

Sensing the world-some basic principles

- **Sensation**-the experience of having your sense organs stimulated, having stimulation from outside world reach sense organs
- **Perception**- interpreting the sensations that are experienced, to recognize meaningful objects and events
 - o Knowing who your best friend is
 - o Can smell coffee
- Ambiguous images-images with multiple interpretations-same sensations with different perception (cube, man with sax/woman)
- **Prosopagnosia**-inability to perceive faces even though vision is fine (specific to faces)
 - o Can see the face, and see the properties of it, but cannot tell who it is
 - o Sensation without perception
 - o Caused by damage to FFA (area of brain with face recognition)
- **Bottom-up processing**- analysis beginning with sensory receptors and works up to brain's integration of sensory info
 - o Stimulus driven processing
 - o Image constrains your interpretation
- **Top-down processing**- info processing guided by higher-level mental processes (experience, expectations)
 - o Impose them on thing that's put object in front of you
 - o Experience/expectation driven
 - o Both bottom-up and top-down
- **Thresholds**
 - o **Psychophysics**-study of relationship between physical characteristics of stimuli and our psychological experiences of them
 - o **Absolute threshold**-minimum stimulation needed to detect particular stimulus 50% of the time

- If presented with stimulus 100 times, will react to it 50 times
- o Signal detection
 - Signal against background noise
 - Ability to detect that against background noise will be affected by experience, expectations, motivation, and fatigue
- o Subliminal stimulation
 - Subliminal-below your threshold or conscious awareness
 - even though you don't detect it the first time, it could effect you later on
 - Priming-activation of activations that you're often unaware of, that activation can influence later behavior
 - Exposure at time one, influences what you do at time two
 - Activates neurons at time 1, even though you're unaware of it
- o Difference threshold-minimum difference a person can detect half of the time
- o Weber's law-its not the amount of difference that matter but the proportion of difference that matters
 - Vary by constant proportion, not by constant amount
 - When add a second pen to your hand, you notice the weight difference
 - When add pen to your backpack, you don't notice the weight difference
- Sensory adaptation- diminishing sensitivity to an unchanging stimulus
 - o If stimulus remains constant, you stop noticing it
 - In stinky room, get used to it

Vision

- Stimulus input- light energy
 - o Transduction-transforming one form of energy to another

- o Wavelengths determine hue
 - Short wavelengths-blue
 - Long wavelengths-red
- o Amplitude (height) of waves determine how bright light is
 - Higher amplitude-brighter
 - Lower amplitude-dimmer
- The eye
 - o Pupil-hole in eye,
 - allows light to enter
 - o Iris-muscle that surrounds pupil (gives color)
 - regulates amount of light allows to enter-constricts or expands
 - Emotions, drugs, ambient light can influence how much light is allowed in your eyes
 - Dim conditions-pupils will dilate, iris will expand
 - Bright conditions-pupils will be smaller, iris will constrict
 - o Cornea-clear coating over the front of your eye
 - focus the light, protective mechanism
 - o lens-sits behind the pupil
 - second thing responsible for focusing light
 - o retina-back of eye
 - where all the light energy hits
 - photo receptors located here-detect light energy