Brain and Cognitive Sciences
Brain and Cognitive Sciences

Cognition

- Cognitive psychology
- Linguistics
- Philosophy of mind
- Logic
- Artificial intelligence
Experts able to cross boundaries
Research master Brain and Cognitive Sciences

✓ Institute for Interdisciplinary Studies
✓ UvA’s expert institute for interdisciplinary training

✓ Amsterdam Brain and Cognition Center
✓ Fosters interdisciplinary research
✓ Hosts Research Priority Area Brain and Cognition
✓ Scientific excellence

abc.uva.nl
Contact and information

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Educational Philosophy

- Research-intensive
- Small-scale classes
- Assessment-as-learning
- Interdisciplinary exchange
- Freedom of choice
Year 1

S1
MPP
- Entry Courses
- Specialisation course & Elective
- Interdisciplinary Project

S2
- Research Project 1
- ABC Summer School

MPP: Milestones, promises and pitfalls
Year 2

S1
- Literature Thesis
- Elective(s)
- Research Project 2

S2
- Research Project 2
Three domains (~20 students/domain)

- Translational Neuroscience
- Cognitive Neuroscience
- Cognitive Science
Translational Neuroscience (TNS)

*From molecules to behaviour*

Discover the mechanisms and processes that determine the development of neural systems and the control of behaviour, from molecules to neuronal networks.

**Entry courses:**

- Neuroscience: From cell to behaviour
- Experimental Neurobiology
Research projects TNS

- “Requirement of pain experience ACC neurons in freezing behaviour during pain observation”
  - Netherlands Institute for Neuroscience, NL
- “Structural morphometry patterns across the incremental stages of cognitive decline in Parkinson’s Disease” UvA, NL
- “The Role of The Superior Colliculus in Express Reaches” Gaze Control Lab, London, Canada
Cognitive Neuroscience (CNS)
The neural bases of cognition

Bring together neuroscience and psychology to understand the development and execution of cognitive functions underlying behaviour.

Entry courses:

- Brain Organization and Cognition
- Neurophysiology: Introduction to Electrophysiology and Imaging
Research projects CNS

• “Neural correlates of consciousness during epileptic seizures” *University of Wisconsin, USA*

• “This is Your Brain on Swearing: The Effect of Swearing on Error-Related Negativity as an Indicator for State Disinhibition.” *UvA, NL*

• “Representational dynamics in source space – interactions between lower and higher visual cortices” *University of Cambridge, UK*
Cognitive Science (CS)

Computational methods to study cognition

Discover the mechanisms of the mind and study cognitive and computational models to explore processes underlying language, music and other higher cognitive functions, whether in humans or artificial intelligence.

Entry courses:

- Higher Cognitive Functions
- Introduction to Computational Cognitive Neuroscience
Research projects CS

- “Spontaneous Vocal Behaviour in Grey Seal Pup Groups” Seal Center Pieterburen, NL
- “The Temporal Dimension of Self: Behavioral Effects and Underlying Mechanisms” University of Ottawa, Canada
- “Energy Optimization Induces Predictive-coding Properties in a Multicompartment Spiking Neural Network Model” UvA, NL

\[ \Phi = \frac{1}{L} \sum_{j} \frac{P(D_j|\text{old})}{P(D_j|\text{new})} = \frac{1}{L} \sum_{j} \lambda_j \]
Specialisation courses

- Introduction to Python Programming for Neuroscientists
- Research Design & Statistics
- Neuroimaging: BOLD MRI
- Advanced Neural and Cognitive Modelling
- Cognitive Data Science: Genes, brains and behaviour
Electives (organised in-house)

- Cognition & Language Development
- Introduction to Python Programming for Neuroscientists
- Introduction to Neuroscientific Methods and Brain Anatomy
- Research Design & Statistics
- Advanced Neural and Cognitive Modelling
- Philosophy of Cognition and the Brain: From Neurons to Embodied Cognition
- How Music Works: Music Cognition
- Cognitive Data Science: Genes, brains and behaviour
- Digital twinning
Excellence and community

- Selective, full-time programme
- Emphasizes self-directed learning
- Community events:
  - Brain Slicing Event
  - Meet the Company
  - Cognitalks
  - Study trip
  - ABC Symposium
First job after graduation

Graduates (cohorts 2018 to 2020)

- Research (academic): 63%
- Other: 17%
- Data science: 12%
- Education: 4%
- Research (non-academic): 4%
“MBCS was perfect for an interdisciplinary career. I came in as a Philosophy student and out as a cognitive neuroscientist. Never learned so much in my life as in those two years. I liked it a lot that we were a small group of diverse students all doing the same courses.”
Barbara Braams
Assistant Professor VU, graduated 2010

“I loved the contact with fellow students working on completely different topics. Even now I regularly meet with many of them to hear about their current work. The small-scale education and intensive discussion taught me a lot.”
Selection process

• Admissions Board will review:
  • Motivation letter
  • Resume
  • Written work (e.g. BSc thesis)
  • Course transcript
  • GPA

• Immediate decision for top and bottom percentiles

• Rest ranked by score, decision in May
Selection criteria

• Clear motivation for research in brain and cognitive sciences
• Coursework on neuroscience or cognition
• Research preparedness
• Interdisciplinary attitude
• GPA of 7.5 or higher
• Positive references
Want to apply?

• Applications are now open via Studielink
• See our website for more details
• Application deadline: April 30, 2024
Student experiences: Jorge, Anne Sophie and Max
Contact and information

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