

THE MINISTRY OF SCIENCE AND HIGHER EDUCATION OF THE RUSSIAN  
FEDERATION

Federal state autonomous educational institution of higher education  
«Ural Federal University named after the first President of Russia Boris Yeltsin»

Approved by

Deputy Provost

E.S. Ayramenko

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2019 г.



**MASTER'S DEGREE ENTRANCE EXAMINATION PROGRAM**

<b>Information about the educational program</b>	<b>Registration data</b>
<b>Educational program</b> Cognitive neuroscience	<b>Program code</b> 37.04.01/08.02
<b>Direction of studies</b> Psychology	<b>Refferal code and level of training</b> 37.04.01
<b>Level of training:</b> <b>Higher education – master's degree</b>	
<b>Qualification awarded to graduates</b> master's degree	<b>Details of the order of Ministry of Russian Federation on approval of FSES of HE:</b> N 1043 from 23.09.2015

Ekaterinburg, 2019

The program has been designed in accordance with the Federal state educational standard of higher education by the authors:

N	Name	Academic degree and rank	Position	Chair
1	Permyakova Margarita Evgenievna	Associate professor, PhD	Associate professor	General and social psychology
2	Kiselev Sergey Yurievich	Associate professor, PhD	Associate professor	Clinical psychology and psychophysiology

Approved by Academic Council of the Ural Institute of Humanities

Protocol N33.00-08/13 from 23.04.2019

Chairman of the AC of the Ural Institute of Humanities  Cherepaniva E.S.

Director of the Ural Institute of Humanities  Symanyuk E.E.

#### ANNOTATION

The program has been designed in accordance with the Federal state educational standard of higher education requirements for entering the master's degree under the direction of study 37.04.01 – Psychology.

The exam is a four-component, held in a test form in accordance with the requirements of the Order of the rector of UrFU №221/03 from 07.03.2009 “On entrance examination for master programs.”

**The purpose of entrance examination** is to provide entrants, applying for admission to UrFU with the purpose of becoming proficient in the educational master degree's program, equal conditions, regardless of the previous document on higher education.

**The task of entrance tests** is to identify the availability of the entrant to study in terms of the developed information and communication competence, which should be not lower than the basic level and consistent with the knowledge of the basics of specialized disciplines.

## CONTENT OF ENTRANCE EXAMINATIONS

37.04.01 – Psychology

### 1. The entrance test includes 4 sections

	Section	Format, time	Scores
1.	Identification of the level of communicative competence in the academic reading. The tasks of the <b>basic level of complexity</b> (Threshold level on the scale of the Council of Europe) are offered. The basic level provides language proficiency to solve a minimum number of communicative tasks sufficient for limited professional communication in standard situations. <b>Type of tasks:</b> answers to questions to the scientific text (tasks with the choice of one correct answer from the four proposed tasks; text of 2 pages A-4)	Computer testing 15 min.	0 - 20
2.	Identification of the level of communicative competence in a foreign language. The tasks of the <b>basic level of complexity</b> (A2 on the common European scale CEFR) are offered. Tasks test the ability to capture the main content, details, relationships, storylines in the written text. <b>Type of tasks:</b> answers to questions to the text of general cultural content (tasks with the choice of one correct answer from the three proposed tasks).	Computer testing 15 min.	0 - 10
3.	Multidisciplinary test in basic subjects 20 tasks on knowledge/recognition of the most important concepts, laws, notions contained in the basic disciplines (Sections of general psychology: sensation and perception, memory, attention, language, emotions, motivation). <b>Types of tests:</b> choice of one correct answer from the four proposed tasks; tasks to establish compliance, tasks to establish order.	Computer testing 30 min.	0 - 20
4.	Multidisciplinary test in core subjects 50 tasks on the knowledge of fundamental concepts on the history of psychology, psychology of personality, psychology of individual differences, developmental psychology, social psychology, experimental psychology. <b>Types of test tasks:</b> choice of one correct answer from the four proposed tasks; tasks to establish compliance, tasks to establish order.	Computer testing 60 min.	0 - 50
	<b>Maximum final score</b>		<b>100</b>

### 2. Test on the identification of the level of communicative competence in the academic reading

Read the chapter from the book «*Cognition, Brain and Consciousness*» by Bernard Baars & Nicole Gage

