USING CURRICULUM MAPPING TO IMPROVE LEARNING

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WORKSHOP OUTCOMES

Participants will be able to:

1. Explain the role and importance of curriculum mapping in teaching.
2. Develop student-centered student learning outcomes.
3. Assess course outcomes in relation to the program outcomes.

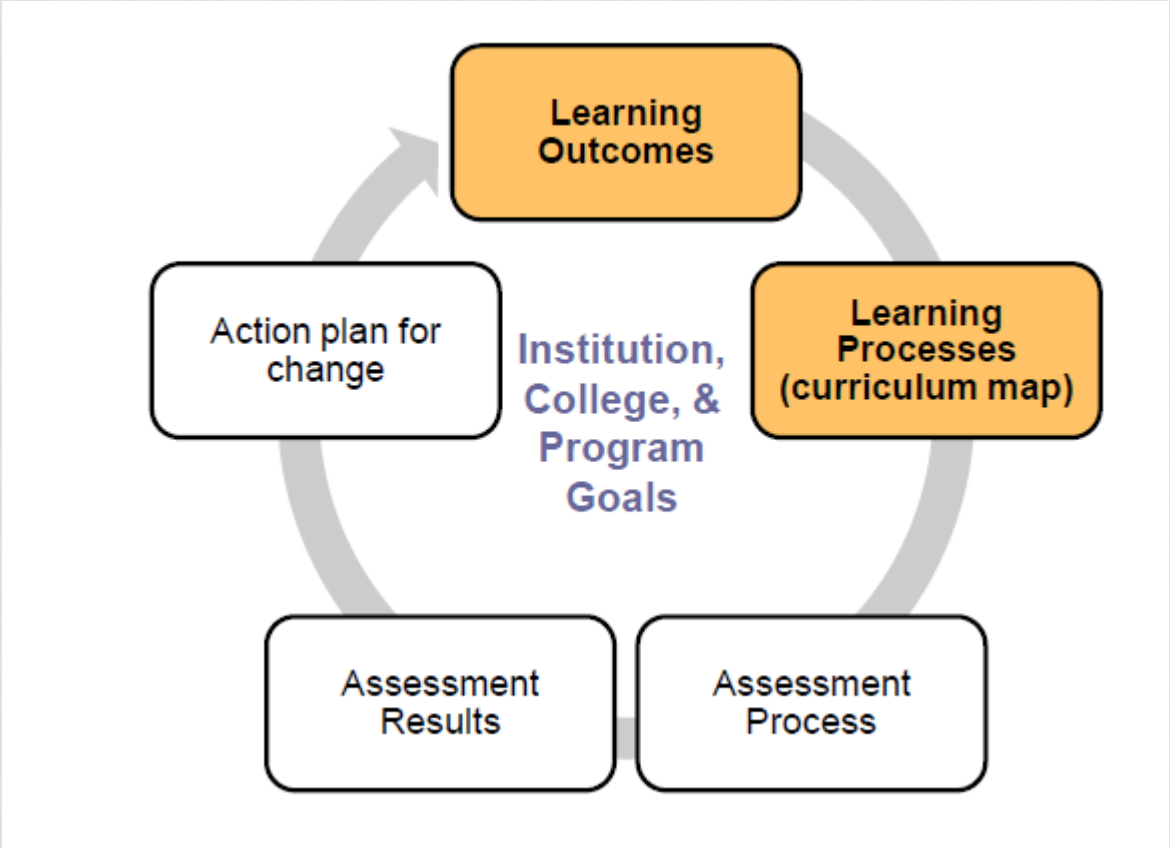
WHY CURRICULUM MAPPING?

"…there is a fuzziness about what faculty teach and what is expected from students."

(Miller & Malandra, 2006, p.3)

WHY CURRICULUM MAPPING?

It is part of the ongoing process of assessment of courses and programs:



WHY CURRICULUM MAPPING?

Benefits:

- Improves program coherence
- Increases the likelihood that students achieve program-level outcomes
- Improves communication among faculty
- Encourages reflective practice
- Aligns instruction with desired learning outcomes

CURRICULUM MAPPING PROCESS

Curriculum Map Defined

- Graphical illustration of relationship between a program's course learning outcomes and the program's overall learning outcomes.

