

**PSY 3360 / CGS 3325
Historical Perspectives
on Psychology
Minds and Machines since 1600**

**Dr. Peter Assmann
Spring 2012**

Instructor

Dr. Peter Assmann

Office: GR 4.126

Office hours: Tue 11:00-12:00 AM

Email: assmann@utdallas.edu

Tel: 972-883-2435

Teaching Assistant

Shaikat Hossain

Email: shossa3@hotmail.com

Office hours: Mon 11:15 AM - 12:15 PM

Tel: 281-686-5081

Course web page:

<http://www.utdallas.edu/~assmann/PSY3360/>

- Syllabus and study guides
- Review sheets for the exams
- Additional (optional) course readings

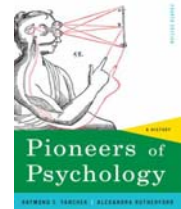
Course Text

R.E. Fancher & A. Rutherford

Pioneers of Psychology. 2012.

4th edition.

© 2012 W. W. Norton & Co., Inc.



In addition, choose one of the following as the basis for your **term paper**:

- (1) **S. Pinker** (2011). *The better angels of our nature*. Viking Press.
- (2) **D. Kahneman** (2011). *Thinking: Fast and Slow*. Farrar, Straus and Giroux.
- (3) **R.F. Baumeister & J. Tierney** (2011). *Willpower: Rediscovering the Greatest Human Strength*. Penguin Press.
- (4) **P. Miller** (2010). *Smart Swarm: How Understanding Flocks, Schools, and Colonies Can Make Us Better at Communicating, Decision Making, and Getting Things Done*. Avery.

Historical Perspectives on Psychology

- Historical and philosophical antecedents of our present conceptual frameworks in psychology
- 17th century to the present day
- What is it that psychology studies?
- What counts as data?

Historical Perspectives on Psychology

- Is psychology ultimately reducible to biology, chemistry, and physics?
- Are humans mere deterministic machines?
- Do we possess a free will?

Historical Perspectives on Psychology

- rationalism and empiricism
- the mind/body problem
- the problem of free will
- the scientific status of mental events

Example quiz question

- What is **empiricism**?
 - a. The philosophical position that all knowledge is derived from a process of thinking or reasoning
 - b. The view that all events, including human decisions and choices, are the result of known or identifiable causes
 - c. The view that all knowledge is ultimately derived from experience
 - d. The view that mind and body are separate and distinct.

Reductionism: *“The attempt to explain objects or events in one domain by using terminology, concepts, laws, or principles from another domain.”*

(Hergenhahn, 1992: p. 54)

Origins of psychology

- Philosophical questions:
- **epistemology** (how do people acquire knowledge of the world)
- **metaphysics** (what kinds of objects exist in the universe)
- perception, memory, thought and emotion

Key concepts

- **Empiricism vs. rationalism**
- Empiricism: the philosophical belief that all knowledge is derived from experience of the outside world.
- Rationalism: the belief that knowledge can only be attained by mental activity.

Problem of free will

- **Free will vs. determinism**
- Determinism: the view that everything occurs as a result of known or identifiable causes.
- Free will: the opposite position; a belief in human control of events.

Mind-body problem

- **Dualism vs. monism**
- Dualism: the philosophical position that the world is made up of two kinds of things, the *physical* and the *mental*.
- Monism: the position that there is only one kind of substance (mental *or* physical).

Zeitgeist

- **Zeitgeist** (spirit of the times) – the idea that progress in science is linked to previous discoveries and theories. The prevailing ideas, concepts, and habits of thought of a period in history are referred to as its Zeitgeist.

The Renaissance (1450-1600)

- Major advances in science, art, humanities
- Beginnings of modern science
- Renaissance humanism
- Rediscovery of classic Greek and Roman writings

The Renaissance (1450-1600)

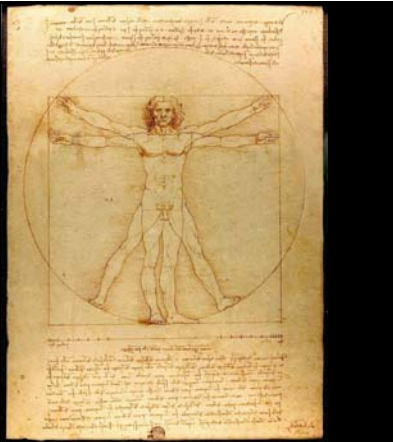
- Key events:
 - Johann **Gutenberg** (c 1400-1467) of Mainz invented the printing press in 1455.
 - opening up of new trade routes to the East by Venetian traders: Marco Polo (1254-1324)
 - Introduction of the **spinning wheel** revolutionizes textile production in Europe.
 - The “discovery” of the New World, credited to Christopher Columbus in 1492.

