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

Course requirements

- Quiz/participation (10%)
- Midterm exam (25%)
- Final exam (35%)
- Term paper draft intro (10%)
- Term paper (20%)

Quiz/participation grade (10%)

- Selected classes will include a brief unannounced quiz. Their purpose is to help prepare for the exams. No makeup quizzes are provided. 1-2 quizzes may be missed without penalty.

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.

Term paper

- Term paper draft due Wed Feb 20.
- Complete paper due Mon April 22.
- Start early in the semester; choose one of the four books from the list, and read it early in the semester. We will be happy to discuss ideas for paper topics.

Term paper draft (10%)

- Due Wed Feb 20.
- The draft introduction will outline the aims and content of the paper, followed by a set of headers listing the main parts of the paper. The draft introduction should be 1-2 (typed, double-spaced) pages in length. An example is posted on the course web page.

Term paper (20%)

- Due Monday April 22.
  - The paper should not be a "book report" or a summary of the book.
  - Focus on one topic in the book and relate it to something outside the book.
Term paper (20%)

• Due **Monday April 22**.
  – 7-8 (typed, double-spaced) pages
  – based on one of the recommended books
  – relate an aspect of the book to something outside of the book, either in the course or in your more general experience.

Term paper (20%)

• Due **Monday April 22**.
  • Penalty of one letter grade notch per class period the paper is late. This policy ensures fairness to students who turn their paper in on time and do not have the advantage of extra time to improve its quality.

Final exam date

• Not yet finalized by the Registrar, but most likely will be **Monday May 6** rather than **Wednesday May 8, 11:00 AM – 1:45 PM** in GR 4.428
• The syllabus and course web page will be updated as soon as the date is set.

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.

René Descartes (1596-1650)

French mathematician, philosopher, and physiologist

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.

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**

- *Nativism* 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

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**The World (Le Monde)**

Descartes’ Physics and Physiology

- The World (Le Monde) 1633
  - Physics ("Treatise of Light")
  - Mechanistic Physiology ("Treatise of Man")

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**Hydromechanical theory of nerve transmission**

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

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**Animal Spirits**—Descartes’ term for the clear yellowish liquid that resided in the brain’s ventricles. Today we call this cerebrospinal fluid.

**Cerebrospinal Fluid (CSF)**—A clear bodily fluid that occupies the ventricular system around and inside the brain and spinal cord.

**Galen (C.E. 130–200)**—A Greek physician and philosopher who adopted the four-humor theory of health.

**Reflex**—An involuntary neurophysiological response to a stimulus from the external world.

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**Theory of reflex behavior**

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**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

Les passions

- Theory of emotion
- Mind-body interaction
- Role of the pineal gland

Descartes moves to Sweden

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.

**Discussion Questions**

1. Although most of Descartes’ specific formulations about the ways the human body and brain work have been discarded, why are his ideas relevant for understanding the history of scientific psychology?
2. Descartes believed that there are some concepts or ideas that can never be directly apprehended in experience, such as perfection or unity. Do you agree? How do we come to an understanding or knowledge of these concepts that we all share?
3. What are some of the implications of Descartes’ mind-body problem for neuroscientists in the 21st century?