Require-ments	Program Outcome 1	Program Outcome 2	Program Outcome 3
CRS 101	Introduced		
CRS 151		Introduced	
CRS 240			Introduced
CRS 290		Reinforced/Practiced	
CRS 301	Reinforced/Practiced		Reinforced/Practiced
CRS 302	Reinforced/Practiced		Reinforced/Practiced
CRS 430		Reinforced/Practiced	
CRS 480	Mastered & assessed		
CRS 490		Mastered & assessed	Mastered & assessed

CREATING A CURRICULUM MAP

- Faculty compile:
  - Program's student learning outcomes
  - Required and recommended courses
  - Required experiences/events (internships, licensure exams)
- Map is created in the form of table/matrix

	Course 1	Course 2	Course 3	Course 4	Course 5
Outcome 1					
Outcome 2					

CREATING A CURRICULUM MAP

	Course 1	Course 2	Course 3	Course 4	Course 5
Outcome 1		I	P	R	M
Outcome 2	I	P	P	P	R

- Courses and experiences/events coded according to learning outcomes they address
  - I – Students introduced to outcome
  - P – Students afforded opportunities to practice
  - R – Students receive reinforcement of practiced outcomes
  - M/C – Students demonstrate level of mastery (competency)

CREATING A CURRICULUM MAP

	Course 1	Course 2	Course 3	Course 4	Course 5
Outcome 1		I	P	R	M
Outcome 2	I	P	P	P	R
Outcome 3					P

Faculty analysis of completed map

- Is each learning outcomes introduced, and do students receive sufficient time to practice before assessment of mastery?

PURPOSES OF CURRICULUM MAPS

Alignment

- Clarify relationship between learning outcomes and what students actually do in programs, courses, etc.

