AGENDA

- Exploring Course Concepts
- Developing Intended Learning Outcomes
- Assessment
- Teaching Activities
- Alignment
- Wrap-Up and Next Steps
Intended Learning Outcomes

Concepts
(Content: Knowledge, Skills and Values)

Teaching & Learning Activities

Methods

Formative/Summative Assessment

Course Design Fundamentals
CONTEXTUAL FACTORS

What questions do we need to ask about these contexts?
EXPLORING COURSE CONCEPTS

Outline

• Introduction to concept mapping
• Example of concept mapping process
• Creating a concept map for your course
• How can we use concept maps?
CONCEPT MAPS

Way to synthesize the core elements *(concepts)* of a course and think about how these concepts – content and skills – fit together

PLAN 431/614
ISSUES IN HOUSING
Instructor: Prof. Laura C. Johnson
COURSE CONCEPT MAP: ENGINEERING

Math Preliminaries

Kinematics
- Tensors
- Balance Laws
- Indicial Notation

Stress
- Tensor Algebra
- Tensor Calculus
- Principles

Constitutive Modeling

Solids

Viscoelastics/plastics

Fluids

Course Design Fundamentals
COURSE CONCEPT MAP: KINESIOLOGY

Introduction: What is ergonomics?

Physical Demands Description

Risk Factors Analysis

Risk Factors for reporting LBP

Tissue Injury

Engineering & Administrative Controls

Principles for Low Risk Materials Handling

Making Successful Ergonomic Change

Design Guidelines

Legislation
EXPLORING COURSE CONCEPTS

Free writing exercise

• Identify the key content (topics, themes) that students should gain from the course
• Brainstorm – no editing
EXPLORING COURSE CONCEPTS

• Select the most critical content
• Identify concepts in the course where students have difficulty yet, are key for future learning
• Write each key concept on a post-it note
• Arrange concepts in your folder to begin creating the concept map
• Identify relationships between concepts
SUGGESTED WAYS TO CRITIQUE A CONCEPT MAP

Ask these questions as each map is presented:

• Are any concepts stated verbally not included in the map?
• What is the specific relationship between/among each of the concepts?
• Is it easily apparent which concepts are central/important?
• Is it easily apparent which concepts are peripheral/less important?
• Have any relationships been overlooked?
• What would happen if “x” concept were moved?
WAYS TO USE A CONCEPT MAP

You may

• Choose to share with students or not
• Put in on course outline
• Reveal in pieces
• Highlight during the term how the different topics are present in the concept map
• Ask students to build their own map at the end of course and then reveal your own
LEARNING OUTCOMES
INTENDED LEARNING OUTCOMES (ILOS)

Outline
• Backwards design to course development – identify desired results first
• Discuss guidelines for writing learning outcomes
• Exploration of Bloom’s taxonomy
• Individual work on developing course-level learning outcomes
• Feedback on ILOs
FOCUS ON THE LEARNER

• Take a learner-centered approach
• Focus on what learners should be able to:
  • know
  • do
  • and/or feel
USE ACTION ORIENTED LANGUAGE

• Start with a “strong” verb such as solve, design, write, evaluate, define, etc.
• Avoid “weak” verbs such as know, understand, appreciate, etc.
• Use one verb per learning outcome – this keeps the learning outcome specific
• Differentiate goals from means:
  “critique this argument” versus
  “write an essay critiquing this argument”
MAKE THE ILO ASSESSABLE

• How will you know the student has achieved the outcome?
• Can the outcome be reasonably accomplished and demonstrated by the student within the timeframe of the course?
BLOOM’S TAXONOMY OF EDUCATIONAL OBJECTIVES

Three Domains of Learning:

- **Cognitive**: mental skills (Knowledge)
- **Affective**: growth in feelings or emotional areas (Attitude)
- **Psychomotor**: manual or physical skills (Skills)
Hierarchical Model for Cognitive Domain

Remember (Knowledge)

Understand (Comprehension)

Apply

Analyze

Evaluate

Create (Synthesis)

A Model of Learning Objectives

A statement of a learning objective contains a verb (an action) and an object (usually a noun).

- The verb generally refers to [actions associated with] the intended cognitive process.
- The object generally describes the knowledge students are expected to acquire or construct. (Anderson and Krathwohl, 2001, pp. 4–5)

In this model, each of the colored blocks shows an example of a learning objective that generally corresponds with each of the various combinations of the cognitive process and knowledge dimensions.

