



Higher School  
of Economics

Faculty  
of Social Sciences



**Master's programme**  
**'Cognitive Sciences and Technologies:**  
**From Neuron to Cognition'**



Master's Programme

# Cognitive Sciences and Technologies: From Neuron to Cognition

Fee-paying  
places

10

Fee-paying places  
for international students

6



Field of Study: 37.04.01 – Psychology



Duration: 2 years



Mode of study: Full time education



Diploma: Master in Psychology



Language: English



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Academic Supervisor

**Elena Chernysheva, PhD**

## About the Programme

Our programme addresses cognitive psychology, cognitive neuroscience and computational modeling. Students attend lectures in English and practice in leading laboratories of Moscow and our international partners. Leading scientists supervise students' practical training and Master's thesis during second year.

### **Cognitive Psychology.**

Modern cognitive psychology is an experimental discipline that studies the origins and functioning of the brain, mind, and intelligence. Our programme is focused on mechanisms of perception, control of attention and motor responses, formation of mental representations, dynamics of memory retrieval, learning, cognitive development and cognitive breakdown, mechanisms of reasoning, language, and problem solving.

### **Cognitive Neuroscience.**

Recent developments in brain imaging technology allow cognitive neuroscientists to observe a living human brain at work using state-of-the-art methods like functional magnetic resonance imaging (fMRI), magneto- and electroencephalography (MEG, EEG), near-infrared spectroscopy (NIRS), and other.

## What Will You Learn?

The Master's programme covers a wide range of cognitive psychology and cognitive neuroscience disciplines. Education starts with introductory courses of psychology, mathematics and neuroscience. Cognitive psychology track includes such disciplines as "Visual perception and attention", "Thinking and emotional modulation of cognition", and "Memory, learning and cognitive development".



Since 2015, HSE has appeared in the **QS – World University Rankings by Subject for Sociology**, rising from the 151-200 group to **51-100** over the last four years. Our university is currently the leader in this ranking among Russian academic institutions.



I chose HSE because of the broad international aspect and I chose the programme Cognitive Sciences and Technologies: From Neuron to Cognition due to its teachings in multiple fields such as Maths, Programming and Neuroscience. My interests are in Neuroscience and behavioral psychology. As for me life in Moscow is great, unique to most cities in the world but familiar at the same time.

**Alexander Burnip (UK),**  
programme student

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Students are also offered to study cognitive neuroscience disciplines such as “Neuroimaging techniques”, “Behavioral genetics and neurogenetics”, “Computational neuroscience”, and “Neuroeconomics”. In addition, many optional courses are available, for example, “Practical course on non-invasive brain stimulation techniques and electroencephalography” and “Computational modelling”.

- **Transcranial Magnetic Stimulation (TMS)** uses electromagnetic induction to induce weak electric currents using rapidly changing magnetic field; this can modulate activity in particular parts of the brain with minimal discomfort, allowing inferences about brain’s functioning and interconnections.
- **Eye-tracking** is the process of measuring either the point of gaze or the motion of an eye

relative to the head. Eye-tracking has a multiuse potential in many research areas, e.g. visual perception, cognitive linguistics, product design and many more.

- **Multichannel electroencephalography (mEEG)** non-invasively measures electrical activity of the brain with an ultra-fine millisecond temporal resolution using electrodes placed on the surface of the scalp. Combined with the brain-navigation, a 128-electrode array helps to improve EEG spatial resolution and SNR as compared with traditional 10-20 system.
- **Magnetoencephalography (MEG)** is a super-conductivity based technique developed for functional human brain mapping. Having superior spatial resolution, as compared to EEG, MEG records magnetic fields produced

by electrical currents in the brain using very sensitive magnetometers. We use Elekta Neuromag 306-channel system of MSUPE to localize sources of the brain activity induced and/or evoked in cognitive tasks.

## Our Partners

- Institute of Cognitive neuroscience, Higher School of Economics, Moscow
- MEG Center for Neurocognitive Research, Moscow Psychological and Pedagogical State University (MSUPE), Moscow
- Laboratoire de Neurosciences Cognitives, École Normale Supérieure, Département d'Études, Paris France
- Center for Functionally Integrative Neuroscience, Aarhus University, Aarhus, Denmark

## How To Apply

- There is the portfolio competition.
- Create a Profile on HSE's site.
- Fill out the form and upload portfolio documents:
  - Scan of the first page of your passport
  - Summary of your undergraduate thesis OR project proposal
  - Scan of your diplomas and academic transcripts (if you have not yet received your Bachelor's diploma, please include an official copy of your most recent academic transcript)
  - Letter of motivation
  - Resume/CV (including information about your education, professional, and research experience, as well as language proficiency and other skills)
  - Exam results confirming language proficiency
  - Two letters of recommendations.
- After your application has been submitted, you may be contacted by a programme professor about setting up an interview.
- Applicants must demonstrate English proficiency through standardized exams (TOEFL, IELTS, etc). Native English speakers are exempt.