Tempietto di San Pietro in Montorio, Rome 1502



Leonardo da Vinci

Vitruvian Man



Trade routes to the east

Voyages of Marco Polo



http://en.wikipedia.org/wiki/Image:Marco_Polo_Map_of_explora.jpg

The Renaissance (1450-1600)

- Rejection of **Scholasticism** – derived from Aristotle (384-322 BC).
- Religious reforms and religious conflicts
- Protestant Reformation
 - Martin Luther and the 95 Theses
 - Division of the Christian Church in Europe

The Renaissance (1450-1600)

- Gradual erosion of heredity and divine right as the basis for the distribution of wealth
- Growing importance of science as a source of commercial and economic benefits
 - introduction of gunpowder and the increased use of firearms and canons in war – led to the mathematical study of ballistics

René Descartes (1596-1650)



French mathematician, philosopher, and physiologist

Contributions



- unification of algebra and geometry; Cartesian coordinate system
- theory of reflex movement
- mind-body relationship
- Cartesian method

Skepticism

- distinguish true from false, and good ideas from bad, by calling into question any aspects of those facts or ideas that are not known for certain; in other words, by a process of *systematic doubt*.

Descartes' Method

1. Never accept anything as true unless it can be clearly shown as such (the skeptical approach).
2. Separate each complex problem into as many parts as you can, and solve each one separately.

Descartes' Method

3. Rank the problems that you face in order of difficulty, and tackle them by starting with the simplest and easiest, and gradually moving to the more difficult ones.
4. Make an exhaustive and systematic review of your conclusions and the process that led you to them, so that nothing will be left out.

Cogito, ergo sum

"I think, therefore I am"

- "Cartesian doubt" – systematically calls into question and challenges all assumptions and ideas, so that what is left is unquestionable and solid.

Cogito, ergo sum

"I think, therefore I am"

- The *Cogito* argument is that something must exist (a conscious agent) in order to do the thinking and doubting.

Cogito, ergo sum

"I think, therefore I am"

- Descartes extends the *Cogito* argument to argue for the existence of God and the external world
- *clear and distinct ideas*: God, perfection, infinity, unity, the axioms of geometry

Rationalism

- Some ideas are not invented or discovered, but inherent or innate. Their truth is self-evident, not derived from experience.
- Rationalism is the view that true knowledge is ultimately derived from a process of rational thought.

“Clockwork universe”

- Descartes’ mechanistic view of the physical world: physical principles explain the workings of the physical world, as well as physiological processes of digestion, growth, respiration, and sensation in humans & animals.
- But the human mind lies *outside* the realm of the physical; not amenable to scientific study.

Rationalism

- **Rationalism** is the view that true knowledge is ultimately derived from a process of rational thought.
- **Nativism** is the view that some ideas are not invented or discovered, but inherent or innate. Their truth is self-evident, not derived from (or proved by) experience.

“Clockwork universe”

- Descartes held a mechanistic view of the physical world: simple physical principles could explain the workings of the physical world, the structure and physiology of animals, and reflexive processes like digestion, growth, respiration, nourishment, and sensation in humans.
- But the human mind lies outside the realm of the physical and is not amenable to scientific study.

The problem for dualism

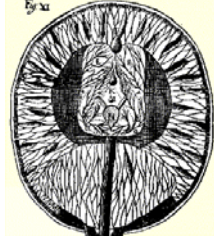
- If mind and body are fundamentally different entities, how do they interact?
- How do external objects and events leave their impressions on our awareness?
- How are thoughts, desires, and intentions translated into actions?

Interactionist dualism

- Rational decisions can lead to physical actions
- Events in the physical world are perceived by the mind
- Mind and body interact through a single pathway
- Special role of the pineal gland in the human nervous system

Hydromechanical theory of nerve transmission

- Theory of reflex behavior
- Theory of memory
- Emotions
- Sleep and dreams



Theory of reflex behavior



Hydromechanical theory of nerve transmission

- William Harvey - circulatory system
- The primary sense receptors of animals and humans were like pressure plates that started the flow of **animal spirits** through a series of pipes



Theory of depth perception

- Doctrine of innate ideas
- Binocular vision
- Role of geometry



The “Ghost in the Machine”

- The mental and physical worlds are distinct.
- The body is constrained by physical laws of space and time; the mind is an abstract and non-material entity.
- Plausible mechanism for interaction?

Problem of other minds

- If the only thing we can be absolutely certain of is the existence of our own minds doing the thinking and doubting, how can we ever possibly know whether other people exist, have minds and thoughts like we do?
- Self-awareness is a **private** state



Descartes' Legacy

- What problem for the study of mind and behavior was raised by Descartes' *Cogito* argument?
- Why should we care?

“By localizing the soul’s contact with body in the pineal gland, Descartes had raised the question of the relationship of mind to the brain and nervous system. Yet at the same time, by drawing a radical ontological distinction between body as extended and mind as pure thought, Descartes, in search of certitude, had paradoxically created intellectual chaos.” (Robert Wozniak)

Descartes

- **Nativism**: Some ideas are not invented or discovered, but inherent or innate. Their truth is self-evident, not derived from experience.
- **Rationalism**: True knowledge is ultimately derived from a process of rational thought.
- **Dualism**: Mind and body are distinct and different; simple physical principles explain the workings of the physical world, but the human mind lies outside the physical realm.