- Curricula MUST be systematically aligned with program outcomes

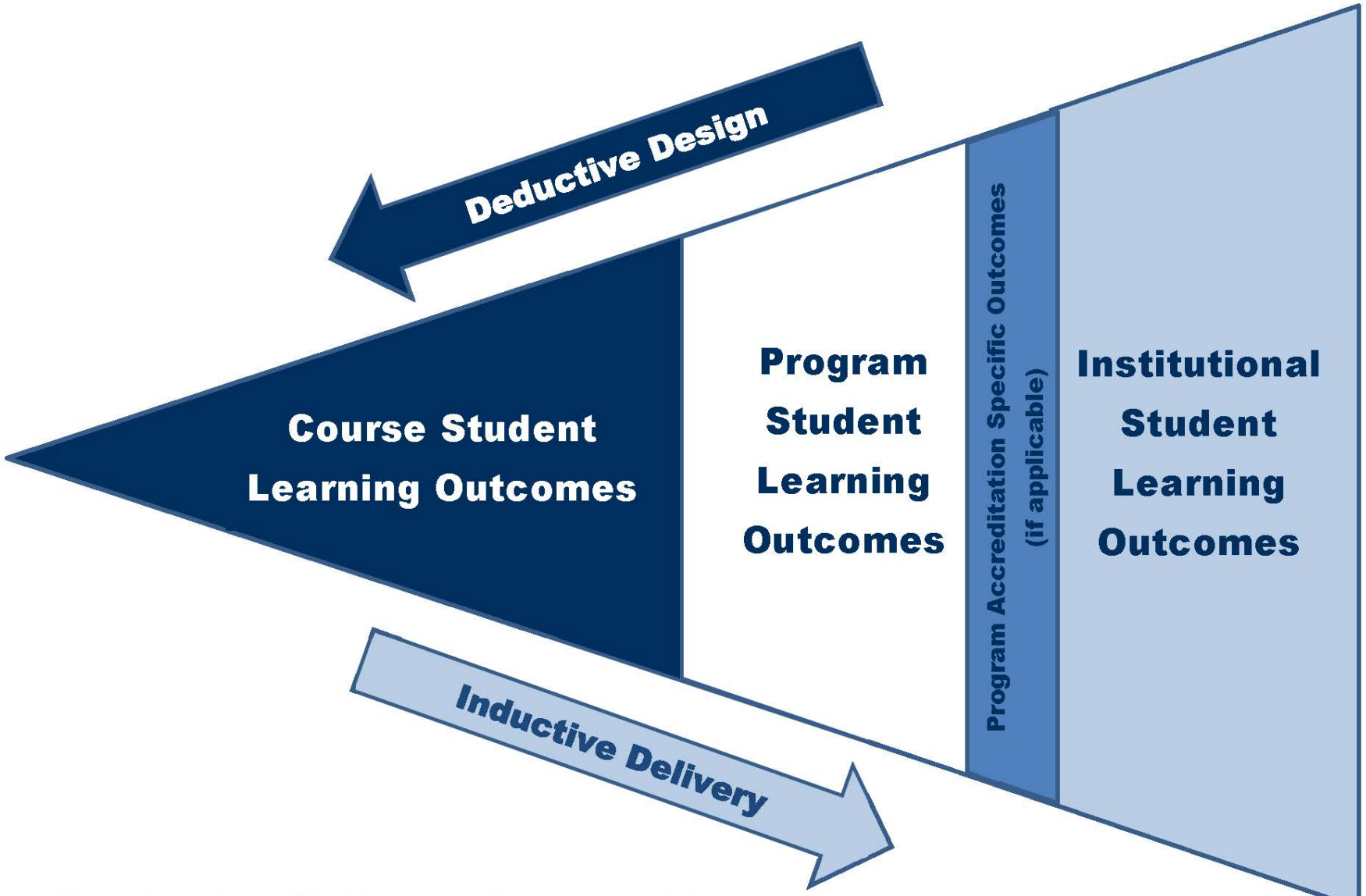
PURPOSES OF CURRICULUM MAPS

Helps with identification of:

- **Program strengths**: Student learning outcomes currently addressed thoroughly
- **Program gaps:** Student learning outcomes currently not addressed or addressed minimally
- **Assessment Measures:** Courses that can provide assessment data for specific student learning outcomes

A way to provide students with an overview of the role of each course and logical rationale for course sequencing

Student Learning Outcomes*



* Clearly Identifiable and Measureable

STUDENT LEARNING OUTCOMES

- Student-focused rather than instructor-centered.
- Focus on the learning resulting from an activity rather than on the activity itself.
- Specific, measurable, observable.

STUDENT LEARNING OUTCOMES

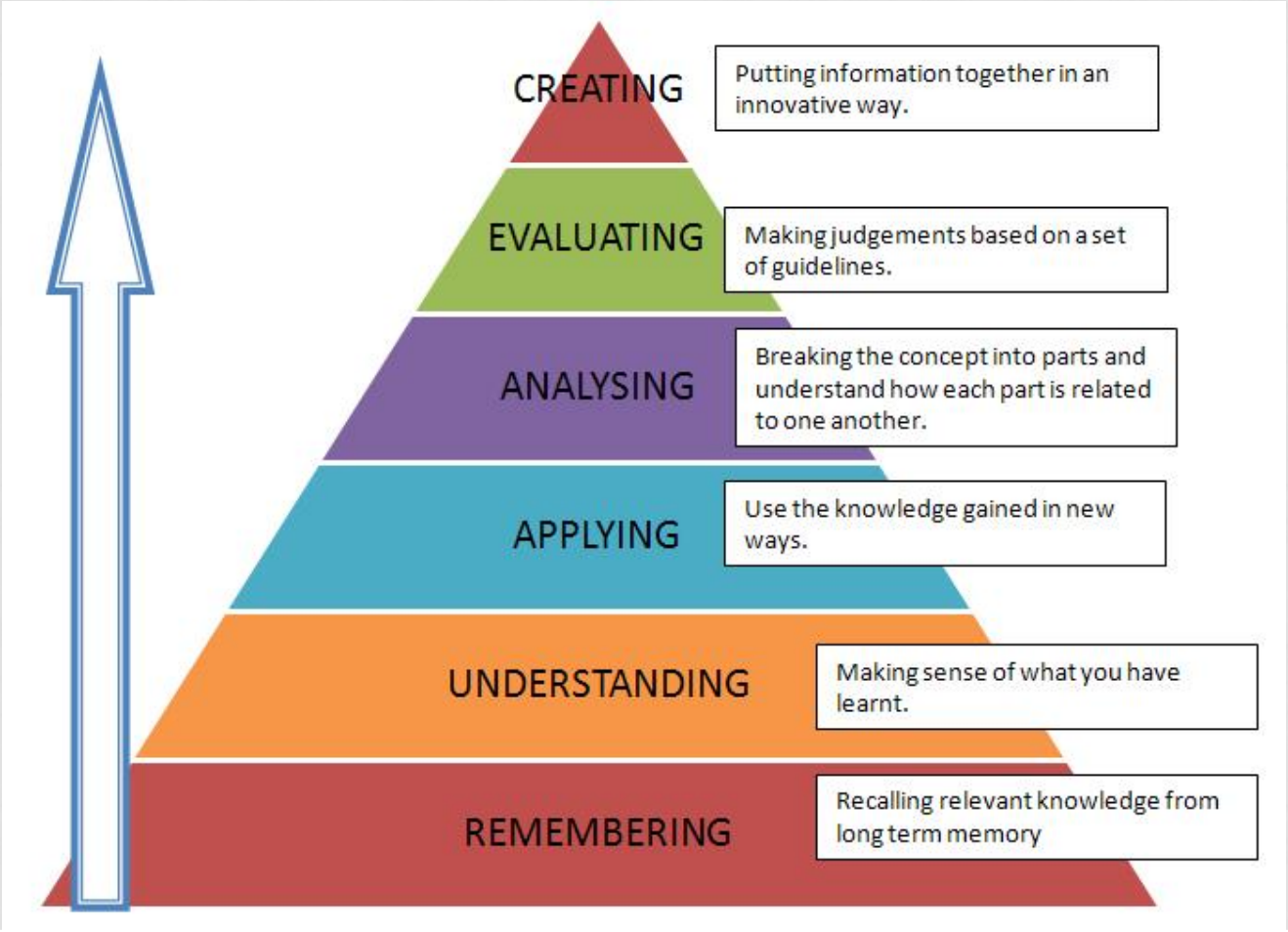
- Good outcomes have action words:

