

What is the best way to design a course for student learning?

When instructors are planning to teach a course, they often start by focusing on questions like these: What content should I include? What textbook will I use? How will I make sure I get through everything I need to cover? Beginning the process of designing a course with these questions means that the content drives the teaching decisions, and instructors design what is often called a *content-centered course*. If the goal of the course is to “cover” content, these questions work well. But keep in mind that it is possible for a content-centered course to meet its goals (i.e., the instructor presents all the content they planned to present) without students learning anything. If instructors want to design a course that focuses on student learning, also called a *learning-centered course*, a new approach is needed. The research suggests that to design a learning-centered course, instructors should base course design decisions not on the content a course will cover but instead on the changes they want students to undergo as a result of their learning. This article will provide an overview of **backward course design**, a research-informed approach that provides a clear roadmap for designing learning-centered courses.

Principles to guide backward design for learning-centered courses

- Designing a learning-centered course requires a focus on the big changes instructors want to see in their students.
- When instructors design courses for meaningful student change, they must articulate course goals that aim at complex thinking.
- A learning-centered course is driven by a plan for summative and formative assessment that is explicitly designed to help students achieve the goals of the course.
- In a learning-centered course, selection of course content is deferred until instructors have made essential decisions about course goals and assessments.

Putting these principles into action: The stages of backward design

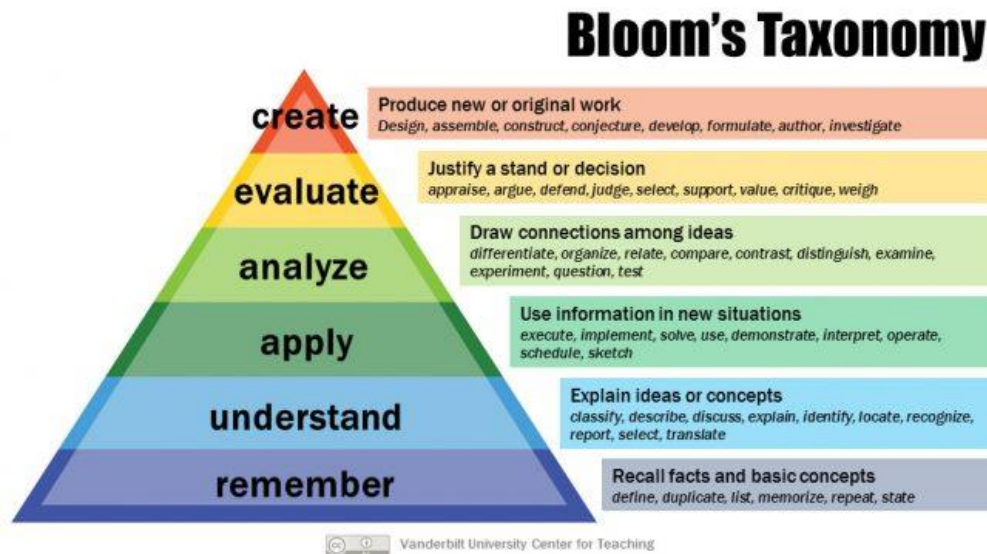
1. **Articulate the long-term changes you want students to experience as a result of what they learn in the course.** In general terms, to design backward means to start by articulating what you are aiming for so you can determine the process you will use to achieve that end. Effective backward course design requires instructors to think beyond the end of their course to consider the long-term changes they would like students to experience as a result of the learning that takes place during the course. This requires some imagination (and certainly aspiration) on your part, but it is an important way to begin putting a course into a larger context. For example, you may want your students to begin seeing the world outside the classroom through the lens of your discipline. You may want them to change as learners, becoming more reflective, better at monitoring their learning, or better at seeking help when they need it. Or you may want them to change in more fundamental ways as people, becoming more caring or empathetic, more responsive to cultural difference, or more civically active. Regardless of the big changes you want to see, those changes will only happen if you clearly articulate them

and intentionally design your course to help ensure those changes. Here's an exercise to help you think about the changes you want to aim for: imagine that a year from now you run into a student who has taken the course you're designing. That student says, "Your course changed my life! Ever since that semester, I have _____." What would you want that student to say? Filling in that blank can help you complete the first step in backward course design. This is a crucial step in the backward course design process that can take some time: you'll need to really consider how the course and the discipline can be a transformative experience for students. Investing time and energy at this stage provides a solid foundation for making effective and efficient course design decisions in the later steps.

