Goals for the Day

1. Discuss the relationship of assessment to pedagogy and to the design and intent of curricula.

2. Contextualize program assessment in Barr and Tagg’s *Learning Paradigm*

3. Consider productive, sustainable practices for assessing student learning in degree programs in light of the “learning paradigm”.
Setting the Scene: Teaching, Learning, Program Assessment and the “Learning Paradigm”

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UNIVERSITY OF THE PACIFIC
OCTOBER 9, 2015
Outcomes

1. Identified key attributes of Barr and Tagg’s “Learning Paradigm”
2. Define assessment, describing its roles in the Learning Paradigm
3. Explain how assessment is planning and pedagogy (and research)
4. Explain how program assessment facilitates intentionality in a degree program
Activity

Develop a sentence that describes the learning paradigm, using the concepts in one of the lists below.

Start it, “In the learning paradigm.....”

<table>
<thead>
<tr>
<th>List #1</th>
<th>List #2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Produce learning</td>
<td>Assessments (pre, during or post)</td>
</tr>
<tr>
<td>Faculty and students work in</td>
<td>Specified learning results</td>
</tr>
<tr>
<td>teams</td>
<td>Improve the quality of student learning</td>
</tr>
<tr>
<td>Elicit student discovery, and</td>
<td>Create powerful learning environments</td>
</tr>
<tr>
<td>construction of knowledge</td>
<td></td>
</tr>
<tr>
<td>Specified learning results</td>
<td></td>
</tr>
</tbody>
</table>
Examples

In the learning paradigm,

.....faculty and students work in teams to elicit student discovery, and construction of knowledge, thereby producing learning in relation to specified learning results.

.... assessments (pre/during/post) are used to create powerful learning environments and improve the quality of student learning in relation to specified learning results.
Important Attributes of the *Learning Paradigm*

1. It is learning and learner centered, not teaching and teacher centered – faculty and students form learning teams.
   - Primary focus is intended student learning (outcomes), rather than the methods (teaching).
   - Faculty as “coach” and designer of “game plan” – intentionally designed learning experiences to bring about desired student learning
   - Engage students in constructing knowledge
   - Provide students opportunities to practice with feedback

*Student are players, engaging the game plan, receiving the coaching, individually and a group.*
Important Attributes of the *Learning Paradigm*

2. Faculty - student *teams* and *game plans* exist at multiple levels

As members of the team, students assume responsibility for their learning, together with the coach.

- Aware of intended learning
- Aware of the game plan (curriculum and co-curriculum)
- Actively aware of their own learning in relation to intended learning and taking responsibility for advancing their abilities.
Important Attributes of the Learning Paradigm

3. Our responsibilities for student learning extend beyond the boundaries of our individual course(s).

- We teach, and students learn, in the context of programs (degree, co-curricular) and the institution
- Learner-centered and improvement-oriented.
- Intention is to “produce more learning with each graduating class, and each student.”
Important Attributes of the Learning Paradigm

4. Assessment is the means for gathering feedback on student learning to “produce more learning with each graduating class, and each student.”

Revise our game plans

• Course
• Program
• Institution
What is assessment (of student learning)?

Hybrid of Suskie (2009), the CIRTL Teaching-as-Research (TAR) framework, and Backward Design (McTighe & Williams, 1998)

1. Establish and make public goals for student learning. Expressed as learning outcomes, criteria and standards.

2. Determine the evidence. What work will students do to demonstrate learning?


5. Draw conclusions about student learning achievements in the aggregate.

6. Act on the results to improve student achievement of learning goals.
Assessment is a planning process:

- Setting goals
- Developing strategies
- Outlining tasks
- Evaluating success

Hybrid of Suskie (2009), the CIRTL Teaching-as-Research (TAR) framework, and Backward Design (McTighe & Williams, 1998)

1. Establish and make public goals for student learning. Expressed as learning outcomes, criteria and standards.
2. Determine the evidence. What work will students do to demonstrate learning?
5. Draw conclusions about student learning achievements in the aggregate.
6. Act on the results to improve student achievement of learning goals.
Applicable to any learning experience at any institutional level

