Cognitive Science MA Program, Boğaziçi University

Topics:

- The definitions, aims and subfields of cognitive science
- Dominant paradigms of cognitive science
- Research methods of cognitive science
- History of milestones in cognitive science
- Artificial intelligence
  - Knowledge representation
  - Language processing
  - Learning and pattern recognition
- Philosophy
  - Philosophy of mind
  - Rationality
- Psychology
  - Cognitive psychology
  - Attention
  - Vision
  - Sensation, perception and action
  - Learning and development
  - Memory
  - Social cognition
- Linguistics
  - Language learning and representation
  - Symbolic and connectionist accounts of language acquisition
- Neurology
  - Brain imaging and anatomy of the brain
  - Computational modeling of brain functions
  - Brain neurobiology
Readings

Here are some readings that cover different aspects of cognitive sciences at different levels. Some of these are popular science books (e.g. Damasio, Dennett), which should give a basic idea about the topics in an accessible fashion. Some are collections of detailed expositions in different topics (Stillings, Posner), which are much more in-depth. Others are classics in the field (Vygotsky), or representative works of a special school of thought (Elman).

15. Principles of Cognitive Neuroscience Editors: Purves, Brannon, Cabeza, Huettel, LaBar, Platt, Woldorff Published by Sinauer Associates

For more information visit http://www.cogsci.boun.edu.tr
Mock Exam Questions

-What is cognitive science? Which fields is cognitive science comprised of?

-What is AI, what does it try to do?

-Describe 3 of the areas below:
  - Natural language processing
  - Machine learning
  - Pattern recognition
  - Expert systems
  - Embodied systems and robotics

-What is Marr’s paradigm? How does it explain information-processing tasks?

-Write 2 functions of the
  - frontal
  - parietal
  - occipital
  - temporal lobes

-Explain Sperry’s brain experiments and their implications.

-Write the names and general idea of two different brain imaging techniques.

-Explain broadly the functional differences of right and left brain hemispheres.

-What is cocktail party effect? What does it imply about human attention?

-What are mirror neurons? Why are they important?

-Explain the Sapir Whorf hypothesis.

-What is a universal grammar?

-Explain the branches of linguistics below:
  - syntax
  - semantics
  - pragmatics
  - phonology
  - morphology

-Which language skills are Broca’s and Wernicke’s areas involved with?