Target	Possible Verbs
Knowledge	cite, define, describe, identify, indicate
Comprehension	arrange, classify, convert, describe
Application	apply, change, compute, construct
Analysis	break down, calculate, contrast, solve
Synthesis	organize, modify, construct, assemble
Evaluation	contrast, explain, justify, interpret

http://manoa.hawaii.edu/assessment/

STUDENT LEARNING OUTCOMES

Learning outcomes can span a range levels of learning as described by Bloom's Taxonomy



STUDENT LEARNING OUTCOMES

By the end of this course, students will be able to:

- **predict** the appearance and motion of visible celestial objects
- **formulate** scientific questions about the motion of visible celestial objects
- **plan** ways to model and/or simulate an answer to the questions chosen
- **select** and integrate information from various sources, including electronic and print resources, community resources, and personally collected data, to answer the questions chosen
- **communicate** scientific ideas, procedures, results, and conclusions using appropriate SI units, language, and formats

http://www.teaching.utoronto.ca/topics/coursedesign/learning-outcomes/examples.htm

YOUR TURN

- Take a few minutes to write down two student learning outcomes that are relevant to courses you teach.

- Pair up with someone and trade student learning outcomes. Provide a peer assessment.
  - Is it precise?
  - Is it measurable?
  - Is it action-oriented?

Would these outcomes align with the program outcomes in your department?

