**NFO Session - Teaching Resources**  
**August 15th 1:00–2:00**

**Materials: (Have a couple copies of ea. resource in case of interest)**
- Voting arrows, 3X5 cards.
- Before you start
  - Learning Outcomes HO
- On day one
  - “An improved design for in-class review”
  - Mines syllabus template
  - Example syllabi: EENG386, PHGN100, PHGN350 (not printed)
  - Motivational course-level learning goals
- As you go
  - Active Learning Strategies Cards (3 sets printed and cut)
  - Freeman et al. paper
  - Clicker Guide (not printed)
  - Teaching Practices Inventory

**Framing/Introductions (5 min - KC)**
- KC and SBR introduce themselves

- Quick check at the beginning – show of hands (slide 1)
  - Taught before?
  - Taught some version of the class(es) you’re teaching in this upcoming year before?
  - Familiar with learning outcomes?
  - Are teaching a class with sections smaller than 20? Between 20 and 50? Greater than 50?

- Session Learning outcomes (slide 2)
  - Articulate preliminary learning outcomes for a course you are teaching this year
  - Identify strategies to establish a productive classroom environment from day one
  - Select one active learning technique you plan to use this semester

- Structure (slide 3)

**Before You Start (12 minutes - SBR)**

- Remind of EL framework slide – highlight Course Design: Learning Outcomes

- (In pairs - slide 4) LO practice: What is one thing you hope students will be able to do by the time they finish your course? *By the end of this course, students will be able to...* (4 min - remind them to switch at 2 min)
• (Slide 5) A few examples of good learning outcomes. You might have come up with something like…
  o Identify applications of electromagnetics in your daily life and your work as an engineer, and employ EM concepts and terminology to explain how these technologies work.
  o Interpret physical phenomena portrayed by different representations (e.g., pictures, graphs, equations) and translate between different representations as needed.

• (Full group brainstorm) Why is it helpful to articulate learning outcomes? (2 min)
  o Guides selection of tasks, assignments, and content
  o Makes expectations clear to students
  o Supports motivation when students understand the purpose for and relevance of what they are doing in class

• (Lecture) Tools for writing learning outcomes (2 min) – give HO here
  o Alignment triangle -- connects with the benefits they should have identified above
  o 6–8 for the entire course; may also have session-level outcomes
  o Bloom’s verbs
  o Trefny website: Learning Outcomes Page

• Practice writing one learning outcome individually, based on the thing they identified earlier (3 min)

Day One (12 minutes - KC)
• (Think-pair-share) What is important to accomplish on the first day? What are some ways to do that? Record on whiteboard, compare with our list.
  o Get to know students
  o Share instructor(s) background(s)
  o Set course expectations
  o Convey course structure
  o Communicate value, relevance, and excitement
  o Review pre-requisite material

• Examples
  o Pre-Course Quick Write
  o Norms Setting Activity (actually do an abbreviated version of this)
  o Two-stage review quiz (if time)

• Thoughtful Syllabi

As You Go (12 minutes - SBR)
• Transition: many of the examples Kristine has shared are examples of active learning, which is broadly defined as any learning activity that engages students above and beyond passively listening and taking notes

• Share the Freeman et al. 2014 paper, predict the results (4 min)
  o Predict direction
• Predict amount: 6% for performance, 1.5x less likely to fail in AL classes

• (Full group) Have them identify examples we’ve modeled in the workshop (3 min)
  o Pre-knowledge check questions
  o Discuss LO in pairs
  o Full group brainstorm for purposes of LO
  o Apply what we learned about LO to own course
  o Predict results of Freeman paper
  o Think-pair-share for day one
  o Norms setting exercise
  o ...this activity
  ---mention there are active learning cards as a resource on their NFO page.

• Examples of CQs, end of class reflection, why they are useful (2 min - KC)
  o Revise this to a different type of question
  o Add question that KC uses on first day of Phys 1 with the tennis racket and balls example

Wrap Up and Resources (8 minutes - KC)
  • (Think-pair-share)
    o What “day one” activity seems the most promising to you and why?
    o Look over; identify one (new) strategy you might use when you teach, ideally one that will help students practice some aspect of the learning outcome you articulated earlier. How might you implement it?
      • Reference Active learning strategies cards again.

• Resources in website; ones we haven't mentioned yet:
  o Teaching Practices Inventory
  o Trefny Center
    • CAT book
    • ECFs

• Point out web url so they can download slides and resources