- 2. Articulate a set of course goals that aim at cognitive complexity.** The first step described above helps you think about the long-term effects you want your course to have. After you have thought at this high level about big changes for students, it's time to use your thinking about those big changes to focus in on a set of course goals. The goals for a learning-centered course will look different from those in a traditional, content-centered course, which often focus on the content that will be covered (e.g., terms, concepts, theories, etc.) or students' basic understanding of that foundational content. Instead, goals for a learning-centered course will be articulated *in terms of* student learning and change: "By the end of this course, students will be able to . . ." Keep in mind that the changes you've envisioned in step 1 are significant, and you will only be able to help students work toward those big changes if your course goals aim them at complex thinking. This means that the goals for a learning-centered course focus on what students will be able to *do* (not just what they will know) as a result of new skills and ways of thinking they develop in the course. For example, by the end of a course you might want students to be able to apply course concepts in order to solve problems, to use course concepts to analyze problems, to use course concepts to evaluate different solutions to problems, or possibly even to create novel solutions to problems. Clarifying these goals early in the design process prepares you to make the important pedagogical decisions that will guide your students' work through the entire course, and articulating these goals with precise language provides focus for the remaining design steps.

Keep in mind that creating higher-level goals is important even in lower-division or survey courses, where students may lose motivation when there is too much focus on memorization or low-level understanding of foundational materials. When we aim students' thinking higher by requiring them to use rather than simply remember facts, concepts, or principles, they will still learn those concepts, but they will begin to see their relevance and are more likely to recognize the value of the work of our disciplines. Finally, it is important that the language of course goals is concrete: describe actions and changes that are visible so that you (and your students) can see the changes their thinking is undergoing. For example, instead of saying that students will be able to "understand the importance of sociology for responding to social problems," you might instead say that students will be able to "use sociological theories to analyze social

problems” or “evaluate social problems using key sociological concepts.” Benjamin Bloom’s *Taxonomy of Educational Objectives* (later revised by Anderson and Krathwohl as *A Taxonomy for Teaching, Learning, and Assessing*) is one helpful tool for formulating and analyzing course goals because it provides a framework to focus your thinking on the levels of cognitive complexity you are aiming your students toward. Many versions of this taxonomy, as the one shown below, also provide some language for articulating and clarifying course goals. Make sure you are clear about where you are aiming students before moving to the next stage of design!



- 3. Design a summative assessment plan.** After you have a clear sense of your goals, you are ready to make the next essential decision that will guide students’ learning in your course: how will you assess and give them feedback about their progress toward those goals? *Summative assessments* are the assignments, tests or projects that “sum up” student learning, meaning they tell you how well students have made progress toward the goals at a few key moments in the course. These are the “major” assessments in your course that together make up a substantial portion of students’ grades. Designing a summative assessment plan requires instructors to think about assessment in new ways. In a content-centered course, instructors often figure out where the logical breaks in content take place and simply insert exams or assignments to align with those breaks. When assessments are designed in this way, students tend to experience courses (and disciplines) as a set of discrete, disconnected topics to be memorized for the assessments. This actually encourages students to think that the best approach to learning is to cram, take an exam, and move on. Conversely, an assessment plan for a learning-centered course provides a set of *iterative, interconnected learning experiences* that purposefully move students toward the goals of the course. To design a summative assessment plan focused on student learning, you must consider very carefully the kinds of thinking students will need to engage in repeatedly throughout the course both to ensure that and to determine whether they are changing in the ways you have

