Solid and Hazardous Waste Management (#4) [Please sit with your project group]

## Mindfulness

## Website Updates

#### Last class and lectures

- Can't say enough how happy and excited I am that you all were providing feedback and actively participating in shaping your learning experience. That was a big goal I had for this class.
- ▶ I thought long and hard about lecturing on Solid and Hazardous Waste Management, but still can not get onboard, because I feel it would get away from evidence-based active learning, and also run the risk of biasing the learning with my own filters and views.
- ► This reflection also made me realize I might not be scaffolding and justifying active, project based learning enough.

## Active learning

▶ Active learning is "a suite of pedagogical approaches that engage students in the construction of knowledge through activities and discussion in class, as opposed to passively listening to an expert." - Theobald and Freeman in "Active Learning: Hands on Meets Minds On"

## Active learning improves learning outcomes

■ "The results raise questions about the continued use of traditional lecturing as a control in research studies, and support active learning as the preferred, empirically validated teaching practice in regular classrooms." - Freeman et al. in "Active Learning Increases Student Performance in Science, Engineering, and Mathematics."

# While students learn more with active learning, they perceive they learn more in lectures!

"Students learned significantly more with active learning (as expected), and they also felt that they learned from it—but their feeling of learning was more pronounced with the well-presented traditional lectures." - Deslauriers et al in "Active Learning: Hands on Meets Minds On"

## Counterintuitively, it might be good sign folks are feeling daunted, confused, frustrated, or doubtful

- It's okay and normal to feel confused, frustrated, etc. (Cavanagh)
- ▶ It's normal to resist new forms of teaching/learning (hooks)
- These feelings can be a part of a rewarding learning process (hooks, Cavanagh)
- ▶ Important: discomfort or mild anxiety can help or be a part of the learning process, but high anxiety is detrimental; so please please communicate if you are feeling really anxious about anything in this class.
- Mindfulness can help (Cavanagh, Nhat Hanh)

## I'm asking for your trust

- ▶ That this more active, project based learning can work
- ▶ Please please keep giving me feedback and contributing learning ideas; the fact that I won't lecture on Solid and Hazardous Waste Management does not mean I didn't hear and really think hard about your feedback (I feel like Tuesday could be a breakthrough). Within active learning, there are so many knobs to tune (for example structure), and these can be tailored to each group and individual .
- Let's try this! There's tons of opportunity and what is the worst that can happen?

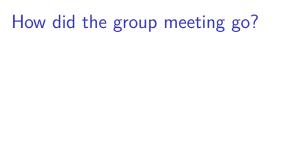
## ... and I also want to advertise what we've accomplished in two days of class with tons of logistical challenges

- ► This long list of project ideas that exceeds the breadth of any of the course syllabus I've seen (past 4160, MIT courses)
- ► These learning objectives:
  - 1. Define solid waste.
  - 2. Define hazardous waste.
  - 3. Identify and define solid and/or hazardous waste streams in different project areas.
  - 4. Generate exploratory intervention ideas related to different project areas.
- Discussion on perspective taking (earthworms, bacteria) and reciprocity in waste management.
- Discussion on interdependence and coupling between consumption, waste management systems, and behavior.

## Return to Class Structure Brainstorm

### Group meet!

- Introduce yourselves if you have not (names and preferred pronouns)
  - Also introduce something non academic you've been into lately (song, book, TV show, food spot, local park, movie, stretch of street or trail, museum, sport, etc.)
- Brainstorm a group project idea; brainstorming doc is available from the website and in your Group's Google folder.
- Brainstorm a group name or mascot?
- ▶ If you would like to do more background research before picking a group topic that is fine; I recommend pair research (e.g. 2-3 people per a computer/device). Possible tools include the MIT courses linked on the website, Thanos's slides, Wikipedia, Google Scholar, CLIO, Web of Science.



### Next activities: choose our own adventure

- ▶ Research approach (google scholar, CLIO, web of science, nypl)
- Introduce my project idea
  - Building scale NYC compost, possibly implemented city-wide.
- Return to Groups for more project discussion
- ► Return to Groups for image hunt

## What would be helpful for next class?

- ▶ Anything specific you want me to prepare for Tuesday?
- More or less, or about right, structure to group work?

## Last logistical things

- ▶ Edit of community agreement to be more explicit
- ► Names recordings on Courseworks?

## Thank you! and plan for Tuesday

- Each group will introduce themselves and their initial project ideas (or questions and issues they ran into while trying to converge on a project idea).
  - ► Goal: informal, conversational and low stress