

**National Research Tomsk State University**  
**The International Centre for Research in Human Development**  
**MSc program Human Development: Genetics, Neuroscience and Psychology**  
**General Information & Examination Program**

**1. General overview and information**

1.1 Examination for the program Human Development: Genetics, Neuroscience and Psychology includes the exam for the track 37.01.01 Psychology and interview evaluating the level of applicants' preparedness to complete the MSc program.

1.2 The objective of examination is to evaluate basic knowledge in the interdisciplinary field of Psychology (theoretical exam questions) and abilities of critical and logical thinking.

1.3 This general information contains the description of the admission tests and the scoring criteria.

1.4 The admission examination is held in English.

1.5 Organization and carrying out of the admission tests are performed according to the Rules of Admission, approved by the order of TSU Rector and applicable to the current year.

1.6 Regarding the results of admission tests, an applicant has the right to appeal following the order as described in the Rules of Admission, applicable for the current year.

1.7 Examination program for the track 37.04.01 Psychology for MSc Human Development: Genetics, Neuroscience and Psychology is reviewed and updated annually to reflect the changes in the regulatory and legal framework of the Russian Federation in the field of higher education and local documents regulating the admission procedure at Tomsk State University. Changes to the examination program are reviewed and approved at the meeting of the Board of Directors of the International Centre for Research in Human Development. Examination program is approved then by the Vice-Rector for Academic Affairs.

1.8 Examination program is published on the official TSU website in the Master's Education section.

1.9 Examination program for the track 37.04.01 Psychology for MSc Human Development: Genetics, Neuroscience and Psychology is stored with the documents of the International Centre for Research in Human Development.

## **2. Purpose and objectives of admission tests**

2.1 Admission tests are designed to evaluate the readiness of an applicant to complete the chosen Master's program and are carried out to assess the level of required competencies for the acquisition of the basic educational program MSc Human Development: Genetics, Neuroscience and Psychology for the track 37.04.01 Psychology.

2.2 The main objectives of the exam and interview on educational program specialization are to evaluate:

- general knowledge on the topics specified in the exam questions;
- the ability to think logically and critically, to formulate well-argued answers to the questions in a limited time;
- the level of English within academic context;
- motivation to study on the program.

## **3. Admission exam: structure, procedure, program and evaluation criteria of answers**

### **3.1 The exam structure**

3.1.1 The exam includes one theoretical question and one practical task in Psychology.

3.1.2 During the exam an applicant is expected to demonstrate:

*Level:*

1. of the skills of oral communication in English;
2. of the basic knowledge in the field of Psychology.

*Skills:*

1. in analyzing scientific information sources and summarizing the results of scientific research in the field of human development;
2. in logical reasoning and formulating answers to the questions;
3. in developing research designs (hypothesis statement, research plan and study design, methods and samples, etc.).

*Knowledge:*

1. of research methods involving human participants and of main requirements for the organization of research;
2. of the subject and the main areas of contemporary research in the field of Genetics, Neuroscience and Psychology.

3.1.3 The exam is conducted based on examination tickets. Each ticket includes one theoretical question and a practical task. There is a list of recommended literature for the exam preparation.

### **3.2 The procedure of admission examination**

3.2.1 The admission examination is conducted orally. The examination is conducted based on examination tickets. Each ticket includes one theoretical question in Psychology and a practical task to present an idea of the study to answer a research question. The exam is aimed to evaluate the ability to apply current knowledge to the research activities, and logically formulate answers to the questions; special training to complete the practical task is not required.

3.2.2 During the exam, an applicant can use supplementary materials such as notes, printed and electronic materials (a personal computer with Internet access). At the end of time to prepare an answer, an applicant is required to provide a brief outline of the answer to the theoretical question and a practical task in written form on the approved answer form provided at the beginning of the exam.

3.2.3 An example of an examination ticket:

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#### ENTRANCE EXAMINATION

MSc program Human Development: Genetics, Neuroscience and Psychology,  
studying direction 37.04.01 Psychology

Ticket № 3

1. Neuroscience: research areas and methods.
2. Practical task: Design a study to address a research question suggested by the Examination Committee; describe strengths and limitations of the chosen design.

Co-Director of the Centre  
Vice-Rector for Academic Affairs

Y.V. Kovas  
V.V. Dyomin

National Research  
Tomsk State University  
The International Centre for Research in Human Development

ENTRANCE EXAMINATION

MSc program Human Development: Genetics, Neuroscience and Psychology,  
studying direction 37.04.01 Psychology

Ticket № 14

1. Individual and group differences in psychological traits.
2. Practical task: Design a study to address a research question suggested by the Examination Committee; describe strengths and limitations of the chosen design.