targeted. This means that all the assessments in your plan should ask students to do the *same kinds of cognitive work* at increasing levels of complexity. For example, if the goals of your course are all aimed at having students apply disciplinary concepts to solve real-world problems in your field, the summative assessments in your course should ask students to solve increasingly complex problems as they move through the course. This kind of planning requires you to think of your assessments in connection with one another and to see how the work students are doing builds over time. For this reason, it is useful to begin your plan by creating the final assessment or assignment for the course and working backward through the earlier assessments. And throughout the planning process, make sure to continually refer back to your course goals to make sure the assessments you are planning align with those goals. Again, Bloom's Taxonomy can help you analyze your assessments for alignment with the appropriate levels of cognitive complexity. For example, if your course goals aim students primarily at the levels of applying and analyzing, then you need to make sure that your summative assessments are aiming at those same levels.

Note that it is important to have all your summative assessments sketched out in detail before moving to the next part of the backward design process. Summative assessment plays a more important and foundational role in a learning-centered course, and if you rush through this important step, you risk your students' success!

- 4. Design a plan for ongoing practice and feedback that will help prepare students to succeed on summative assessments.** After you have carefully planned your summative assessments, it's time to make a plan for ongoing formative assessment. *Formative assessments* are designed to help students develop the skills they will need to succeed on summative assessments, and these should make up a significant portion of a well-designed course. Formative assessments are opportunities for students to practice the skills that summative assessments will require so they can receive feedback on their developing thinking. Once again, this is very different from a content-centered course, where most of the course is focused on delivery of content to students, whether through readings, lectures, videos, demonstrations, or other means. Students in these courses often have few or no opportunities to practice or receive feedback on the skills that summative assessments require, meaning that they often struggle with those assessments. This scenario often leads to some very unpleasant surprises (for us and for students!) when those assessments are graded. Conversely, a learning-centered course puts ongoing practice and feedback at the center of the course: well-designed summative assessments drive the learning, and students engage in frequent (daily!), ongoing work that requires them to practice the complex thinking those assessments require. To plan this work, you need to spend some time analyzing the summative assessments you have created so that you can focus in on and articulate the skills that students will need to practice so they can receive feedback and adjust their thinking. For example, if the summative assessments in your course require students to use theoretical models to analyze case studies in the field, then you need to have them frequently analyze small cases, both on their own outside of class and in collaboration

with their peers and with you during class. Doing this formative work allows them to receive feedback on their thinking while they are preparing for the summative assessments. It's important that this practice work be ungraded or graded in a very low-stakes way (e.g., for completion only) so that students can feel comfortable making mistakes and see this practice as an opportunity for them to receive focused feedback on their developing skills. For many instructors, this requires a change in the way they think about not only how to spend time in class, but also in the ways that they ask students to prepare for class. Cultivating these changes in thinking takes some time, but it is an investment that leads to big payoffs in student learning. When students have done the kinds of work your summative assessments require over and over again before they complete those assessments (and have received feedback from you that helps them approach their work in new ways), they are better prepared to succeed. And perhaps most importantly, you find that your stress level around grading decreases because student work is greatly improved. Make sure you give yourself time to work through this very important course design step before making content selections!

- 5. Now that you have made crucial teaching decisions, use those decisions to help you select course content.** In a content-centered course, instructors often find themselves struggling to figure out what they can cut because there just isn't enough time, or they must determine how they will cover certain topics that students "just have to know!" Or worst of all, they assign large amounts of reading to "expose" students to content that they don't need to use in any meaningful way. In all of these situations, students are likely to opt out of preparation, disengage from class, and simply wait for the instructor to tell them what they need to know. A learning-centered course treats content very differently. Instead of selecting content based on what you think students should know, you will determine what content (e.g., key disciplinary concepts, theoretical models, or frameworks) they need to use in order to change their thinking in the ways you have targeted. This means that you are making decisions about content based on your long-term aspirations for your students, your course goals, and your plans for summative and formative assessment. When you are ready to select the content that students will use in your course, review your course plan and ask yourself what students need to read, watch, or listen to in order to do the work you have envisioned for them. Thinking about content in this way often results in instructors realizing that they need to assign content in smaller chunks that will help students focus on what is most important for their learning. For example, instead of reading a full textbook chapter that outlines five different theoretical models, students may only need to read the sections of the chapter that focus on the three models they will use to complete a key course assignment. Choosing content in such a deliberate way helps students see its relevance to their work in the course and increases the likelihood that they will engage with the content in the ways you would like. Because you have made your selections based on your teaching decisions, content now has a role in their learning.