- Given day’s class
- Course
- Degree Program

1. Establish and make public goals for student learning. Expressed as learning outcomes, criteria and standards.

2. Determine the evidence. What work will students do to demonstrate learning?


5. Draw conclusions about student learning achievements in the aggregate.

6. Act on the results to improve student achievement of learning goals.
Assessment is a heuristic for intentionality in teaching and learning

1. Establish and make public goals for student learning. Expressed as learning outcomes, criteria and standards.

2. Determine the evidence. What work will students do to demonstrate learning?


5. Draw conclusions about student learning achievements in the aggregate.

6. Act on the results to improve student achievement of learning goals.

Hybrid of Suskie (2009), the CIRTL Teaching-as-Research (TAR) framework, and Backward Design (McTighe & Williams, 1998)
Assessment is also pedagogy

*Instructional activities* selected to

- facilitate development of
- to reveal (to the teacher and the students)

student learning in relation to learning goals.

1. Establish and make public goals for student learning. Expressed as learning outcomes, criteria and standards.

2. Determine the evidence. What work will students do to demonstrate learning?


5. Draw conclusions about student learning achievements *in the aggregate*.

6. Act on the results to improve student achievement of learning goals.

Hybrid of Suskie (2009), the CIRTL Teaching-as-Research (TAR) framework, and Backward Design (McTighe & Williams, 1998)
Assessment is a form of research

Learning & assessment paradigm

Learning Outcome

Instructional Activities / Curriculum

Collect & analyze evidence of student learning. Draw conclusions, revise instruction or outcomes.

Research paradigm

Hypothesis: what students will be able to do

Experimental Design

Gather data and draw conclusions about hypothesis
Assessment is “Action Research” (Suskie, 2009)

**Assessment as Action Research**
- Specific to local environment and student body
- Intended for local improvement
- Data/evidence are sufficiently valid and reliable so as to be “good enough,” “trustworthy enough” to act on

**Empirical Research**
- Pursue generalizable results (theories)
- High quality design and data to meet test of peer review

*Both, however, informed by literatures...*

*Suskie, 2009*
Relationship of Grading and Assessment

Grading: Summarizes learning demonstrated by an individual student, with feedback providing insight into and supporting his/her individual learning.
Relationship of Grading and Assessment

Assessment: Summarizes learning demonstrated by a population of students to provide insights into how well the educational opportunity (class, course, program) is serving students as a whole.

Ex. *What might this tell us?*

Results from senior thesis

- 60% of students scored as proficient or better in use of citations and evidence in argument
- 40% scored below proficient
Where are we going today?
Sessions 2 & 3

Establishing shared expectations for learning, Parts A and B.

- **9:30 -10:00: Program Learning Outcomes**
- **10:00 -10:30: Program Criteria and Standards (Rubrics)**

1. Establish and make public goals for student learning.
2. Determine the evidence of learning.
3. Provide intentional learning experiences.
5. Draw conclusions about student learning in the aggregate.
10:40-11:30: Curriculum Maps
Examining and Communicating Curriculum Organization in Support of Shared Expectations for Learning

1. Establish and make public goals for student learning.
2. Determine the evidence of learning.
3. Provide intentional learning experiences.
5. Draw conclusions about student learning in the aggregate.
Session 5

11:30 - 12:00: Assessment Evidence and Triangulation

Gathering Actionable Information about Student Learning

1. Establish and make public goals for student learning.
2. Determine the evidence of learning.
3. Provide intentional learning experiences.
5. Draw conclusions about student learning in the aggregate.
Afternoon

1:00 – 4:00

Assessment planning and implementation in context

1. Establish and make public goals for student learning.
2. Determine the evidence of learning.
3. Provide intentional learning experiences.
5. Draw conclusions about student learning in the aggregate.
Establishing Shared Expectations for Learning