Co-Director of the Centre  
Vice-Rector for Academic Affairs

Y.V. Kovas  
V.V. Dyomin

3.2.3 For applicants with disabilities the appropriate special provisions will be made.

3.2.4 The total duration of the exam is not more than - 40 min.

The time allowed for the preparation of a practical task - 20 minutes.

The time allowed for the preparation of an oral answer - 20 minutes.

The maximum number of points for the answer to each question / task - 50 points.

The maximum number of points for the exam - 100 points.

The minimum number of points for successful completion of the exam - 60 points.

An applicant who scores less than 60 points for the exam is not allowed for further testing and cannot be admitted to the Master's program.

### **3.3 Examination program**

3.3.1 Examination questions:

1. Developmental Psychology: research areas and methods.
2. Behavioral Genetics: research areas and methods.
3. Neuroscience: research areas and methods.
4. Experimental Psychology: research areas and methods.
5. Cognitive Psychology: research areas and methods.

6. Neurolinguistics: research areas and methods.
7. Developmental problems (disorders, behavioral problems, learning difficulties etc.).
8. Research methods and data analysis in the study of human development.
9. Interdisciplinary studies of human development: challenges and future directions.
10. Studying causal processes in human development.
11. Ethical, legal, and societal implications of interdisciplinary studies of human development.
12. Early child development: factors of risk, resilience and positive development.
13. Methods of improving the efficiency of cognitive processes and academic performance.
14. Individual and group differences in psychological traits.
15. Practical applications of cognitive studies: key areas of application, examples.
16. Practical applications of genetic studies: key areas of application, examples.
17. Practical applications of neuroscience studies: key areas of application, examples.
18. Practical applications of studies in experimental psychology: key areas of application, examples.

Practical task: Design a study to address a research question suggested by the Examination Committee; describe strengths and limitations of the chosen design.

*Caffeine improves cognitive performance. Provide a detailed plan of a study to test this hypothesis.*

### 3.3.2 Recommended literature:

#### **1) Key texts:**

- 1 Behavioral Genetics for Education / edited by Yulia Kovas, Sergey Malykh, Darya Gaysina. New York, Palgrave Macmillan, 2016. – 311p.
- 2 Boivin M., Brendgen M, Dionne G., Dubois L., Pérusse D., Robaey P., Tremblay R.E., Vitaro F. (2013). The Quebec Newborn Twin Study into adolescence: 15 years later. *Twin Research and Human Genetics*, 16(1), 64-9. <http://dx.doi.org/10.1017/thg.2012.129>
- 3 Bressler S.L., Menon V. (2010). Large-scale brain networks in cognition: emerging methods and principles. *Trends in Cognitive Sciences*, 14(6), 277-90. <http://dx.doi.org/10.1016/j.tics.2010.04.004>
- 4 Butterworth, B., Kovas, Y. (2013). Understanding neurocognitive developmental disorders can improve education for all. *Science*, 340, 300-305. <http://dx.doi.org/10.1126/science.1231022>
- 5 Chapman, R., Likhanov, M., Selita, F., Zakharov, I., Smith-Woolley, E., Kovas, Y. (2018). New literacy challenge for the twenty-first century: genetic knowledge is poor even among well educated. *Journal of Community Genetics*. <https://doi.org/10.1007/s12687-018-0363-7>