Examples of course design elements from a course in Upstate New York Farming History

Example of learning-centered course goals

At the end of this course students will be able to

- **interpret** primary documents within their historical context.
- **apply** knowledge of historical changes in economic, demographic, and cultural aspects of American society to explain current social realities.
- **locate** and **cite** data to support assertions about causes and effects in history
- **critically analyze** and **evaluate** arguments and the evidence used in their support.
- **synthesize evidence** for a historical interpretation in essay form.

Example of summative assessment plan

Note that the plan requires 3 essays that build toward a longer essay. The skills required for each essay are related so that students practice historical thinking and writing skills across essays. The essays are short so that the instructor can manage feedback and grading.

- Summative assessment #1: Students will write a one page essay in which they interpret a primary document about a specific aspect of Upstate Farming History.
- Summative assessment #2: Students will write a second one page essay in which they interpret a second primary document about the same aspect of Upstate Farming History.
- Summative assessment #3: Students will write a two page essay in which they interpret a secondary historical resource about the same aspect of Upstate Farming History. Interpreting secondary historical resources will require students to critically analyze and evaluate the author's position.
- Summative assessment #4: Using the feedback they get on these three short essays, students will combine those three essays into a longer essay. This final, longer essay will include a section in which the writer suggests how the history of this aspect of Upstate Farming History impacts some aspect of current social reality.

Example of plan for practice and feedback/formative assessment for one week of the course (leading up to summative assessment #1)

Before Monday's class (for homework), students complete these preparatory steps:

1. Read an important primary document related to farming history.
2. Write a short response in which they write an initial analysis of this document, explaining the steps of their analysis.

In Monday's class, students complete these practice steps:

1. Share and compare their individual analyses of the primary document in small groups and come to agreement about the most important steps.
2. Share their analyses and receive feedback from the instructor.
3. Work in small groups to identify the key features of effective historical analysis of primary documents.

Before Wednesday's class (for homework), students complete these preparatory steps:

1. Continue their work with the same primary document and write a short interpretation building on their initial analysis, explaining their steps.

In Wednesday's class, students complete these practice steps:

1. Share and compare their short interpretations and the steps they took in small groups. Come to agreement about which elements of interpretation were strongest and the steps that were most helpful in leading to those interpretations.
2. Share group decisions with the class and receive feedback from the instructor.
3. Write down key steps for writing historical interpretation and make notes to plan for their work on summative assessment #1.

Before Friday's class (for homework), students complete these preparatory steps:

1. Read an historian's interpretation of a primary document similar to the one they have studied this week.
2. Write a short response in which they analyze that interpretation, explaining the steps this author used to present the interpretation and comparing those to the steps for writing historical interpretation they have previously identified.

In Friday's class, students complete these practice steps:

1. Share their responses to the reading in small groups and come to consensus about the steps to writing historical interpretation.
2. Share group decisions with the class and receive feedback from the instructor.
3. Read 3 sample paragraphs of student work that include historical interpretation of primary documents. Work in small groups to identify and select strategies they will use in their papers.
4. Share their strategies and get feedback from the instructor.

Resources about course design for student learning

- Anderson, L. W., & Krathwohl, D. R. (2001). *A taxonomy for learning, teaching, and assessing: A revision of Bloom's taxonomy of educational objectives*. Longman.
- Bloom, B.S. (Ed.). (1956-1964). *Taxonomy of educational objectives*. David McKay Company Inc.
- Fink, L. D. (2003). *Creating significant learning experiences*. Jossey-Bass.
- Wiggins, G. & McTighe, J. (2005). *Understanding by Design* (Expanded 2nd ed.). Pearson.

If you'd like support for designing a leaning-centered course, please feel free to [request a consultation](#).