Cognitive Science MA Program, Boğaziçi University

Entrance Exam

The entrance exam for the 2023 application cycle will be made up of true-false and multiple-choice questions. The exam will assess applicants’ aptitude in the topics outlined below.

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
  - Recent trends in artificial intelligence

- Philosophy
  - Philosophy of mind
  - Rationality

- Psychology
  - Cognitive psychology
  - Attention
  - Vision
  - Sensation, perception, and action
  - Learning and development
  - Memory
  - Social cognition

- Linguistics
  - Linguistics
  - Language learning and representation
  - Symbolic and connectionist accounts of language acquisition

- Neuroscience
  - Brain imaging and anatomy of the brain
  - Computational modeling of brain functions
  - Brain neurobiology
  - Research techniques in neuroscience

For more information visit [http://www.cogsci.boun.edu.tr](http://www.cogsci.boun.edu.tr)
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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 definitions 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 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?

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Readings (General)

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).


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Readings (Focused)

Here are some readings that cover different aspects of cognitive sciences at different levels. These readings represent a subset of the research foci of several Cognitive Science faculty members. The readings below are suggested for students looking to dive deeper into cognitive sciences.

Artificial Intelligence


Philosophy


Psychology


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Readings (Focused)

Linguistics

Neuroscience

These readings lists are not fully exhaustive, and the students are strongly encouraged to explore the research studies of Boğaziçi University Cognitive Science faculty members as well. We expect applicants to have, at the very least, an acquaintance with recent research works of the faculty members they intend to work with during their studies.

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