Review of Week 1
What is Cognitive Science -
- How are the disciplines related and
- What are the main objectives of the field?

The ability to learn and understand language is an extremely complex process. Is there something intrinsic in the human brain that enables language or is it experience?

What does it mean to “read the mind?” What is BCI?

What was special about the robotic hand?

How does cognitive science differ from computer science, neuroscience, philosophy, psychology and linguistics?
Readings - Week 1

- Sleep – Chapter 6
- Degenerative Disorders – Chapter 12

**Chapter 6: Sleep**

**In This Chapter**
- Brain Activity during Sleep
- Sleep Disorders
- How Is Sleep Regulated?
- The Sleep-Wakefulness Cycle

**Chapter 12: Degenerative Disorders**

**In This Chapter**
- Alzheimer's Disease
- Amyotrophic Lateral Sclerosis (ALS)
- Huntington's Disease
- Parkinson's Disease
Readings - Week 1

- Why Can’t We Fall Asleep
- The Work We Do While We Sleep
- The Walking Dead
- Clocks Within US
What happens to your body when you fall asleep?
What is the role of melatonin and light in regulating circadian rhythms?
How does light help the body predict ‘tomorrow’?
What is so important about blue light?
How does the superchiasmatic nucleus synchronize the body clocks?
What is a zeitgeber? What are the examples from lecture and readings?
How are we similar to cyanobacteria?
How is the functionality of insulin affected by time of day?

Why does Klerman (in the reading) state: “When you go to bed affects how long you sleep, no matter how tired you are.”?

What factors are associated with our ability to go to sleep?

What is sleep hygiene?
  - Compare the effects of good and bad sleep hygiene.
  - What are the components of good sleep hygiene?
  - Can sleeping aids overcome the effects of poor sleep hygiene? Why? Why not?

What are the effects of chronic sleep deprivation? (REM sleep behavior disorder, sleep apnea, etc.)
What are the short term effects? What are the long term effects?

How is cognition affected by lack of sleep? Why? Examples?
- How could lifestyle choices alter the onset of cognitive impairment?
- What is the glymphatic system? How does that relate to removal of toxins from the brain?

What is sleep inertia?

What is the cognitive and physical performance of someone who has not slept in a 24 hour period?
- How is sleep regulated? (Neurotransmitters, regions of the brain, homeostatic system, etc.)
- ‘Plaques and tangles’ are a hallmark of which neurodegenerative disease?
- How role might the glymphatic system have in forestalling the onset of Alzheimer’s Disease (AD)?
- What are the lifestyle changes that one could implement to lower the risk of AD?
- What is Amyotrophic Lateral Sclerosis (ALS)?
- What type of neurons are most affected by ALS?
- What regions of the brain are most affected by Huntington’s Disease?
- What behaviors would you expect to see in a patient with Huntington’s Disease? ALS? Alzheimer’s Disease? Parkinson’s Disease?
- What happened to drug addicts who used MPTP?