Remember: these are learning objectives—not learning activities. It may be useful to think of preceding each objective with something like: “Students will be able to…”


Model created by: Rex Heer
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Center for Excellence in Learning and Teaching
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For additional resources, see:
www.cetl.iastate.edu/teaching/RevisedBloom1.html
DEVELOPING ILOS

What do I want my students to be able to do, know, &/or feel by the end of my course?
CHECKING QUESTIONS

• Are the ILOs specific?
• Do they focus on the learner instead of the instructor?
• Do they fit with the contextual factors?
• Do they fit with the philosophy?
• Do they encompass the content areas?
• Do they indicate what students should be able to do, know, and/or feel by the end of the course?
LUNCH

11:50 am - 12:30 pm
ASSESSMENT

Outline:

• Framework for assessment
• Generating ideas of assessment tools
• Assessments present a learning opportunity
EXPLORING CONCERNS ABOUT ASSESSMENT

• Assumptions
• The case for Pre-assessment
FRAMEWORK FOR ASSESSMENT

OBSERVATION
Obtaining evidence of learning

INTERPRETATION
Reasoning from the evidence

PURPOSE
Why am I assessing?

LEARNING OUTCOMES

PURPOSE
FORMATIVE AND/OR SUMMATIVE

• Formative Assessment:
  » Is given to students during the course
  » Involves dialogue
  » Is often ungraded

• Summative Assessment:
  » Occurs during the term and/or at the end
  » Involves little to no dialogue
  » Is graded

OBSERVATION
HOW WILL YOU ASSESS HOW WELL YOUR STUDENTS ARE MEETING THE INTENDED LEARNING OUTCOMES?

- Gathering evidence
- Group brainstorm: Assessment tools
- Task: Identify appropriate tools for gathering evidence for the learning outcome you selected
- Share your list with a colleague
INTERPRETATION

• Criteria
  » Dimensions along which to judge how well a student has carried out the assessment task

• Standards
  » Scale or levels for judging the students’ performance on each dimension
## EXAMPLE: RESEARCH PAPER

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relative importance of sources to subject</td>
<td>Poor</td>
</tr>
<tr>
<td>Quality of writing</td>
<td>Adequate</td>
</tr>
<tr>
<td>Quality of argument</td>
<td>Good</td>
</tr>
<tr>
<td>Integration of course concepts</td>
<td></td>
</tr>
</tbody>
</table>
ASSESSMENT CONSIDERATIONS

• What fits with your contextual factors?
• Have you assessed your ILOs?
• What needs to be graded versus ungraded?
• What type of assessment is sufficient?
• What can be done in and out of class?
• How much time will the grading take?
• Will you have teaching assistants?
• What are the demands on your students in their other courses?
INSTRUCTIONAL STRATEGIES = LEARNING ACTIVITIES

What are we designing for?

• **Learning** time NOT teaching time
• **Out-of-class** as well as in-class learning
  - e.g. 72 hours, vs. 36 hours
• **What do students need?**
  - Successful experience of the expected outcome before summative assessment/ grading

Adapted from: Teaching and Learning Services, McGill University
ACTIVITY CONSIDERATIONS

• What can we do to cement our students’ learning?
• Do they need to read, to explore, or to apply?
• Where can we give them (the students) some latitude/freedom to explore and where must it be directed?
INSTRUCTIONAL STRATEGIES

What is our responsibility?

- Balance informing and providing opportunities for successful practice in and out of class
- Informing = providing information about the subject matter and learning tasks
- Practice = providing structured activities with feedback with structure and feedback reduced over time
Active learning can indeed involve some physical action that requires the students to do something or observe something (some form of experience).

Active learning can also be a reflective dialogue either with others or with oneself (individual reflection).

What distinguished active learning from other types of learning (receiving information and ideas) is that it is NOT passive.

Students interact with the subject matter in some way – they are engaged.
WHAT ACTIVITIES COULD YOU USE TO HELP LEARNERS ACHIEVE YOUR COURSE OUTCOMES?

Think, pair, share.
ALIGNMENT
COURSE DESIGN MODEL

Intended Learning Outcomes

Concepts
(Content: Knowledge, Skills and Values)

Methods

Teaching & Learning Activities

Formative/Summative Assessment

Course Design Fundamentals
ALIGNMENT

• Turn to pp. 7 & 8 of your handout (alignment charts)
• Try to complete one of the alignment chart
• Discuss with a colleague using “checking questions”
ALIGNMENT CHECKING QUESTIONS

• Are there more suitable activities to achieve the outcome?
• Have I used a range of activities to allow students to demonstrate a particular outcome?
• Are there opportunities for practice and feedback?
• Is there opportunity for both formative and summative assessment
• Did I use the appropriate language/verb for the learning outcomes (Bloom’s taxonomy)?
• Am I addressing the three domains, as appropriate for my intentions for the course?
WRAP-UP AND NEXT STEPS
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Course Design Fundamentals