Since 2017, HSE has been included in the **THE World University Rankings by Subject**, placing in the 126-150 group for Social Sciences.

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# Reasons to Enroll in HSE's Master's programmes:



## Become Part of a Global World

HSE University is a full member of the international academic community: the university offers over 50 double-degree programmes with leading global universities, as well as an extensive number of student exchange programmes (semester or full year at a foreign university).



## Work that Doesn't Compromise Studies

Over 70% of Master's students combine work and studies thanks to the flexible schedule and a wide range of optional courses; this allows each student to design a curriculum based on individual needs.



## Follow Your Interests

The great number of Master's programmes at HSE allows students to adjust or even radically change their career trajectories as their interests change, opening up new horizons for self-fulfilment.



## Experience a Multicultural Environment

HSE is a global university with over 25,000 students from dozens of countries. You can truly immerse yourself into a multicultural environment and learn the traditions of other nations.



### **Education that Meets Job Market Demands**

HSE attracts professionals from leading Russian and international companies to teach in its Master's programmes. Workshops, case studies, and internships provide an opportunity to become part of the professional community in your field even before graduation.



### **Become Part of Something Bigger**

Being an HSE graduate not only signifies a wealth of relevant knowledge and a degree from Russia's leading university, but it is also an opportunity to become part of one of the largest alumni communities, which already counts over 50,000 people and is growing every year.



### **Leading Research Centre in Russia**

HSE University is a leading Russian multidisciplinary research centre. Each year, HSE experts carry out more than 150 fundamental science research projects and over 450 applied research projects.



### **Build Social Capital for Future Success**

Studies at HSE bring an opportunity to create a vast network of contacts in professional and academic communities, which will be useful for achieving the most ambitious goals.



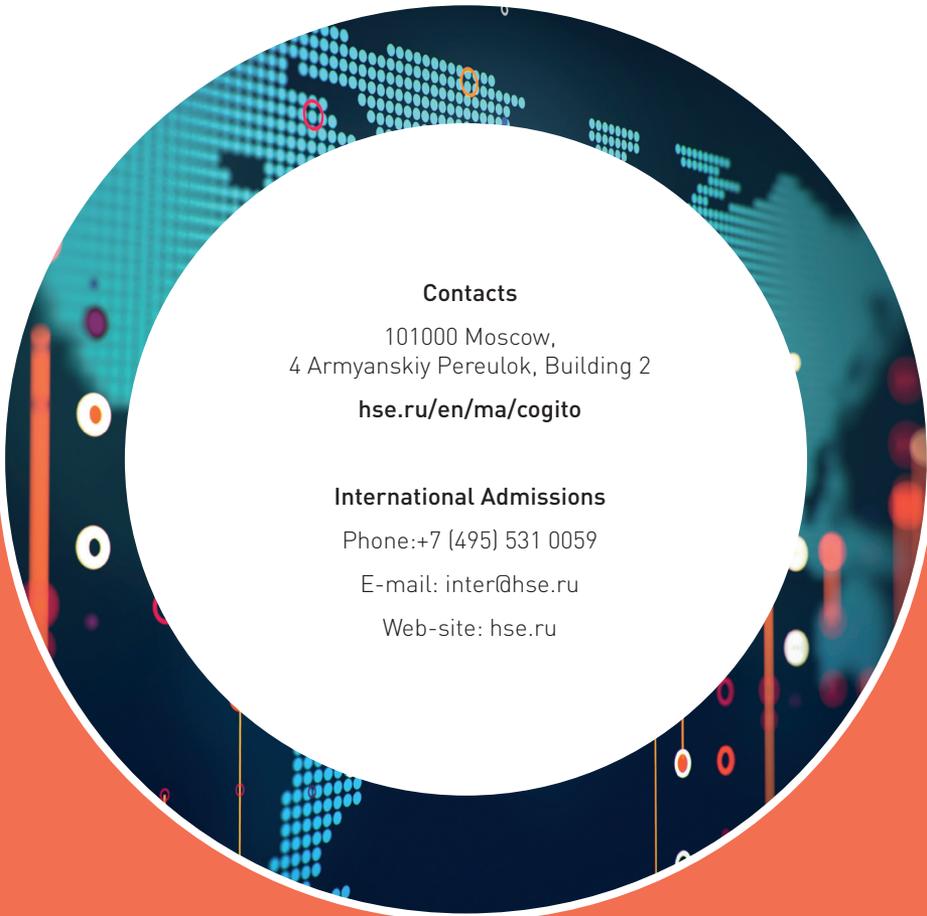
### **Boost Your Earning Potential**

Graduates of HSE Master's programmes earn 20% more on average than those who only hold a Bachelor's degree. This means that investment in education pays off within the first year of graduation from a Master's programme.



### **Recognition by the Global Academic Community**

HSE University appears in all of the rankings of the most prestigious global universities and is listed as Russia's best young university (universities founded no more than 50 years ago).



### **Contacts**

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### **International Admissions**

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