

## PSYC 100: GENERAL PSYCHOLOGY EXAM #2 STUDY GUIDE

I strongly suggest that you first organize your notes, examples, reading reviews, application of psychology assignments (and do it well before the exam date). Then, use this study guide as a last step in studying. Remember this is only a guide. Material not listed here may still appear on the exam. Anything presented in class or the textbook is fair game.

The reading review questions and learning the definitions are the first step. You must at least know what the terms even mean. However, memorization alone will NOT be enough. Use examples from class and the textbook to help you understand the definitions. When you use the examples instead of just the word-for-word definitions, you are developing the ability to see a new example and ask yourself, "Which other example does this new one sound like most?" You will be more successful if you have a goal focused on understanding and applying your knowledge. Use the i>Clicker questions, class discussions, and application assignment questions to guide how you should be thinking about the material.

Now that we're on our second exam, remember that all exams are semi-cumulative. The exam will focus on new content, but some material, especially foundational material (i.e., Chapters 1-3) will be repeated. It is worth your time to make sure you consistently understand research methodology - did you make that organizational graphic I suggested previously?

Happy Studying!

### SENSATION & PERCEPTION

- What is sensation and what is perception?
  - o Sensation: detection of physical stimuli (light, sound, waves, molecules, odor, temperature, pressure change) and transmission of that information to the brain; no interpretation needed, essence of sensation is detected
  - o Perception: the brain's further processing, organization, and interpretation of sensory information; results in our conscious experience of the world, essence is construction of useful and meaningful information about a particular sensation
    - Ex. Phantom limb: an arm amputated - feel as if arm is folded behind back which brings an uncomfortable pain that cannot be helped
  - o How are they distinct but how are they intertwined?
    - Essence of sensation is detection, the essence of perception is construction of useful and meaningful information about a particular sensation
    - Experience guides sensation and perception and vice versa
    - Bottom-up processing: perception based on the physical features of the stimulus

- Top-down processing: how knowledge, expectations, or past experiences shape the interpretation of sensory information
- o Michael Shermer's TED talk. How did this video example relate to this chapter content?

Tip! Watch UD Capture if you missed taking notes on a video or anything else from class.

- How do we see?
  - o Track the path of how external sensory information ultimately gets processed by the brain for vision.
    - 1. Physical stimulus: light waves reflected from the image pass through the cornea and enter the eye through the pupil, lens focuses the light on retina
    - 2. Sensation: sensory receptors in the retina, called rods and cones, detect the light waves
    - 3. Transduction: rods and cones convert light waves into signals, signals processed by ganglion cells which generate action potentials that are sent to the brain by the optic nerve
    - 4. Perception: signals from each visual field are processed on one side of each retina, travel along optic nerve and through the thalamus and they are processed in the visual cortex that is opposite the visual field
  - o Identify parts of the eye
    - Retina: the thin inner surface of the back of the eyeball; it contains the sensory receptors that transduce light into neural signals
    - Rods: retinal cells that respond to low levels of light and result in black-and-white perception
    - Cones: retinal cells that respond to higher levels of light and result in color perception
    - Pupil: dark circle at the center of the eye, is a small opening in the front of the lens
    - Iris: circular muscle determined the eyes color and controls the pupil size
    - Accommodation: flatten it to focus on distant objects and thicken it to focus on closer objects
    - Fovea: the center of the retina, where cones are densely packed
    - Ganglion cells: first neurons to generate action potentials
    - Optic nerve: gathered into a bundle, exits the eye at the back of the retina
    - Optic chiasm: half of the axons in the optic nerves cross

- Primary visual cortex: cortical areas in the occipital lobes at the back of the head
- Ventral stream: specialized for the perception and recognition of objects
- Dorsal stream: specialized for spatial perception determining where an object is and relating it to other objects in a scene
- o What are the relevant areas of the brain for vision?
  - Step 1. Cornea, pupil, retina
  - Step 2. Cones, rods
  - Step 3. Ganglion Cells
  - Step 4. Right visual field, left visual field, optic nerve, visual cortex.

Tip! See if you could re-create the steps of Figure 5.11 about how we see.

- Touch perception
  - o Haptic sense: conveys sensation of temperature, pressure and of pain
  - o Kinesthetic sense: comes from receptors in muscles in tendons, and in joints
  - o Track the path of how external sensory information ultimately gets processed by the brain for touch
    - 1. Stimuli: When you touch something, your skin registers the temperature and pressure
    - 2. Receptors: temperature and pressure receptors in your skin transmit that signal
    - 3. Pathway to brain: along the 5<sup>th</sup> cranial nerve (for touch above the neck) or spinal nerves (for touch on or below the neck), through the thalamus, to other areas of your brain
    - 4. Resulting perception: as a result, you know how the touch feels
  - o Pain perception
    - Two types of pain
      - Myelinated fibers process information about sharp sudden pain
      - Nonmyelinated fibers process chronic dull pain
    - Gate Control Theory: We experience pain when pain receptors are activated and neural gates in the spinal cord allow the signals through to the brain.
- Visual perception: The sense of sight and the information that is taken in through the eyes.
  - o Why are optical illusions important to the study of how we perceive the world? They are tools psychologists have for understanding how the brain uses