- 6 Fangerau H., Geisler H., Halling T., Martin W. Classification and Evolution in Biology, Linguistics and the History of Science. Concepts – Methods – Visualization. Franz Steiner Verlag, Stuttgart 2013. [Chapter: Phylogenetic classifications and network approaches in linguistics and biology, P.109-196]. Electronic Resource - [http://www.steiner-verlag.de/fileadmin/Dateien/Steiner/EBook/9783515105897\\_eb.pdf](http://www.steiner-verlag.de/fileadmin/Dateien/Steiner/EBook/9783515105897_eb.pdf)
- 7 Harold, G. T., Leve, L. D. and Sellers, R. (2017), How Can Genetically Informed Research Help Inform the Next Generation of Interparental and Parenting Interventions? *Child Development*, 88, 446-458. <http://dx.doi.org/10.1111/cdev.12742>
- 8 Haworth C.M., Davis O.S., Plomin R. (2013). Twins Early Development Study (TEDS): a genetically sensitive investigation of cognitive and behavioral development from childhood to young adulthood. *Twin Research and Human Genetics*, 16(1), 117-125 <http://dx.doi.org/10.1017/thg.2012.91>
- 9 Kovas, Y., Plomin, R. (2006). Generalist genes: implications for the cognitive sciences. *Trends in Cognitive Sciences*, 10(5), 198-203. <http://dx.doi.org/10.1016/j.tics.2006.03.001>
- 10 Laurin J.C., Geoffroy M.C., Boivin M., Japel C., Raynault M.F., Tremblay R.E., Cote S.M. (2015). Child Care Services, Socioeconomic Inequalities, and Academic Performance. *Pediatrics*, 136(6). 1112-1124 <http://dx.doi.org/10.1542/peds.2015-0419>
- 11 Leve, L.D., Neiderhiser, J.M., Harold, G.T., Natsuaki, M.N., Bohannon, B.J.M., Cresko, W.A. (2018). Naturalistic Experimental Designs as Tools for Understanding the Role of Genes and the Environment in Prevention Research. *Prevention Science*, 19 (1), 68-78. <http://dx.doi.org/10.1007/s11121-017-0746-8>
- 12 Neurosciences - From Molecule to Behavior: a university textbook electronic resource /edited by C. Giovanni Galizia, Pierre-Marie Lledo. Berlin, Heidelberg: Springer Berlin Heidelberg, 2013. - 736 p. <http://dx.doi.org/10.1007/978-3-642-10769-6>
- 13 Plomin, R., DeFries, J.C., Knopik, V.S., Neiderhiser, J.M. (2016). Top 10 Replicated Findings From Behavioral Genetics. *Perspectives on Psychological Science*, 11 (1), 3-23. <http://dx.doi.org/10.1177/1745691615617439>
- 14 The Language Phenomenon [electronic resource]: Human Communication from Milliseconds to Millennia /edited by P.-M. Binder, K. Smith. - Berlin, Heidelberg: Springer Berlin Heidelberg, Springer, 2013. - 251 p. Electronic Resource - <http://dx.doi.org/10.1007/978-3-642-36086-2>
- 15 Towards a Theoretical Neuroscience: from Cell Chemistry to Cognition electronic resource /by L Andrew Coward. Dordrecht: Springer Netherlands, 2013. - 443 p. Электронный ресурс - <http://dx.doi.org/10.1007/978-94-007-7107-9>

## 2) *Additional reading:*

- 1 Experimental design and statistics for psychology: a first course /Fabio Sani and John Todman. - Malden [a. o.]: Blackwell Publishing, 2006. – 224p.
- 2 Handbook of research methods in experimental psychology /edited by Stephen F. Davis. - Malden [a. o.]: Blackwell Publishing, 2003. – 507 p.
- 3 Sárosdy J., Farczádi Bencze T., Poór Z., Vadnay M. Applied Linguistics I for BA Students in English. Bölcsész Konzorcium, 2006. Electronic Resource - <http://mek.oszk.hu/05300/05323/05323.pdf>
- 4 The Handbook of Applied Linguistics / edited by Alan Davies and Catherine Elde. Blackwell Publishing Ltd., 2004. Electronic Resource - [http://samples.sainsburysebooks.co.uk/9780470756751\\_sample\\_390203.pdf](http://samples.sainsburysebooks.co.uk/9780470756751_sample_390203.pdf)

### 3) **Electronic Resources:**

- 1 TSU Scientific Library Resources - <http://lib.tsu.ru/en/library-resources>
- 2 The Russian Psychological Society - <http://www.psyru.ru/en/>
- 3 American Psychological Association - <http://www.apa.org/>
- 4 Association for Psychological Science - <https://www.psychologicalscience.org/>
- 5 Encyclopedia on Early Childhood Development - <http://www.child-encyclopedia.com/>
- 6 European Federation of Psychologists' Associations - <http://www.efpa.eu/>
- 7 International Society for Intelligence Research - <http://www.isironline.org/>
- 8 TAGC (The Accessible Genetics Consortium) - <http://www.tagc.world/>
- 9 The British Psychological Society - <http://www.bps.org.uk/>