*The mind and the brain*  
Bernard Baars & Nicole Gage

The idea of the brain as the source of our experiences goes back many centuries, as shown by the quotation at the beginning of this chapter (attributed to Hippocrates some 2500 years ago). But careful, cumulative study of the brain really began with the Renaissance. The Antwerp anatomist, Andreas Vesalius, was the first to publish a detailed atlas of the human body, including the brain, in 1543. Before that time, religious and legal prohibitions made it a crime to dissect human cadavers. A century later, a famous Rembrandt painting called “The Anatomy Lesson of Dr. Tulp” shows the sense of wonder felt by physicians to be able to actually see the human body in detail. Leonardo da Vinci made sketches of the human skull and body at about the same time (1490 – 1510). The Renaissance was interested in everything human, and the effort to understand the brain grew as part of that broad sense of curiosity.

Descartes is often considered to be the originator of modern mind/body philosophy. The basic question seems simple: is the world basically mental or physical? Or, in today’s language, can your conscious experience be explained by neurons? Perhaps nerve cells themselves are just ideas in the minds of scientists. The brain basis of consciousness has now become mainstream in cognitive neuroscience (Edelman, 1989; Palmer, 1999; Koch, 1996; Tulving, 2002; Baars et al., 2003a). Numerous articles have appeared in the last fifteen years. In July of 2005, Science magazine listed “the biological basis of consciousness” as one of the top questions in science today. Nobel-winning scientists like Francis Crick, Gerald Edelman and Herbert Simon have devoted years of effort to the question.

In everyday language we constantly switch back and forth between the language of mind and brain. We take a physical aspirin for a mental headache. We walk to the physical refrigerator because we experience a mental craving for ice cream. Do conscious experiences “cause” physical actions, or vice versa? Common sense doesn’t care. It just jumps back and forth between the discourse of mind and body. But things get complicated when we try to think more carefully. In the physical realm of aspirins and refrigerators, ordinary causality explains how things happen. Ice cream melts in the sun and aspirins dissolve in water. They follow the laws of physics and chemistry. But mental events are affected by goals, emotions, and thoughts, which seem to follow different laws. Ice cream does not melt because it wants to – but humans eat ice cream because they want to. Human language has thousands of words to describe desires and experiences, but those words do not apply to physical objects.

As we will see, for the first time, we have a large body of empirical evidence that has a direct bearing on the question of conscious cognition. Some brain regions, like the ‘ventral visual stream’, are widely believed to support conscious contents, the visual events that people can easily report. There is good evidence, however, that not all brain regions support conscious, reportable events. For example, the dorsal visual stream enables hand-eye coordination in reaching for an object, but there is good evidence that by themselves, these brain areas do not support conscious contents (Goodale et al., 1991). Similarly, it is believed that brain regions like the cerebellum do not support conscious experiences. There is growing agreement that the relationship of mind to brain is an empirical, testable question.

**Sample task:** choose one correct answer from the four proposed (a-d)

1. *Who was the first to publish a detailed atlas of the human body, including the brain?*
  - a) Hippocrates
  - b) Andreas Vesalius**
  - c) Paul Pierre Broca
  - d) Leonardo da Vinci
  
2. *In which historical period did a careful, cumulative study of the brain begin?*
  - a) Antiquity
  - b) Middle Ages
  - c) Renaissance**
  - d) XIX century
  
3. *Who is often considered to be the originator of modern mind/body philosophy?*
  - a) Descartes**
  - b) Beckman
  - c) Luria
  - d) Vygotsky
  
4. *What is the basic question of modern mind/body philosophy?*
  - a) What is primary - matter or consciousness?
  - b) Is the world basically mental or physical?**
  - c) What is the structure of neurons?
  - d) How does the conscious and unconscious relate in man?
  
5. *Complete the sentence: «The brain basis of consciousness has now become mainstream in \_\_\_\_\_»*
  - a) cognitive neuroscience**
  - b) behaviorism
  - c) physiology
  - d) humanistic psychology
  
6. *What magazine listed “the biological basis of consciousness” as one of the top questions in science in 2005?*
  - a) Nature
  - b) Psychophysiology
  - c) Developmental Psychology
  - d) Science**
  
7. *Insert the missing words: «But \_\_\_\_\_ are affected by goals, emotions, and thoughts, which seem to follow different laws»*
  - a) mental events**
  - b) common sense
  - c) physical world
  - d) human language
  
8. *Which brain region is noted in this text as responding for conscious contents, the visual events that people can easily report?*
  - a) Vernike’s area
  - b) amygdala
  - c) ventral visual stream**
  - d) first visual cortex

9. Which brain region is noted in this text as not supporting conscious experiences?

- a) **cerebellum**
- b) frontal cortex
- c) temporal cortex
- d) Broca's area

10. Choose the author's name from the references in the text, that wrote about functions of dorsal visual stream?

- a) Banich
- b) **Goodale**
- c) Murphy
- d) Purves

### 3. Test on the identification of the level of communicative competence in a foreign language

Read the article about neurocognitive development of children and adolescence by A.A. Baranov.

