

Aligning Program Outcomes and Curricula through Curriculum Mapping

Learning outcomes statements exist at multiple levels in higher education. Courses often have learning outcomes embedded in the syllabus. Academic programs are required to have learning outcomes in the university catalog. CU Boulder also has university learning goals for all baccalaureate graduates.

It is important that these outcome statements are integrated across settings. For example, most course learning outcomes should work towards program learning outcomes, which often contribute to university learning goals. This process is known as curriculum alignment. An effectively aligned curriculum clearly explains to students and other stakeholders what students will learn. Well-designed curricula have multiple, iterative opportunities to develop and achieve the outlined learning outcomes. Despite many curricula possessing a capstone experience, it is unfair to expect this capstone to be solely responsible for any desired learning outcome. Rather the capstone serves as an opportunity to reinforce key skills and competencies that will allow students to succeed beyond the degree program.

A useful tool for examining curriculum alignment to program learning outcomes is via a curriculum map. A curriculum map is a visual representation that links educational content and student outcomes. A curriculum map integrates courses and other learning activities with learning outcomes to comprehensively review and update program offerings. Curriculum maps make curricula more transparent to faculty, students, employers, and other stakeholders.

We recommend developing a curriculum map as a consensus building exercise among faculty. The process is an opportunity to facilitate deliberative dialogue about the program's learning priorities, identify gaps in curricula, and make improvements to improve student learning. The curriculum map will illustrate how your curriculum aligns with the program-level outcomes (note: every course does not have to connect to every learning outcome). A curriculum map can also be used to help design your assessment plan, serving as a reference that may assist in interpreting assessment results and identifying potential modifications in the curriculum.

There is no single best way to approach curriculum mapping. However most approaches share five steps.

1. Compile a list of the program's learning outcomes.
2. Compile a list of all courses in the program. It is often helpful to differentiate between required and elective courses when making this list.
3. Compile a list of all required (or recommended) educational experiences that do not have an associated course (e.g., internships, research opportunities, licensing or comprehensive exams).
4. Make a visual representation mapping outcomes, courses, and other educational experiences.
5. Examine this visual representation as a group or committee and discuss. If there is a learning outcome that is not covered, it is helpful to consider if this is a necessary part of the curriculum or how the curriculum may be modified to ensure this learning outcome is met.

We provide two examples of curriculum maps. Units are encouraged to use these as templates and/or improve upon to meet their needs. While some curriculum maps might use a grid of checkmarks, we recommend more specificity. Our examples use the terms *Introduced*, *Reinforced*, and *Emphasized* to understand the unique value of each course in the curriculum. This approach more readily allows academic units to identify potential gaps in the curriculum and ideal points for assessing each learning outcome.

Example Curriculum Map #1

In Example #1, only required courses are listed. This format is useful to investigate the uniform experience of every student, regardless of elective course selection. This mapping technique may most be useful for programs that have more structured/standardized curricula or programs that educate students towards professional licensure.

Course ID	Learning Outcome #1	Learning Outcome #2	Learning Outcome #3	Learning Outcome #4	Learning Outcome #5
Course 1000	1	1	1		1
Course 1200			1	1	1
Course 2450		2	2	2	
Course 3000	3	3		2	3
Course 4000	2		2	3	
Co-curricular experience		3			3

Note: Electives and co-curricular experiences not listed

- 1 = Introduced
- 2 = Reinforced
- 3 – Emphasized

Example Curriculum Map #2

In Example #1, we included only required courses and co-curricular experiences (e.g., internships, undergraduate research). When using Example #2's format, units will list all courses down the left column. This format is useful to *fully* understand how program learning outcomes and course offerings align. This approach to mapping is likely most useful for academic programs that have a limited number of required courses or offer students multiple, unique pathways and specializations for graduation.

Course ID	Learning Outcome #1	Learning Outcome #2	Learning Outcome #3	Learning Outcome #4	Learning Outcome #5
Course 1000*	1	1	1		1
Course 1200*			1	1	1
Course 2450*		2	2	2	
Course 3000*	3	3		2	3
Course 3500*			3		2
Course 4000*	2		2	3	
Co-curricular experience		3			3
Elective 2500	2		2		
Elective 3200		3	3		
Elective 4321	3			3	3

*Required Course

1 = Introduced

2 = Reinforced

3 = Emphasized