Assessment Series Part 3: Curriculum Mapping for Program Assessment

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Goals for today's session:

- Introduce curriculum mapping as part of the overall assessment planning process and discuss its value
- Break down the stages of developing a curriculum map into ”doable” chunks
- Look at and try out some worksheets and other tools to begin curriculum mapping
- Leave with clearly articulated “Next steps” for your program

Goals of assessment

- Clear identification/description of program characteristics and expectations for student achievement
- Systematic collection of different kinds of (helpful) data to evaluate student progress towards/achievement of those expectations
- Use of analyzed data to inform curricular revision
- Repeat

Program Assessment is a Departmental Effort

- At different stages of the process, different groups may participate, or a ’core’ of faculty may focus on curriculum and program assessment

- Multiple perspectives are necessary in developing outcomes and assessing student progress towards those outcomes

Steps in Program Assessment – Where are you?

- Develop program-level outcomes with input/drafts by faculty
- Map curriculum to identify places where students learn, practice and demonstrate their mastery of the outcomes
- Gather additional information about student progress within this curriculum:
    - Surveys of majors and/or alums
    - Faculty summaries of students' performance on expected skills
    - Other indicators (retention of skills from prerequisite courses; identifying predictors of students success, etc.)
- Use this initial information to develop a plan for assessment of student progress towards/achievement of learning outcomes

What is a curriculum map?

A curriculum map or matrix is a tool to link elements of a program (usually required courses and experiences) to learning outcomes.

The goal of curriculum mapping is to identify how graduation-level mastery of the outcomes is scaffolded across the program curriculum, as well as where students' progress is assessed and feedback given

Why map your curriculum?

- Create a shared understanding of the program
- Check for “drift” in course goals - the role of courses in the curriculum may have changed over time
- Do a gap analysis to see where overlaps in emphasis, or gaps in coverage, may slow student progress
- Ensure that students are receiving sufficient feedback on key skills and knowledge as they develop the level of mastery expected
- Identify points in the curriculum where existing assessments can provide insights into student progress

Map formats

The basic form

While curriculum maps can take many forms, most are presented as a chart that lists learning outcomes on one axis and key courses, experiences or assessments along the other

Courses and Experiences	Program Learning Outcomes			
	Apply the scientific method	Develop laboratory techniques	Diagram and explain major cellular processes	Awareness of careers and job opportunities in biological sciences
BIOL 101				
BIOL 202				
BIOL 303				
BIOL 404				
Other: Exit interview				

Sample template from RIT

Filling in the map

The chart is filled in using a key (usually letters) that record information about what is being taught and the level of skill or knowledge students are demonstrating in the course.

Courses and Experiences	Program Learning Outcomes			
	Apply the scientific method	Develop laboratory techniques	Diagram and explain major cellular processes	Awareness of careers and job opportunities in biological sciences
BIOL 101	I	I		I
BIOL 202	R	R	I	
BIOL 303	R	M, A	R	
BIOL 404	M, A		M, A	R
Other: Exit interview				A

Sample template from RIT

Sample map worksheet: UVM Philosophy

	Learning Outcomes		
Courses in which outcomes are assessed	LO1: Read philosophical writing closely, discerning the structure of philosophical argumentation	LO2: Accurately and critically analyze arguments and positions	LO3: Write clear and coherent philosophical prose

A different format (and a complex map):

Core Curriculum Map: Core Knowledge Areas

Core Knowledge Area Learning Outcomes	7. Ecological Proceses & Systems				8. Social Processes & Systems					9. Planning & Management					10. Sustainability					
Learning Objectives	A. Principles of Ecology	B. Natural History	C. Aquatic & Terrestrial ecosystems	D. Spatial and temporal scales	A. Culture	B. Economics	C. Governance & Policy	D. Social Justice	E. Environmental History	A. Integrated Planning	B. Natural resource utilization	C. Recreation	D. Conservation	E. Adaptive management	A. Systems thinking	B. Ecological design	C. Ecological economics	D. Equity	E. Social-ecological systems	
NR 1 - Natural History & Field Ecology	◑	●	◔	◔					◔	◔	◔	◔	◔		◔	◔			◔	
NR 2 - Nature and Culture					◑	◔			●				◔		◔		◔		◔	Year 1
NR 3 - Social-Ecological Systems	◑	●	◔	◔	◑				●		◔	◔	◔		◔				◔	
NR 6 - Race and Culture in Natural Resources					◔			◔							◔			◔		
NR 103 - Ecology, Ecosystems, and the	◑	◑	●	●							◑				◑					
NR 104 - Social Processes and the Environment					●	◑	◑										◔		◑	Year 2-3
NR 205 - Integrating Science, Society, and Policy	●					●	●		●	●	◑	◑	◑		◑		●			
NR 206 - Environmental Problem Solving and Impact				●						●		◑	◑	●	●	●			●	Year 4
NR 207 - Power, Privilege, and the Environment					●			●										●		
Core Knowledge Area Learning Outcome Statements	Students will be able to identify and describe basic ecological processes and systems.				Students will be able to identify, interpret, and analyze cultural, economic, historical, and political dynamics of environmental issues.					Students will be able to describe effective strategies in ecological planning, management, stewardship, and conservation of natural resources.					Students will be able to discuss social, economic, and ecological principles of sustainability.					