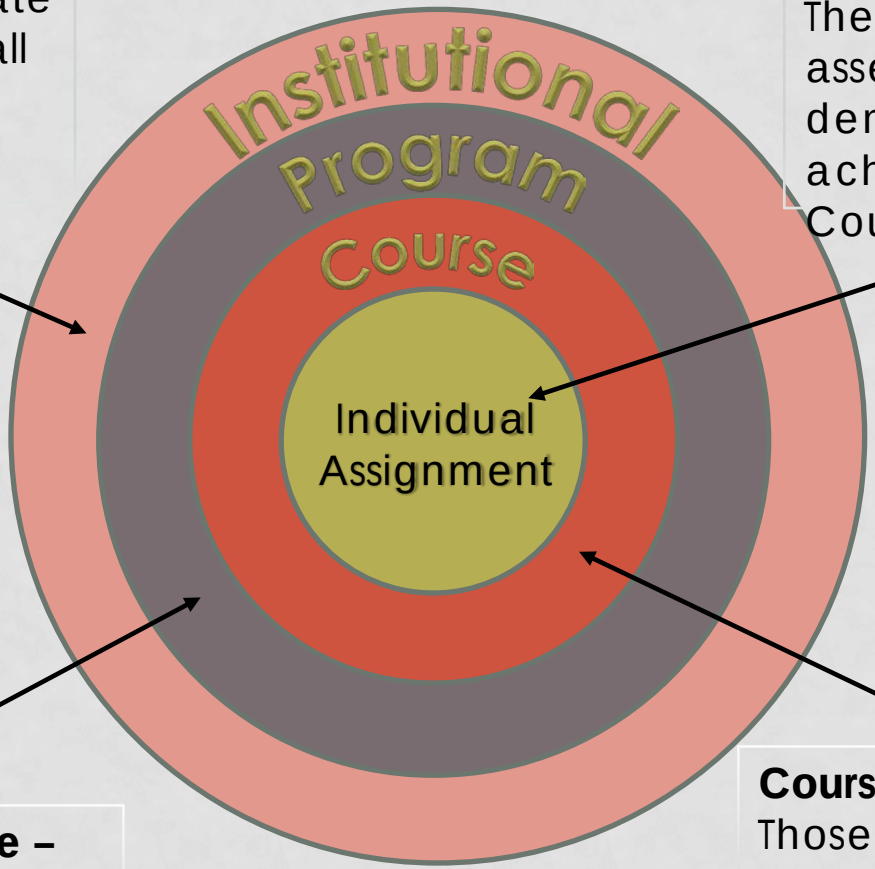
DEDUCTIVE DESIGN, INDUCTIVE DELIVERY

Students progress through courses and other experiences/events to be able to demonstrate increasing levels of sophistication/integration of skills throughout program.

Student Learning Outcomes

Institutional Level Outcome – The knowledge, skills, and abilities students are expected to demonstrate as a result of their overall experiences with the university.

Individual Assignments (deliverables) – Clearly aligned with one or more Course Outcomes. The assignment assessment demonstrates level of achievement of the Course Level Outcome.

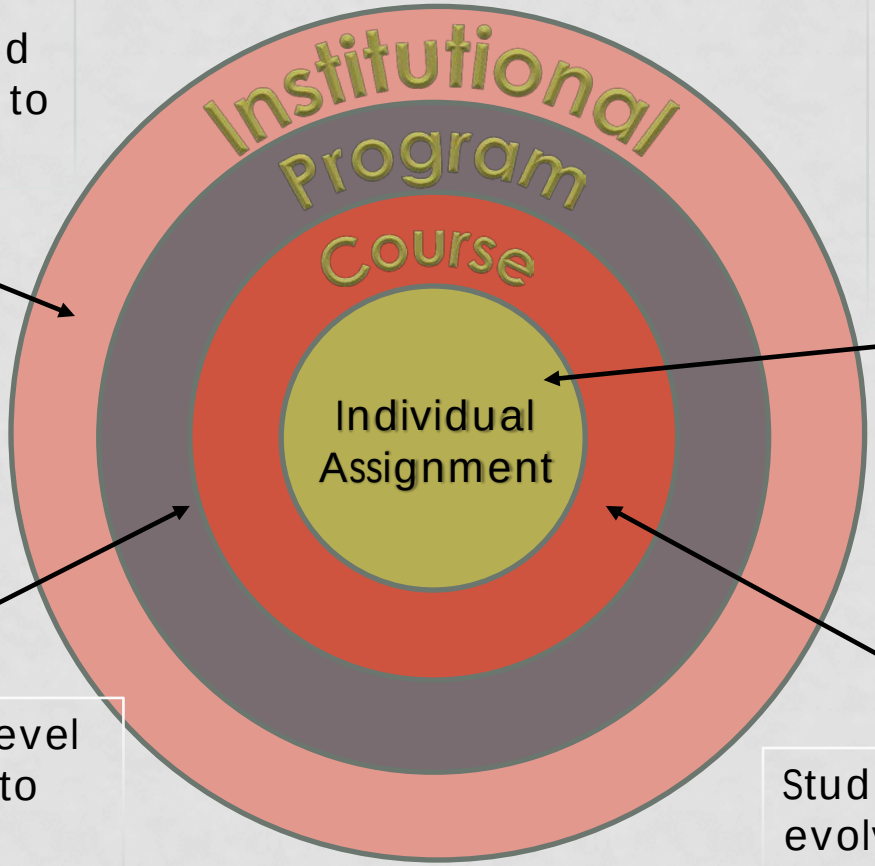


Program Level Outcome – Demonstrated behaviors, skills, and abilities a student is expected to achieve as a result of completing a specific program.

Course Level Outcome – Those learning outcomes that are specifically measured, assessed, and associated with the completion of a specific course.

Student Learning Outcomes

Critical Thinking - UTC students will think critically, analytically, and reflectively…will use existing knowledge to generate new ideas and demonstrate the ability to solve problems.