Нейрокогнитивное развитие включает основные компоненты мыслительных процессов — внимание, восприятие, память (усвоение, сохранение, использование информации), зрительно-моторную координацию, аналитико-синтетическую деятельность.

Когнитивная сфера присуща каждому ребенку, четко реагирует на состояние внутренних органов и систем и взаимодействует с организмом ребенка и подростка. Познавательные процессы имеют восходящее развитие в благоприятных условиях и различную степень их дефицита при повреждающих ситуациях, причем социум обладает двояким действием: он может как повысить когнитивные функции, так и депривировать их.

К факторам риска и повреждения центральной нервной системы (ЦНС) ребенка относятся нарушения раннего развития, незрелость нервной системы, хронические заболевания, инфекции. Следует отметить, что в дошкольном возрасте доминируют задержки речевого развития, а в школьном — расстройства навыков чтения и письма в сочетании с проблемами в поведении: гиперактивностью в дошкольном и расстройствами памяти, агрессией, асоциальным поведением в школьном возрасте.

К выявленным причинам школьной неуспеваемости относятся: когнитивные расстройства, психическая незрелость к началу обучения, ряд психологических факторов (негативизм, оппозиционное поведение и др.), особенности развития (левшество), акцентуации личности, невротические реакции, расстройства психиатрического круга (неврозы, депрессии), воздействие социальных факторов (семья, школа, общество).

Система помощи ребенку должна быть построена в виде комплексного воздействия как на патологическое состояние, так и на социальную составляющую психического развития. Средства психолого-педагогического воздействия должны включаться в работу на ранних этапах развития ребенка, имеющего патологию нервной системы. Познавательное развитие должно стимулироваться и направляться средствами коррекционно-развивающей педагогики, где психолог и педагог-дефектолог становятся членами единой команды по повышению качества здоровья ребенка.

**Sample task:** choose one correct answer from the four proposed (a-v)

1. *Укажите, что из перечисленного является компонентом мыслительных процессов.*
  - а) внимание**
  - б) вкус
  - в) движение
  
2. *Укажите, какие расстройства развития доминируют в дошкольном возрасте.*
  - а) гиперактивность
  - б) задержки речевого развития**
  - в) нарушения памяти
  
3. *Укажите, расстройства каких навыков доминируют у детей школьного возраста.*
  - а) чтение и письмо**
  - б) речь
  - в) контроль позы тела
  
4. *Укажите, какая особенность развития ребенка относится к причинам школьной неуспеваемости.*
  - а) стресс
  - б) быстрый рост
  - в) левшество**
  
5. *Вставьте пропущенное слово в предложение из текста: «\_\_\_\_\_ сфера присуща каждому ребенку, четко реагирует на состояние внутренних органов и систем и взаимодействует с организмом ребенка и подростка».*
  - а) моторная
  - б) когнитивная**
  - в) речевая
  
6. *Вставьте пропущенное слово в предложение из текста: «Средства психолого-педагогического воздействия должны включаться в работу на \_\_\_\_\_ этапах развития ребенка, имеющего патологию нервной системы».*
  - а) ранних**
  - б) поздних
  - в) всех

#### **4. Multidisciplinary test in basic subjects**

##### **Sensations and perceptions**

Sensation: definition, classification, properties. Perception: definition, types, properties. Sensory adaptation. The interaction of sensations. Illusions: types, mechanisms of occurrence. The concept of absolute thresholds of sensitivity. Methods for measuring absolute thresholds. The concept of differential thresholds. Methods for measuring differential sensitivity. The Weber's law and the basic psychophysical law (Fechner's law). The basic psychophysical law and its psychological interpretation.

##### **Memory and attention**

Memory: definition, types (motor, emotional, visual, verbal-logical; voluntary, involuntary). Representations of memory as a structure (operational, sensory, short-term, long-term). Memory processes: memorization, preservation, reproduction, forgetting.

