#### Active Learning in Large Lectures

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#### Intended Learning Outcomes

Understand principles of cognitive processing
Structure a lecture for maximum effect
Identify ways to engage a large audience (do you have the handout?)

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# Why lecture at all???

- Efficient
- Knowledge transfer
- Review developments
- Highlight key issues
- It's what we have always done????



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# Cognitive processing

- Inputs from sensory systems
- Process/identify the information
  - Familiar? Unfamiliar?
  - Determine where it 'goes' or what it is 'like'
- Place into storage or memory
  - Context, coding, anchoring

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# New vs. Familiar Information

- New information requires processing time
- Familiar information requires time to connect and catalogue
- How do you help people do that?
- How do you make the knowledge stick??



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## Anatomy of a lecture

- Data shows that attention is highest for first 10-15 minutes and the last 5 minutes
- Break it into chunks
   SIGNALS
   SUMMARIES
   SEGUES







#### **Presentation Skills**

- Visual aides
  - Pictures, diagrams, slide animations, videos, audio
- Voice tonality, pacing, volume
- Metaphors
  - "making it stick"
  - Culturally relevant and respectful
- Stories
  - Establish context, allows for processing time
  - Can act as a summary or reinforcement



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## Role of the listener

- Preview the material (come prepared)
- Taking notes
  - Verbatim
  - Concept mapping
- Review/reflect soon after the session to solidify information in memory



#### Add activities!

#### • Handouts

- You are filling one out now!?
- Interactive: outlines, fill in the blanks, questions
- Static: key or complex components, transcripts
- Questions
  - Stand up/sit down
  - Hold up colored-cards or signs with numbers/letters

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### Add activities!

• One minute papers Discussion groups - Problem sets - Controversial issues Technology (later segment) Game shows/competitions

• "Think-pair-share"



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# "Flipped Classrooms"

- The new new thing!!?
- Students watch instructional videos and are given tasks/questions and come to class prepared
- Class time is spent in active engagement with the material
- Requires careful planning, and the opportunity for real-time small group processing

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#### • Summary slide