  materials and methods  by developing and applying  standards and criteria | * Checking * Critiquing * Detecting * Experimenting * Hypothesizing * Judging * Monitoring * Testing | * Conclusion * Debate * Investigation * Panel * Speech * Quiz/Test * Report * Portfolio | * A range of activities that require students to test, monitor, judge or critique readings, performances, or products against established criteria or standards. Activities might include:   + Journals   + Diaries   + Critiques   + Problem Sets   + Product Reviews   + Case Studies   + Developing a treatment plan |
| Create  Putting together ideas  or elements to develop an original idea or  engage in creative thinking | * Constructing * Designing * Devising * Inventing * Making * Planning * Producing | * Advertisement * Film * Media product * New game * Painting * Portfolio * Project * Song * Story | * Research projects * Musical compositions * Performances * Essays * Business plans * Website designs * Prototyping * Set designs * Lesson plans * Caring for patients with multiple chronic diseases |