Attention: definition (according to F. Dobrynin), types (involuntary, voluntary, post-voluntary), properties (stability, concentration, distribution, volume, switchability, selectivity, distractibility). Features of attention as a process, as a mental state and as properties of personality. Functions of attention. Phenomenology of inattention.

### **Intellection and language**

Intellection: definition, types and classification (visual-effective, visual-figurative, abstract-logical, rational-empirical, scientific-theoretical, creative, critical). Functions of thinking. Intellection as a psychological process and as an activity: phases of the thinking process, factors, types of problem situations.

Interiorization. P. Ya. Halperin's theory of the gradual formation of mental actions and concepts. Piaget's theory of cognitive development. Features of children's thinking.

Language: definition, function. Relation of speech and language. Types of speech and their specificity: external, internal; oral, written; dialogic, monologic; egocentric.

### **Emotions and motivation**

Emotions: definition, function. Varieties of emotional states and their characteristics (feelings, mood, affects).

Charles Darwin's contribution to the study of human emotional reactions. Peripheral theory of emotions by James-Lange. Wundt's three-dimensional theory of emotion. Izard's classification of emotions. Information theory of emotions (P. V. Simonov). Emotion as a value (according to B. Dodonov).

The concept of motivation. The structure of the motivational sphere (needs, motives, goals). Characteristics of motivation in the theory of activity: the concept of need; motive as objectified need and its functions; goals and its difference from motives. The focus of the individual, as a set of sustainable motives.

Classification of needs: McDougall, G. Murray, A. Maslow. Studies of situational motivation in the school by K. Levin. Zeigarnik's effect. The Yerkes-Dodson Law.

### **Recommended literature:**

1. Maklakov A.G. Obshhaya psixologiya. (*Maklakov A.G. General psychology*). SPb.: Peter, 2007. 582 p.
2. Petukhov V. V. Obshhaya psixologiya. Teksty` : V 3 t. T. 3: Sub``ekt poznaniya. Kniga 3. (*Petukhov V.V. General psychology. Texts: In 3 tons. T. 3: The subject of knowledge. Book 3*). M.: Kogito Center, 2013. 640 p.

## **5. Multidisciplinary test in core subjects**

### **History of psychology**

Stages of development of psychology as a science. The main schools of foreign psychology in the 20th century: Freudianism, behaviorism, Gestalt psychology, humanistic psychology. The development of domestic psychology in the 20th century.

### **Psychology of personality**

The concept of personality in general, differential and social psychology. Hierarchical organization of personality: individual, personality, individuality. Approaches to the definition of personality in domestic and foreign psychology. Mental processes, conditions and properties. Personality as a system. Ideas about the structure of personality (S.L. Rubinstein, B.G. Ananyev, V.S. Merlin). Personality in psychoanalysis, behaviorism, humanistic and existential psychology.

### **Psychology of individual differences**

Temperament. Humoral theories of temperament (Hippocrates, Galen). Somatic theories (E. Kretschmer, U. Sheldon). Pavlov's neurological concept of temperament. Psychological theories of temperament (K. Jung, G. Ayzentk). Rusalova's theory of temperament.

Character: definition, function. Factors of character formation. The relation of character and temperament in a person. The structure of character and hierarchy of features of character. Accentuations of character (K. Leonhard, A. E. Lichko).

### **Social psychology**

The subject of social psychology. The concept and classification of groups.

The concept of small group. Classification of small groups: primary and secondary groups (C. Cooley); formal and informal groups (E. Mayo); membership groups and reference groups (G. Hymen). Dynamic processes in a small group: the formation of a small group, group pressure (the phenomenon of conformism, regulatory majority pressure and informational influence of a minority), group cohesion, leadership and guidance, group decision making.

The concept of large social group. Types of large social groups: organized groups that have arisen in the course of the historical development of society (ethnic groups, professional groups, gender and age groups), and spontaneously formed short-term existing groups (crowd, mass, public). Crowd structure. Types of crowds. Features of human behavior in the crowd: reduced self-control, deindividuation, inability to keep attention on the same object, features of information processing, increased suggestibility, increased physical and mental activity.

The concept of communication. The sides of communication and their characteristics: communicative, perceptual, interactive. Barriers of communication process.

The concept of conflict in social psychology. Types of conflicts: interpersonal, intergroup, intragroup, the conflict between an individual and a group. Constructive and destructive functions of conflict. Stage of conflict.

### **Developmental psychology**

The cultural-historical concept of mental development L.S. Vygotsky and the theory about crucial role of education in the development of the personality as a whole. Zones of current and proximal development.