### 4) **Journals:**

- 1 Journal of Applied Developmental Psychology - <https://www.journals.elsevier.com/journal-of-applied-developmental-psychology>
- 2 Journal of Human Genetics - <https://link.springer.com/journal/10038>
- 3 Behavior Genetics - <https://link.springer.com/journal/10519>
- 4 Trends in Neurosciences - <https://www.sciencedirect.com/journal/trends-in-neurosciences>
- 5 The Quarterly Journal of Experimental Psychology - <https://www.tandfonline.com/toc/pqje20/current>
- 6 Cognitive Psychology - <https://www.journals.elsevier.com/cognitive-psychology>
- 7 Journal of Cognitive Psychology - <https://www.tandfonline.com/loi/pecp21>
- 8 Journal of Neurolinguistics - <https://www.journals.elsevier.com/journal-of-neurolinguistics>
- 9 Advances in Methods and Practices in Psychological Science - <http://journals.sagepub.com/home/amp>
- 10 Research Ethics - <http://journals.sagepub.com/home/rea>
- 11 Child Development - <https://onlinelibrary.wiley.com/journal/14678624>
- 12 International Journal of School & Educational Psychology - <https://www.tandfonline.com/toc/usep20/current>
- 13 Journal of School Psychology - <https://www.journals.elsevier.com/journal-of-school-psychology/>
- 14 Personality and Individual Differences - <https://www.journals.elsevier.com/personality-and-individual-differences/>
- 15 Applied Cognitive Psychology - <https://www.journals.elsevier.com/personality-and-individual-differences/>

3.3.3. Literature that is authorized for using at the examination: At the time of the examination, an applicant can use the supplementary materials, including notes, printed and electronic materials (a personal computer with Internet access).

### **3.4. Criteria of the exam evaluation:**

#### 3.4.1 Answer to a theoretical question

1. Adequacy of an answer to the question stated - 25 points.
  - provision of information which is relevant to the subject matter of a question - 0 - 10 points;
  - logical structure and reasonableness of the answer - 0 to 10 points;

- answers to the additional questions which are appropriate to the theme (up to 2 additional questions) - 0 - 5 points;

2. Completeness of an answer - 25 points.

1. comprehensive structure, logic and coverage of the key elements of the answer to the question - 0 - 15 points;

2. use of additional information, evidence of independent work with the scientific information sources - 0 - 10 points.

3.4.2 Practical task:

1. Statement of research objectives, explanation of the current relevance of the study - 0 - 10 points;

2. Justification of the method and sample of the study - 0 - 10 points;

3. Description of the theoretical and practical significance of results - 0 - 10 points;

4. Relevance of the objectives, methods, and sample of the study - 0 - 10 points;

5. Evaluation of strengths and limitations of the proposed study design - 0 - 10 points.

3.4.3 Check and evaluation of answers to a theoretical question and a practical task of the examination is conducted by the Examination Committee.

The overall score is calculated as the average of the scores assigned by all members of the Examination Committee.

#### **4. Interview: structure, procedure, program and criteria for evaluation of answers**

4.1. Structure and procedure of the interview

4.1.1 The interview is conducted for the Master's program Human Development: Genetics, Neuroscience and Psychology. The interview is conducted based on CV / Resume and motivation letter, including the answers to the questions of the Examination Committee. The total duration of the interview is not more than - 15 min.

The maximum number of points for the interview - 100 points.

The minimum number of points for successful completion of the interview - 60 points.

An applicant who receives less than 60 points for the interview can not be admitted to the Master's program.

4.1.2 During the interview applicant is expected to demonstrate:

*Level:*

1. of the knowledge in the field of the completed degree;

2. of communication skills in English within academic context.

*Skills:*



1. of presentation of their academic and other achievements, of summarizing the experience of participating in studies and projects, scientific events, competitions etc.;
2. of formulating the objectives for personal and professional development;
3. of critical evaluation of the current level of knowledge and practical skills needed for a successful learning on the MSc program.

*Knowledge:*

1. of the general information about the Master's program and training track direction;
2. of the factors of human development;
3. in their own field of research interests and future direction of professional development.

**4.2. Program of interview**

4.2.1 Brief presentation information based on applicant's CV / Resume.

4.2.2 Interview based on motivation letter: explanation of personal interest in studying on this interdisciplinary program; description of already acquired theoretical and practical skills; identification of the area of scientific interests and directions of future research; expectations of the applicant related to the studying on the MSc program; applicant's opinion on professional development prospects after graduation.

**4.3. Criteria of interview evaluation**

4.3.1 The interview is evaluated based on the following criteria:

Contents of the CV - 60 points:

- Information about participation in research projects, scientific grants - 0-20 points;
- Information about participation in research schools, conferences (including participation in the Competition for the applicants of 2018 for the MSc "Human Development: Genetics, Neuroscience and Psychology" announced by The International Centre for Research in Human Development at TSU (ICRHD)) - 0-20 points;
- Knowledge of foreign languages - 0-20 points.

Motivation letter - 40 points:

- Presentation of personal interest in studying on the program and readiness for self-determination in professional and scientific activities - 0 - 20 points;
- Clarity of individual trajectory of professional development - 0 - 20 points.

4.3.2 Check and evaluation of the results of the interview are conducted by the Examination Committee.