PART A: PROGRAM LEARNING OUTCOMES
Session 2

Hybrid of Suskie (2009), the CIRTL Teaching-as-Research (TAR) framework, and Backward Design (McTighe & Williams, 1998)

1. Establish and make public goals for student learning. Expressed as learning outcomes, criteria and standards.

2. Determine the evidence. What work will students do to demonstrate learning?


5. Draw conclusions about student learning achievements in the aggregate.

6. Act on the results to improve student achievement of learning goals.
Outcomes

1. Recognize useful, meaningful program learning outcomes.

2. Explain how program learning outcomes support student learning and assessment.

3. Be aware of some resources for developing or evaluating program learning outcomes.
Activity

With a partner, review each statement on the handout. Place a

✓ Checkmark, if you agree that it describes a function/role of program learning outcomes.

? Question mark, if you are unsure if it describes the function/role of program learning outcomes.

✗ “X”, if the statement does not describe a function/role of program learning outcomes.
Qualities of a meaningful, useful PLO

1. Written from perspective “Students will be (or are) able to....”

2. Includes an action verb describing the cognitive skills graduates will demonstrably possess. (See Iowa State’s A Model of Learning Objectives)

Upon graduating, students will be able to model real-world problems mathematically, and analyze those models using their mastery of the core concepts. (B.S. Applied Mathematics)
Qualities of a meaningful, useful PLO

3. Action verb represents a high order thinking skill, appropriate to a bachelor’s degree holder in discipline.

Upon graduating, students will be able to model real-world problems mathematically, and analyze those models using their mastery of the core concepts. (B.S. Applied Mathematics)
The Cognitive Process Dimension represents a continuum of increasing cognitive complexity—from lower order thinking skills to higher order thinking skills. Anderson and Krathwohl (2001) identify nineteen specific cognitive processes that further clarify the scope of the six categories (Table 2).

Table 2. The Cognitive Processes dimension — categories & cognitive processes and alternative names

<table>
<thead>
<tr>
<th>lower order thinking skills</th>
<th>understand</th>
<th>apply</th>
<th>analyze</th>
<th>evaluate</th>
<th>create</th>
</tr>
</thead>
<tbody>
<tr>
<td>remember</td>
<td>interpreting</td>
<td>execute</td>
<td>differentiating</td>
<td>evaluate</td>
<td>generate</td>
</tr>
<tr>
<td>recognizing</td>
<td>identifying</td>
<td>carrying out</td>
<td>discriminating</td>
<td>checking</td>
<td>hypothesizing</td>
</tr>
<tr>
<td>recalling</td>
<td>recalling</td>
<td>implementing</td>
<td>distinguishing</td>
<td>coordinating</td>
<td>planning</td>
</tr>
<tr>
<td>retrieving</td>
<td>representing</td>
<td>using</td>
<td>focusing</td>
<td>detecting</td>
<td>designing</td>
</tr>
<tr>
<td></td>
<td>translating</td>
<td>implementing</td>
<td>selecting</td>
<td>monitoring</td>
<td>producing</td>
</tr>
<tr>
<td></td>
<td>exemplifying</td>
<td>implementing</td>
<td>organizing</td>
<td>testing</td>
<td>constructing</td>
</tr>
<tr>
<td></td>
<td>interpreting</td>
<td>implementing</td>
<td>attributing</td>
<td>critiquing</td>
<td>structuring</td>
</tr>
<tr>
<td></td>
<td>exemplifying</td>
<td>implementing</td>
<td>attributing</td>
<td>critiquing</td>
<td>deconstructing</td>
</tr>
</tbody>
</table>

(Table 2 adapted from Anderson and Krathwohl, 2001, pp. 67-68.)
Qualities of a meaningful, useful PLO

4. Identifies the kind(s) of knowledge graduates will demonstrably possess. (See Iowa State’s A Model of Learning Objectives)

Upon graduating, students will be able to model real-world problems mathematically, and analyze those models using their mastery of the core concepts. (B.S. Applied Mathematics)
The **Knowledge Dimension** classifies four types of knowledge that learners may be expected to acquire or construct—ranging from concrete to abstract (Table 1).