Responsive Design Project & Presentation – student demonstrates application of concepts, principles, and theories of sustainability as they pertain to building methods, materials, systems, and occupants . . .

Design Process - Entry-level interior designers need to apply all aspects of the design process to creative problem solving… identify and explore complex problems and generate creative solutions.

Students will analyze evolving global issues to develop creative design ideas in response to health, safety and welfare of the public, as well as the environment.

EVALUATING LEARNING OUTCOMES

- Well-represented program learning outcomes are:
  - Introduced and assessed in early courses
  - Practiced and / or Reinforced, as well as assessed in subsequent courses
  - Assessed for level of Mastery in upper level/comprehensive courses
- Poorly-represented program learning outcomes may be:
  - Not introduced at all
  - Introduced early yet never assessed, Practiced, or Reinforced
  - Introduced minimally yet assessed for mastery at the comprehensive level

USING CURRICULUM MAPS IN FACULTY DISCUSSION

- Do students receive adequate introduction to, practice in, and reinforcement of skill before expected demonstration of mastery?
- Should any courses/learning outcomes be restructured to improve frequency and depth of practice for students?
- Are learning outcomes addressed in logical order allowing for student progression from introduction to levels of mastery?
- Do all required courses contribute to 1+ program-level student learning outcomes

CURRICULUM MAPS AS AN ASSESSMENT PROCESS

- Curriculum map identifies level of skill expected for student learning and work products
- May be used in interpreting patterns to evaluate curriculum coherence

Program Curriculum Map Worksheet	Outcomes						
	Outcome 1 Disciplinary Knowledge	Outcome 2 Disciplinary Methods	Outcome 3 Disciplinary Applications	Outcome 4 Disciplinary Ethical Standards	Outcome 5 Analysis and use of Evidence	Outcome 6 Written Communication Skills	Outcome 7 Interpersonal & Team Skills
Courses							
Introductory Course 1	I		I	I		I	
Introductory Course 2		I	I			I	I
Research Methods	I			I			
Intermediate Content Course 1	P		P		P	P	P
Intermediate Content Course 2		P	P			P	
Laboratory / Practicum Course		P	P	P	P		P
Advanced Content Course 2		R	R				R
Advanced Content Course 2	R			R		R	
Advanced Content Course 2		R	R		R	R	R
Capstone Course	M	M	M	M	M	M	M

I – SLO is Introduced and Assessed

P – SLO is Practiced and Assessed

R – SLO is Reinforced and Assessed

M – Level of Mastery is Assessed

HOW TO IMPACT LEARNING?

- Consider the role your course plays in the curriculum.
- Align assignments around program outcomes.
- Share teaching practices and concerns with your colleagues and peers.

APPLICATION TO THE DISCIPLINES

Individually:

- Consider the program you teach in. Determine one program outcome and a course you teach that contributes to that outcome. Jot down some ways you address and assess that outcome in your class.

As a Group:

- Share the place your course serves in your program of study.
- Share assessment strategies and teaching practices to help meet that goal.

BEST PRACTICES IN CURRICULUM MAPPING

- Build in practice and multiple learning opportunities for students
  - Introduce
  - Practice
  - Reinforce
  - Mastery (Level of mastery)
- Use curriculum map to identify learning opportunities (assignments, activities) that support/demonstrate program learning outcomes
- Eliminate outcomes which aren't highly valued
- Focus on highly-valued outcomes; include in multiple courses

BEST PRACTICES CONTINUED

- Set priorities as department/program
  - Faculty working together toward common measurable outcomes can increase likelihood of students meeting/exceeding expectations
- Communicate about student learning outcomes:
  - Publish curriculum map and distribute to students and faculty
  - Faculty should make explicit connections across courses for students
    - Don't assume students can/will make connections by themselves

HELPS US FOCUS ON WHAT IS IMPORTANT TO THE DISCIPLINE

CURRICULUM MAPPING LIAISONS

- Karen Adsit, Assistant Provost of Teaching and Learning, Karen-Adsit@utc.edu
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- Dawn Ford, Executive Director of the Walker Center for Teaching and Learning, Dawn-Ford@utc.edu

REFERENCE

- Miller, C., & Malandra, G. (2006). The Secretary of Education's Commission on the Future of Higher Education, issue paper: Accountability/Assessment. Washington, DC: U.S. Department of Education. Retrieved from http://www.ed.gov/about/bdscomm/list/hiedfuture/reports/miller-malandra.pdf