Levels of Instruction		
1	◔	Exposure
2	◑	Emphasis
3	●	Capstone

Level of Learning
Exposure
Building Capacity
Literacy

Curriculum Map template

Learning Outcomes ➡	SLO 1				SLO 2					SLO 3					SLO 4					
Key courses ⬇	Sub-outcome 1																			
																				Year 1
																				Year 2-3
																				Year 4

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Level of Learning
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Step by step How-to’s

1. Identify the axes
2. Populate the axes
3. Choose or create a key
    a) Which key do you recommend?
4. Gather data from faculty
5. Compile
6. Alignment
7. Using what you have learned

First step: Identify the axes

- Most curriculum maps have outcomes across the top, and courses listed down the left-hand side; these axes can be reversed

- However, you can also use this matrix approach to organize many kinds of data, e.g. where different kinds of course-level assessments occur, or how types of learning experiences are distributed across required vs. elective coursework

- Take 5 minutes to look at the sample map and think about what would be most useful to map for your program

Step 2: Populate the axes

- Decide how much detail you want in the outcomes axis. For example, if you have a few learning outcomes with a number of sub-components, you may choose to stay with the larger outcomes or split each outcome into its components.

- Choose whether to include only required courses/experiences, or whether to also map out elective coursework or coursework for optional tracks.

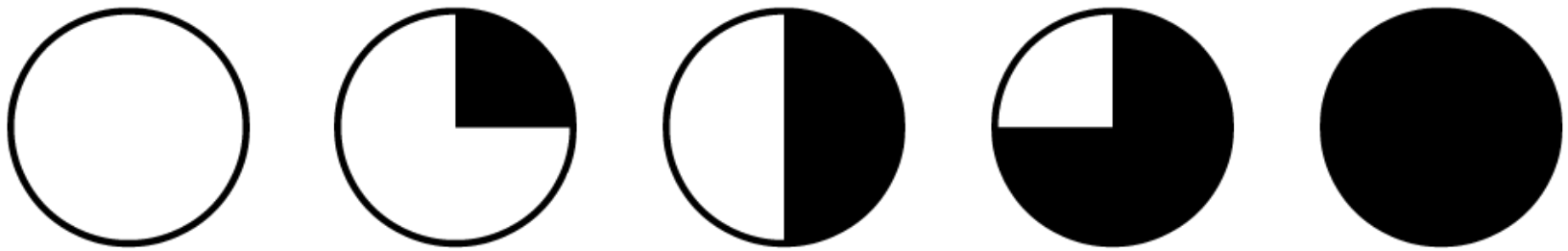
- Let’s discuss how you would populate the axes

Step 3: Choose or create a key

- There are almost as many sets of descriptors utilized in curriculum mapping as there are books on assessment
- One of the most common ones is: I/R/M/A
  - I=introduced; R=reinforced; M=mastery (graduation level); A = assessed
- Stassen et al. use I/E/U/A
  - Introduced/Emphasized/Utilized/Comprehensive Assessment
- Other keys focus more on student behavior, e.g. I/P/D
  - Introduced/Practiced/Demonstrated
- And/or level expectations for progress on an outcome e.g. B/I/A
  - Beginning/Intermediate/Advanced

Alternative approach:

RSENR Core – level of instruction/learning



Step 3a: Is there a key you recommend?

I recommend a key that fits the way your program is organized and your immediate goals for the curriculum mapping process.

For example:

- A key focused on faculty behaviors (e.g. IRMA) will help identify where faculty are teaching aspects of the outcomes
- A key focused on student performance (e.g. IPD) will help focus on where students are asked to demonstrate progress on the outcomes
- A key focused on level (e.g. B/I/A) will help identify whether elements of the outcomes are sufficiently scaffolded across the curriculum

What if we want to know all of this?

- Curriculum mapping can be an intensive process that moves through several levels, or you may find that a single ‘pass’ through the courses is enough.

- You can have faculty fill out several matrices using different keys

- I recommend keeping the matrices separate at first, so you can see patterns emerging that are relevant to each key, before combining the data.

Step 4: Gather data from instructors

- Some data may be available from syllabi, however instructors will be able to quickly identify the outcomes/outcome components covered in their courses as well as assessments of student progress on those outcomes

- For a first pass, simply ask instructors to fill out the rows of the matrix for the classes they teach, using ONLY the key that you have chosen – no notes, asterisks or caveats

- Depending on your department/curriculum, this can be done together or individually

Give it a try

- List the courses you teach, or courses in your program that you are familiar with
- Using the key you think is most helpful, try filling in the matrix for those courses
- Now that you have tried it, what difficulties do you anticipate when you ask your faculty to complete a matrix?

Step 5: Compile

If individual instructors have filled out the matrix, combine their results into a single matrix, noting any areas of variation across instructors for a single course

Before discussing alignment, it may be productive to have a discussion about the mapping process

Step 6: Alignment

- Is course content/work aligned with the outcomes?
- Are there any gaps? Overlaps? If so, are these problematic?
- Is student progress appropriately scaffolded across the curriculum?
- Where are students assessed on their progress?
- Are there direct or indirect course-level or program-level assessments in place that can be used to check alignment?

Step 7: Use what you learned

- The curriculum mapping process may highlight some areas for immediate change (e.g. a gap in your coverage of outcomes)

- The map can also serve as the basis for developing an assessment plan.
  - Are students actually working at the expected level in these classes?
  - Which course-level assessments can provide information on student progress?
  - At what point in the program will students achieve graduation-level achievement of the outcomes?

Questions?

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