Table 1. The Knowledge Dimension – major types and subtypes

<table>
<thead>
<tr>
<th>concrete knowledge</th>
<th>abstract knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td>factual</td>
<td>metacognitive*</td>
</tr>
<tr>
<td>knowledge of terminology</td>
<td>strategic knowledge</td>
</tr>
<tr>
<td>knowledge of specific details and elements</td>
<td>knowledge about cognitive tasks, including appropriate contextual and conditional knowledge</td>
</tr>
<tr>
<td>conceptual</td>
<td>procedural</td>
</tr>
<tr>
<td>knowledge of classifications and categories</td>
<td>knowledge of subject-specific techniques and methods</td>
</tr>
<tr>
<td>knowledge of principles and generalizations</td>
<td>knowledge of criteria for determining when to use appropriate procedures</td>
</tr>
<tr>
<td>knowledge of theories, models, and structures</td>
<td>self-knowledge</td>
</tr>
</tbody>
</table>

(Table 1 adapted from Anderson and Krathwohl, 2001, p. 46.)

“Metacognitive knowledge is a special case. In this model, “metacognitive knowledge is knowledge of [one’s own] cognition and about oneself in relation to various subject matters…” (Anderson and Krathwohl, 2001, p. 44).
Qualities of a meaningful, useful PLO

5. Describes how students will demonstrate their learning/ points to sources of evidence of learning (i.e. is measurable).

Upon graduating, students will be able to model real-world problems mathematically, and analyze those models using their mastery of the core concepts. (B.S. Applied Mathematics)
Qualities of a meaningful, useful PLO

6. Points to the kinds of learning experiences students need to develop the PLO.

7. Is understandable to students, although understanding may be expected to deepen with learning.

Upon graduating, students will be able to model real-world problems mathematically, and analyze those models using their mastery of the core concepts. (B.S. Applied Mathematics)
Activity: Analyze a PLO

Pick one of the two PLOs below:

- Analyze its strengths and weaknesses with respect to the qualities of a meaningful, useful PLO
- Propose some alternative language as needed.

A. Graduates can think critically about the causes of social inequality.

B. Graduates possess an understanding of the tenets of modern biology.
Some Resources for Developing or Evaluating Baccalaureate PLOs

- Disciplinary/professional societies
- Employers and employer surveys
- Industry evaluations of needs
- Peer programs/institutions – comparable, aspirational
- Competitor programs?
- Programmatic accreditors
- Existing curriculum
- Institutional mission
- Higher education resources – AAC&U (LEAP Outcomes), Lumina’s (DQP)
Establishing shared expectations for learning

PART B: PROGRAM CRITERIA AND STANDARDS (RUBRICS)
Outcomes

In this session, we will discuss how program-level expectations for learning are further elaborated through criteria and standards.

Outcomes:

1. Explain the relationship between program learning outcomes and program-level criteria and standards.

2. Describe the role of program-level criteria and standards in teaching, learning, and assessment.
What do we want to know from program-level assessment?

Are all our students learning what we intend (program-level outcomes) by the time of graduation?

To what degree is the program working: what levels of performance are students reaching by the time of graduation?

What are the numbers of students reaching or exceeding the level of performance we want at the time of graduation?

Are there groups of students who consistently do not reach desired levels of performance?

Is what is going on good enough? Are we satisfied with the distribution of performance?
What are “levels of performance”? How are they articulated?

Specific descriptions of the attributes expected in student work derived from program-level outcomes.

Often articulated in a rubric.
Rubrics – What are they and why use them?

A rubric is a scoring guide: a list or chart that describes criteria used to evaluate or grade student work. (Suskie, 2009)

Rubrics contain a set of criteria specifying the characteristics of a learning outcome and the levels of achievement for each characteristic. (Levy, 2012)

There is no single way to write or format rubrics – they can be created and adapted for the circumstances and situations of your courses and programs.
What can rubrics be used to evaluate?