Cognitive development in children. The adaptive nature of intelligence. Adaptation mechanisms: assimilation and accommodation. Stages of intellectual development, their characteristics. Egocentrism as a feature of the child's mind. The problem of the relation of learning and development in Piaget's studies.

Psycho-social concept of personality development by E. Erickson. Psychosocial stages of personality development by E. Erickson. Identity crises.

Styles and types of education. Psychological features of education. Socialization and education. Methods of education: inurement, example, encouragement, punishment. Education styles: authoritarian, liberal permissive, democratic. Types of education on an institutional basis: family, within educational institutions, extracurricular, confessional.

Characteristics of age periods of development:

General characteristics of the newborn, infancy and early childhood.

Social situation of development and leading activities in infancy. The crisis of one year, its causes and psychological meaning.

Social situation of development and leading activity in a young child. The crisis of three years and its psychological meaning.

Social situation of development and leading activities in preschool age. The value of the game for mental development and the formation of the child's personality. The crisis of seven years.

Educational activities as a leading activity in primary school age. The main psychological neoplasms of primary school age: reflection, analysis, planning.

Features of personality development in adolescence and youth. The problem of crisis in adolescence. The role of communication with peers in the mental development of a teenager. Feeling of maturity.

Leading activity in adolescence. Formation of professional orientation and preliminary professional self-determination.

Development in adulthood. Criteria for a «mature personality». Stages of adulthood. Labor activity as the leading activity in adulthood. The crisis of adulthood.

The concept of old age. Determination of age limits of the old age. Features of cognitive, motivational, emotional spheres in old age. Changing the social status in elderly person.

### **Experimental psychology**

The concept of experiment. Distinctive features of experiment as a method of psychology. Ethical principles of psychological experiment. Types of experiment. The main stages of experimental research. The concept of variable, the main types of variables: independent variable, dependent variable, external variable. The problem of controlling external variables. The role of control group in experimental studies. The concept of randomization. Validity of experiment, types of validity. Characteristics of the internal and external validity of the experiment. Classic experiment. Quasi-experiment, its features. The difference between experimental and correlation studies. Specificity of the longitudinal study.

### **Recommended literature:**

1. Averin V. A. Psixologiya lichnosti: Uchebnoe posobie. (Averin V. A. *Psychology of personality: Textbook*). SPb.: 1999. 89 p.
2. Andreeva G. M. Social'naya psixologiya: [uchebnik dlya studentov vuzov, obuchayushhixsya po napravleniyu i special'nosti "Psixologiya"]. (Andreeva G. M. *Social psychology: [textbook for university students enrolled in the direction and specialty "Psychology"]*). M.: Aspect Press, 2008.
3. Asmolov A. G. Psixologiya lichnosti. Principy` obshhepsixologicheskogo analiza. Ucheb. (Asmolov A. G. *Psychology of personality. Principles of general psychological analysis. Training*) M.: Moscow State University Publishing House. 2009. 367 p.
4. Istoriya psixologii: uchebnik dlya stud. vy`ssh. ucheb. zavedenij / T. D. Marcinkovskaya. (The history of psychology: a textbook for students. higher studies. institutions / T. D. Martsinkovskaya). M.: Publishing Center "Academy", 2009. 544 p.
5. Muxina V.S. Vozrastnaya psixologiya. Fenomenologiya razvitiya : uchebnik dlya stud. vy`ssh. ucheb. zavedenij. (Mukhina V.S. *Age-related psychology. Phenomenology of development: a textbook for students. higher studies. institutions*). M.: Publishing Center "Academy". 2006. 608 p.
6. Obuxova L. F. Vozrastnaya psixologiya. Uchebnoe posobie. (Obukhova L.F. *Age psychology. Tutorial*). M.: Pedagogical Society of Russia. 2000. 448 p.
7. Social'naya psixologiya: sovremenny`e teoriya i praktika. (Social psychology: modern theory and practice). Ekaterinburg: Ural University Press, 2016.
8. X`ell L., Zigler D. Teorii lichnosti. (Kjell L., Zigler D. *Theories of personality*). SPb.: Peter 2003. 608 p.
9. E`ksperimental'naya psixologiya: uchebnik dlya bakalavrov / T. V. Kornilova. (Experimental psychology: a textbook for bachelors / T. V. Kornilova). M.: Yurayt Publishing House, 2016. 640 p.