

# Psychology 4910 - Review of Chapters 1 - 6

## Lecture Notes

Review Questions:

*1. What makes psychology a science? Describe developments in methods and theory which make psychology a science.*

### **Chapter 1: Science, History and Psychology**

- **Positivism:** goal of science is to describe natural events in terms of natural laws (mathematical formulas), to make predictions, & to control nature.
- See Logical Positivism in Chapter 11: Behaviourism
- **Causal explanations** - sequence of events causally linked.
- Semantic approach - Models, e.g. computer simulation
  
- The View from Nowhere – objective, replicable data

### **Chapter 2: Legacy of Ancient Greece**

- open system of thought (Thales of Miletus, Socrates) → disagree with a person's theories and arguments while still respecting the person
- Aristotle: importance of observing nature. - focus on material world.
- physicians (Alcmaeon & Empedocles)- did dissections → psychological science must be consistent with knowledge of human anatomy and physiology

### **Chapter 3: Antiquity**

- importance of eliminating supernatural explanations of natural phenomenon. Can't appeal to angels, demons, gods, magical powers, ghosts, spirits etc.
- Separation of faith and reason (St. Thomas Aquinas, Ockham)

### **Chapter 4: The Premodern World**

- artisans & trades people - developing technology (clocks, telescopes, microscopes)

### **Chapter 5: The Scientific Revolution**

- universe viewed as giant clock; could therefore be understood through observation, reason & experimentation. Newton's contribution
- Experimental science begins (Bacon).
- Descartes & others performing dissections of animals, Descartes seeing the body as a machine.
- Conscious as something worth studying.
- Blaise Pascal - first calculator - notion of thought as mechanical

### **Chapter 6: The Enlightenment**

## **Chapter 7: The Ascent of Science**

- positivism developed as theory of science (August Comte, Ernst Mach)

### **Developments in Scientific Methodology**

- physiology: studies of nerve conduction
- Francois Magendie & Charles Bell: distinction between afferent and efferent nerves in spinal cord → notion of reflex arc → reflex theory of the brain
- Donders - subtraction method. Important for 20<sup>th</sup> century cognitive psychology
- Fechner - psychophysics
- mental testing: Galton, Binet
- case studies in psychiatry

### **Developments in Psychological Theory**

- British empiricists (John Locke, David Hume, Thomas Hobbes, David Hartley, James Mill, John Stuart Mill) - mechanical model of perception, perceptual & conceptual learning, thinking
- mechanical model of motivation → Utilitarianism

## **Chapter 8: Wundt**

- Wundt's attempts to study thought processes under controlled conditions, varying the stimuli.
- apperception experiment: Sperling
- Ebbinghaus' study of learning

### ***4. Discuss developments in physiology and how they have influenced ideas about how the mind works.***

## **Chapter 2:**

- Alcmaeon - physicians, studied perception. Alcmaeon dissected the eye & traced optic nerve to the brain.
- Empedocles proposed theory of perception
- Aristotle's father was a physician; Aristotle was more of a biologist. Carefully observed animals & humans, and thought about the implications of what he saw. Noted the similarities between humans and animals & the continuity of life (Scala Natura).

## **Chapter 3:** Failure to perform dissections in middle ages → speculation about location of faculties rather than linking of brain function to brain anatomy

## **Chapter 4:**

- Descartes did dissections, saw human and animal bodies as machines. Saw that anatomy would help explain sensation and other psychophysiological functions. Aware of conflict between religion and science in that psychological functions (memory, thought etc) had always been attributed to the soul. Had to keep something (soul) that was not material, but was eternal, spiritual.
- Pascal – mechanical calculator → thinking as being mechanical process
- Hartley – relating Hume's ideas to proposed physiological processes
- British Empiricists – emphasis on learning and sensory experience



**Chapter 7: The Ascent of Science**

- Development of a number of experimental techniques

**Chapter 8: The Psychology of Consciousness**

- Wundt's experimental technique for introspection