Performances or behaviors:
- Presentation
- Teamwork
- Role plays
- Performances

Written or visual student work:
- Papers
- Journals
- Artwork
- Portfolios
Rubric Strengths

Complex products or behaviors can be examined efficiently and effectively.
Developing a rubric helps to precisely define faculty expectations.
Student appreciate clarity in expectations for their work and/or behaviors.
Rubrics are criterion-referenced rather than norm-referenced.
Rubrics can serve a variety of purposes:
  - Provide formative feedback to students
  - Grade student work
  - Conduct assessment at the program level
Rubrics and Learning Outcomes

Learning outcomes describe what students will do to demonstrate their learning.

The rubric describes:
- The expected properties of that demonstration (criteria)
- The possible levels of achievement/performance (standards)

Program Learning Outcomes, together with a rubric, fully define what it means to achieve the Program Learning Outcome.
Types of Rubrics

**Holistic**
Describe how one global, holistic judgment is made; provides one score for a product or behavior. Checklist and rating scales are types of holistic rubrics.

**Analytic**
Involves a series of judgments, each assessing a characteristic of the product being evaluated; provides separate, holistic scoring of specified characteristics of a product or behavior.
Typical Four-Point Rubric Levels

1. Below Expectations
2. Needs Improvement
3. Meets Expectations
4. Exceeds Expectations
### Example: Holistic Rubric for Assessing Student Essays

<table>
<thead>
<tr>
<th>Standards</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inadequate</td>
<td>The essay has at least one serious weakness. It may unfocused, underdeveloped, or rambling. Problems with the use of language seriously interfere with the reader’s ability to understand what is being communicated.</td>
</tr>
<tr>
<td>Developing competence</td>
<td>The essay may be somewhat unfocused, underdeveloped, or rambling, but it does have some coherence. Problems with the use of language occasionally interfere with the reader’s ability to understand what is being communicated.</td>
</tr>
<tr>
<td>Acceptable</td>
<td>The essay is generally focused and contains some development of idea, but the discussion may be simplistic or repetitive. The language lacks syntactic complexity and may contain occasional grammatical errors, but the reader is able to understand what is being communicated.</td>
</tr>
<tr>
<td>Sophisticated</td>
<td>The essay is focused and clearly organized, and it shows depth of development. The language is precise and shows syntactic variety, and ideas are clearly communicated to the reader.</td>
</tr>
</tbody>
</table>

Example: Analytic Rubric for Peer Assessment of Team Project Members

<table>
<thead>
<tr>
<th></th>
<th>Below Expectation</th>
<th>Good</th>
<th>Exceptional</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Contributions</td>
<td>Made few substantive contributions to the team’s final product</td>
<td>Contributed a “fair share” of substance to the team’s final product</td>
<td>Contributed considerable substance to the team’s final product</td>
</tr>
<tr>
<td>Leadership</td>
<td>Rarely or never exercised leadership</td>
<td>Accepted a “fair share” of leadership responsibilities</td>
<td>Routinely provided excellent leadership</td>
</tr>
<tr>
<td>Collaboration</td>
<td>Undermined group discussions or often failed to participate</td>
<td>Respected others’ opinions and contributed to the group’s discussion</td>
<td>Respected others’ opinions and made major contributions to the group’s discussion</td>
</tr>
</tbody>
</table>

Where rubrics fit in the assessment cycle

1. Establish and make public goals for student learning.
2. Determine the evidence of learning.
3. Provide intentional learning experiences.
5. Draw conclusions about student learning in the aggregate.

Introduce Rubric

Develop/identify rubric

Use rubric to score student work (measure learning)
Rubric choices...

The kind of rubric you use influences the kind of information you get about student learning.

Holistic – Rendering a summative conclusion can come at the cost of specificity about components.

Analytic – How do the components relate to the whole?
Preparing for Assessment with Rubrics

Collect a range of samples of student work for use in assessment and remove identifying information.

Develop and pilot test the rubric.

