STUDY SHEET FOR EXAM 2: PSYCH 2210

FORMAT:
- 45 Multiple Choice and True/False Questions (3 pts each)
- Exam is during class time
- **Best way to study:** try to define/identify terms below without looking at notes or text. Then go back and check.

TEXT MATERIAL:
*Addiction:* Chap 5: p 142-153

*MDMA:* Chap 5 p139

*Methods:* You are responsible for material in Chap 4: p 99-111. Focus on techniques we covered in class.

*Sexual Orientation:* Chap 7: 207-225

LECTURE MATERIAL:

**Addiction**
*Definition*
Interaction of biology & environment

*Brain Reward Circuit*
Know anatomy of the circuit: Ventral Tegmental Area; Nucleus Accumbens
Role of Dopamine

*Evidence*
Receptor Binding Studies: which structures are labeled
Microdialysis studies measuring neurotransmitter release
Natural Rewards: food; sex

*Intracranial Self-Stimulation studies*
Drug Self-administration studies
Effects of requip (e.g., used in treatment for Parkinson’s)

*Risk factors*
Age at first use
Genetics
Relationship to mental illness
Impoverished environment

**Drug, Brain & Behavior**

*MDMA*
Pure MDMA vs."Molly"
Psychological & Physical effects of MDMA
Role of serotonin, norepinephrine, dopamine on specific effects
MDMA effects on brain activity & connectivity
MDMA effects on negative vs. positive memories
Use of Psychedelics in Therapy
MDMA and treatment for PTSD
Psilocybin and treatment for anxiety/depression
Potential issues

Methods

Measuring Electrical Activity
- Single cell recordings: definition, what is recorded
- Stereotaxic Surgery
- EEG: definition, what is recorded
- ERP: definition, what is recorded
- Advantages and disadvantages of ERP/EEG vs. single cell recording

Imaging Techniques

Structural Imaging
- CT scans: definition, what they measure
- MRI scans: definition, what they measure
- Comparisons of CT to MRI: pros & cons of each

Functional Imaging
- PET: definition, what it measures
- fMRI: definition, what it measures; BOLD response
- what does brain “activity” mean
- Problems with imaging designs

Experimental Manipulations of Brain Activity
- Lesions/inactivation
- Transcranial Magnetic Stimulation (TMS)
- Intracranial brain stimulation
- Optogenetics

The Sexual Brain

Prevalence rates; gender differences; methods to estimate rates

Sexual Differentiation
Biological Sex
Gender Identity
Sexual Orientation
  Hormones: organizational vs activational effects

Sex determination
Genotype vs. phenotype
Sry gene
Indifferent gonads
Genital Tuberde
Wolffian Ducts
Mullerian Ducts
Steps in male phenotype
Steps in female phenotype

Clinical Cases: phenotype vs. genotype
Congenital Adrenal Hyperplasia (CAH)
Androgen Insensitivity Syndrome (AIS)
Turner’s Syndrome
5-Alpha-reductase deficiency

Organizational Effects of Hormones
Sensitive period
Sexual Dimorphism
Sexually Dimorphic Nucleus (SDN)-POA
Role of Testosterone
Organizational Effects and Sexual differentiation

Fetal Hormones and Sexual Orientation
Theories about sexual orientation: Nature vs. Nurture

Freud
Social Constructivism
Prenatal Hormones: Ellis & Ames Hypothesis

Evidence for Prenatal Hormone Hypothesis
Prenatal hormones produce sexually differentiated effects on body, brain, behavior
Prenatal hormones & partner preference in animals
Sexual Dimorphism in humans: markers of prenatal testosterone; pattern in gay and lesbian individuals

2D-4D ratio
otocoustic emissions
INAH-3 (LeVay Study)

Clinical Studies: what is the prenatal hormonal level; what is adult sexual orientation?

CAH females
AIS individuals
5-alpha reductase individuals
John/Joan case study

Genetic & Immunological Factors
Twin studies: rates in identical vs. fraternal twins
Hamer Studies: genetic markers & sexual orientation
Fraternal Birth order effects

Gender Identity
Size of Bed Nucleus of the Stria Terminalis in M, W, Transgender individuals