Note Feb. 2

Chapter 3: Biological Psychology

- Chemical communication throughout the body: hormones
    - Estrogen, testosterone, progesterone, thyroid, human growth hormore
    - Brain can control hormones but hormones are not the same thing as neurotransmitters
- Reminder: synapse is a space
- What happens once the neurotransmitter sends/receives their receiver?
    - Reabsorption by the axon, effectively stops the signal
    - NT can diffuse out of the synaptic space
    - NT can be removed as waste product
        - Removed by glia
    - Whichever one happens depends on the situation
    - Many drugs act by encouraging on of these processes by allowing the signal to last longer than its supposed to or not as long
    - Antidepressant → SSRI → Selective Serotonin Reuptake Inhibitor
        - Serotonin makes you happy
- Neurotransmitters and behaviors
    - New understanding of the role of NT has revolutionized the health science
        - Drugs act on certain receptors
        - Unusual behavior may be due to the lack of or too much of a NT
- Psychoactive/Illicit Drugs
    - May produce (un)desirable effects
    - Study how drugs affect the brain gives us greater insight into how the brain works
    - Drugs effect NT release
    - Norepinephrine – energy
    - Dopamine – reward system
    - Serotonin – feel good
- Stimulants
    - Boost energy
    - Heighten alertness
    - Increased activity
    - Pleasant feeling
    - Faster something reaches the brain, more likely to be addictive
    - Is Caffeine a Drug?
        - YES
        - A drug is a substance other than food intended to affect the structure or function of the body
    - Nicotine/Tobacco
        - Reaches the brain smoking in 8 seconds, chew takes 3-5 minutes
        - Fast action = very addictive
        - Tobacco kills more than 430,000 Americans each year
        - Most preventable cause of cancer in the US
- Depressants

- Decrease physiological arousal
- Commonly used depressants: alcohol and tranquilizers
- Alcohol
  - Small molecule, soluble in lipid and water solutions. Because of its solubility it gets into the blood stream fast
  - Small amounts result in relaxation
  - Big amounts encourage risk taking behaviors and aggressive behavior
  - Effects GABA inhibitor
  - Look at alcohol effects slide
  - NOT FOR BABIES
    - Fetal Alcohol Syndrome is the number one preventable cause of mental retardation
- Tranquilizers
  - Help fall asleep
  - Help with epilepsy
  - Barbiturates proved so addictive we don't use them today

- Narcotics
  - Brain produces endorphins which bind to opiate receptors
  - Released when pain or stress is felt
  - Narcotics cause drowsiness, insensitivity to pain, and decreased responsiveness to environmental stimuli
  - Opiates are a common type
  - Hard to come down off of
  - Creates feeling of euphoria
  - Take more to stay from the low felt before evening out again
  - Cannabis
    - Considered a narcotic (politically)
    - Marijuana has pain suppression and helps with nausea
    - Its not benign but less addictive
    - Impairs learning and behavior, can hurt lungs, THC likes hippocampus and inhibits it
    - Marijuana is no more of a gateway drug than alcohol and tobacco
  - Opioids
    - Heroine is smokes or inhaled as a powder and can be mixed with water, heated, and injected. Heroine is very lipid soluble

- Hallucinogens
  - Sensory distortions and false sensory experiences
  - Peyote – naturally derived. Used in native American religious ceremonies
  - LDS – artificially manufactured. Alters serotonin receptors
  - MDMA – acts as a stimulant at low does and a hallucinogen at high doses (E, Ecstasy, molly, X)