Select exemplars of weak, acceptable, and strong student work.
Reviewing Application of the Rubric

Have reviewers apply the rubric and develop a shared understanding of the criteria and standards. Piloting the rubric will reduce the likelihood of discrepancy before scoring – this is calibrating the rubric.

Discuss reasons for the assignment of scores. What are the similarities and differences? Is a shared agreement possible?

For discrepancies, ask a third rater to score.

Revise the rubric as necessary to clarify.
Results...

Summarize how frequently each level of performance was observed by reviewers.

Example: number of student papers that were determined to be:
- Inadequate
- Developing Competence
- Acceptable
- Sophisticated
Drawing Conclusions

Demonstration of learning outcomes:
- Are you satisfied
- How do you know?
- If not, what might you do?

To draw conclusions about student success, there needs to be a desired standard (or level of competency, or benchmark).
- Example: 80% of student papers will be at the acceptable or sophisticated level.
Drawing Conclusions – Next Steps

How useful is the rubric?
◦ Does it work well?
◦ Could it be improved?
◦ How?

Data Collection:
◦ Did it work well?
◦ Could it be improved?
◦ How?
Developing and maintaining the instrument

Design assignments to elicit student demonstration of the criteria and standards of the rubric and expectations of learning outcomes. Envision possible results.

Pilot the rubric by applying it to example work.

Share the rubric with students to understand how they interpret it.

Revise and continue to refine the rubric to increase inter-rater reliability and usefulness to students.
Examining and Communicating Curriculum Organization in Support of Shared Expectations for Learning

CURRICULUM MAPS
1. Establish and make public goals for student learning. Expressed as learning outcomes, criteria and standards.

2. Determine the evidence. What work will students do to demonstrate learning?


5. Draw conclusions about student learning achievements in the aggregate.

6. Act on the results to improve student achievement of learning goals.
Outcomes

1. Describe some key elements of a useful curriculum map.
2. Use a map to analyze and inform a conversation about curricular coherence and alignment.
3. Draft a curriculum map useful to faculty and students alike.
Experience with Curriculum Maps?

Individually, take a minute to reflect, noting

1. Any experience you have with curriculum maps.
2. Where you have encountered a curriculum map.
3. A purpose for a curriculum map.

Turn to a neighbor and share your responses. To what extent are they similar?
What is curriculum mapping?

- A graphic method for depicting or investigating *curricular coherence*
- Explores the alignment between learning outcomes, curriculum, and assessment of learning in support of overarching goals and mission

(From Driscoll, citing Cuevas, Matveev, & Miller, 2010; Allen, 2004, 2006; Driscoll & Wood, 2007; Maki, 2004).
Alignment – A Definition

Key elements of intentional instruction are consistent with each other and mutually supportive.

1. Establish and make public goals for student learning. Expressed as learning outcomes, criteria and standards.

2. Determine the evidence. What work will students do to demonstrate learning?


5. Draw conclusions about student learning achievements in the aggregate.

6. Act on the results to improve student achievement of learning goals.

Key elements of intentional instruction are consistent with each other and mutually supportive.
Alignment – An Inquiry

To what extent are these first three steps of intentional instructional/curricular design consistent with each other and mutually supportive?
Alignment - an Example

- Write a sonnet
- Analyze a sonnet
- Read, recite, and analyze sonnets

Learning Outcome (L.O.)
- Evidence to demonstrate student achievement of L.O.
- Intentional learning experiences (curriculum and pedagogy)
Alignment - an Example

Key aspects of instruction and curriculum are consistent with each other and mutually supportive.

- Write a sonnet
- Write a sonnet
- Read, recite, analyze and draft, and peer review others’ sonnets.
Maps: Typically depicted as table or matrix

- $x =$ course curriculum designed to support development of program learning outcome

<table>
<thead>
<tr>
<th>Courses</th>
<th>PLO #1</th>
<th>PLO #2</th>
<th>PLO #3</th>
<th>PLO #4</th>
<th>PLO #5</th>
</tr>
</thead>
<tbody>
<tr>
<td>100*</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>110*</td>
<td></td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>200</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>202*</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>300</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>405*</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

* = Required course for the major
Maps: Typically depicted as table or matrix

Course curriculum designed to support development of program learning outcome as follows:

- I = Introduce
- D = Develop
- M = Mastery
- A = Assessed

<table>
<thead>
<tr>
<th>Courses</th>
<th>PLO #1</th>
<th>PLO #2</th>
<th>PLO #3</th>
<th>PLO #4</th>
<th>PLO #5</th>
</tr>
</thead>
<tbody>
<tr>
<td>100*</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td></td>
<td>I</td>
</tr>
<tr>
<td>110*</td>
<td>I</td>
<td></td>
<td></td>
<td>D</td>
<td>I</td>
</tr>
<tr>
<td>200</td>
<td></td>
<td>D</td>
<td></td>
<td></td>
<td>D</td>
</tr>
<tr>
<td>202*</td>
<td>D</td>
<td>D</td>
<td>D</td>
<td></td>
<td>D</td>
</tr>
<tr>
<td>300</td>
<td></td>
<td>D</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>405*</td>
<td>M, A</td>
<td>M, A</td>
<td>M, A</td>
<td>M, A</td>
<td>M, A</td>
</tr>
</tbody>
</table>

* = Required course for the major
Many Mapping Schemas

What is being communicated varies

- L.O. addressed – yes or no? (x)
- Level of student development of L.O. (I,D,M)
- Degree that program learning outcomes are emphasized in course.

Symbols vary

- Numeric
- Words
Diverse Relationships can be Mapped

- Courses other significant learning experiences to program learning outcomes
- Program learning outcomes to institutional and/or GE outcomes
- Program or institutional outcomes to Core Competencies
- Course curriculum to course learning outcomes
- Co-curricular program outcomes to Divisional, GE or institutional outcomes
In program-level maps, what are we connecting?

- Course syllabus is a useful reference document

Diagram:

- Program Learning Outcomes
  - Course Learning Outcomes
  - Significant Course Instructional Activities & Assessments
Questions Maps Can Help Address

• “Do faculty focus on experiences leading to outcomes as well as on the outcomes themselves?” (Huba & Freed, 2007, p. 160)

• “Is there a conceptual relationship among teaching, curriculum, learning, and assessment in my course, our program, and this institution?” (Driscoll & Wood, 2007, p. 172)

• “Do students have multiple opportunities to achieve our program goals and learning outcomes?” (Suskie, 2009, p. 101)

• To what extent are our stated priorities for student learning (goals and outcomes) reflected in our curriculum?
Use a Map to Analyze a Curriculum

1. What questions does the map raise about the organization of curriculum in support of intended student learning?

2. What recommendations, if any, might you make to the program’s faculty?

3. What questions does this activity raise for you about curriculum maps and mapping?
# Curriculum Map A

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<th>Courses</th>
<th>Program Outcome 1</th>
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Activity by Mary Allen
## Curriculum Map C

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Activity by Mary Allen
Maps are Living Documents

They benefit from regular review and update. Strategic opportunities to review might include

• Each annual assessment cycle, review alignment for LO being studied
• Each program review, take a comprehensive look
• New instructor assumes responsibility for a course
• Other?
Group Brainstorm

- Who might benefit from having access to curriculum maps? *Why?*
- When and how might they be made available?
Some Benefits to Students

Provide information to empower stewardship of learning and education:

• See how courses work together in support of learning
• Offer information for use in planning educational/course choices
• Guide learning expectations
• Other?
Some Benefits to Faculty/Instructors

Provide information to support teaching in the context of a program:

- See how his/her course contributes to an entire program curriculum
- Guide for course planning
- Guide for anticipating and building on prior student learning
- Guide for creating assignments that support outcomes
- Resource to make connections for students
- Orient new faculty/instructors (adjuncts, TAs, peer tutors) to the program
- Other?
Support student learning and program planning and assessment:

- Ensure students have sufficient opportunities to develop and master intended outcomes
- Ensure all requirements contribute to student learning and success
- Promote shared understandings among all instructors (adjuncts, TAs, peer tutors, etc.)
- Identify where evidence of student learning can be collected
- Indirect evidence for interpreting program assessment results
- Identify areas for closing the loop
- Other?
Gathering Actionable Information about Student Learning: Assessment Evidence and Triangulation

DIRECT, INDIRECT, AND WAYS OF KNOWING
1. Establish and make public goals for student learning. Expressed as learning outcomes, criteria and standards.

2. Determine the evidence. What work will students do to demonstrate learning?


5. Draw conclusions about student learning achievements in the aggregate.

6. Act on the results to improve student achievement of learning goals.

Session 5

Hybrid of Suskie (2009), the CIRTL Teaching-as-Research (TAR) framework, and Backward Design (McTighe & Williams, 1998)
Outcomes

1. How do you get a good picture of what students know and why they know it?

2. List relevant example of direct and indirect evidence of student learning.

3. Propose complementary lines of direct and indirect evidence to assess an outcome.
Direct Evidence

Actual student work, exhibited behaviors or attitudes; the tangible, visible *demonstration* of student abilities.

Provides insight into:

- *What* students know and can do
- *How well* they can do it in relation to intended learning outcomes and established expectations for performance
Examples of Direct Evidence

- Capstone projects
- Portfolios
- Exams
- Papers
- Presentations
- Think alouds
- Student reflections on values, attitudes and beliefs
- Employer or supervisor evaluations of student abilities
- Student responses to survey questions that ask them to demonstrate knowledge
Indirect Assessment – What is it and Why Do We Need it?

*Direct assessment*: Requires the student to demonstrate the extent of their learning by doing something, such as responding to a test question or completing a homework assignment.

*Indirect assessment*: Involves a report about learning rather than a direct demonstration of learning.

Why do we need this kind of information?
Examples of Indirect Evidence

Student perceptions of their learning:

• Student self-ratings of knowledge and abilities
• Student reflections on what they have learned
• Student evaluations of their own work, ex. through application of a rubric
Examples of Indirect Evidence

Factors that influence student learning outcomes:

- Surveys of student attitudes
- Curriculum maps and course articulations
- Counts of types of assignments
- Counts of types of learning experiences in and out of the classroom
- Interviews with teaching assistants about their perceptions of student learning opportunities
- Descriptive data – demographics, etc.
# Forms of Indirect Assessment

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<th>Surveys</th>
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<td>Ranking</td>
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Complementary forms of direct & indirect evidence are most useful for learning about student learning

**DIRECT**
- *What* students know and can do.
- *How well* they can do it in relation to intended level of performance.

**INDIRECT**
- *Why* students are able to do what they do.
- *How* students have learned, to the degree that they have

When thoughtfully designed, one form of evidence can answer questions generated by the form, increasing confidence in, efficiency, and effectiveness of an assessment.
Complementary Evidence: Example

**DIRECT**

- Capstone research paper

**INDIRECT**

- Written reflection on how the paper illustrates achievement of one or more PSLOs, and what doing well and what needs more practice
- Number of papers of this type students write prior to this culminating assignment
Triangulation

Using multiple, complementary sources of evidence/data to answer a question about student learning.
Collecting Evidence: Lessons from Application

How can the findings from our work create lasting change for our students and ourselves?

What impact are we having on student learning? How do we improve?

What data do we already collect that help us make better decisions?

What new evidence can we gather?

How can we talk?

How do the data tell a compelling story?
Collecting Evidence: Lessons from Application

Creative collaborative dialogue

Fostering common purpose about key challenges and opportunities

Linking ideas to action

Encourage thoughtful experimentation

Develop a better appreciation for evidence in our decisions
Activity – direct and indirect evidence

1. Identify a form of direct evidence used in your program (or in a course you teach).

2. Identify an existing or possible form of complementary indirect evidence.

3. In what ways are they or could they be mutually informative?