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**HIGHER SCHOOL OF ECONOMICS  
NATIONAL RESEARCH UNIVERSITY**

Faculty of Humanities  
School of Linguistics

**Syllabus for the course  
“Experimental Studies of the Grammar”**

Bachelor’s Programme “Fundamental and Computational Linguistics”

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*Настоящая программа не может быть использована другими подразделениями университета и другими вузами без разрешения кафедры-разработчика программы.*

## 1. Scope of Use

The present program establishes minimum demands of students’ knowledge and skills, and defines the content of the course.

The present syllabus is aimed at the lecturers teaching the course, their teaching assistants, and students of the Bachelor’s programme Fundamental and Computational Linguistics.

This syllabus meets the standards required by:

Educational standards of the National Research University Higher School of Economics;

Educational programme Fundamental and Computational Linguistics of the Federal Bachelor’s Programme;

University curriculum for the area of studies 45.03.03 “Fundamental and Applied linguistics” for the academic year 2015/2016.

## 2. Learning Objectives

Learning objectives of the course “Experimental Studies of the Grammar” are to introduce students to:

- most prominent models of language production and comprehension;
- experimental methods used in the psycho- and neurolinguistic studies of syntax and morphology;
- ideas how experimental materials can be used to evaluate different hypotheses formulated in theoretical linguistics.

## 3. Learning outcomes

After completing the study of the discipline “Experimental Studies of the Grammar” students should:

- know most prominent models of language production and comprehension;
- understand experimental methods used in the psycho- and neurolinguistics;
- know experimental studies in several linguistic domains (long-distance dependencies, anaphora, agreement etc.);
- understand special features of experimental studies of the grammar in ontolinguistics and clinical linguistics;
- be able to apply this knowledge when planning his or her own experimental studies and evaluating other studies.

After completing the study of the discipline “Experimental Studies of the Grammar” the student should have the following competences:

National Research University Higher School of Economics  
Syllabus for the course “Experimental Studies of the Grammar”  
Area of studies 45.03.03 “Fundamental and Applied Linguistics”

<b>Competence</b>	<b>Code (UC)</b>	<b>Descriptors (indicators of achievement of the result)</b>	<b>Educative forms and methods aimed at generation and development of the competence</b>
YK-1	CK-B1	The student is able to learn and acquire new skills, also in an area distinct from one's own professional specialty	Acquiring knowledge through reading and analysing scientific papers.
YK-2	CK-B3	The student is able to understand the scientific nature of a problem in one's area of professional expertise	Reading; group discussions; problem solving exercises.
YK-3	CK-B4	The student is able to solve problems in one's area of professional expertise based on the analysis and synthesis of facts and data	Problem solving exercises.
YK-5	CK-B6	The student is able to work with information: find it, assess, and use information from various sources to solve professional and scientific tasks (also in a systematic way)	Reading assignments, problem solving exercises.
YK-6	CK-B7	The student is able to conduct scientific research, including analyzing a problem, setting goals and aims, establishing the object and the topic of research, as well as selecting research methods and assessing results	Group discussions, problem solving exercises
YK-8	CK-B9	The student is able to communicate adequately and effectively, given the goals and the situation of communication	Group discussions

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<b>Competence</b>	<b>Code (UC)</b>	<b>Descriptors (indicators of achievement of the result)</b>	<b>Educative forms and methods aimed at generation and development of the competence</b>
УК-9	СК-Б10	The student is able to critically assess and analyze accumulated experience (both one's own and of others), reflect on professional and social activity	Group discussions
УК-10	СК-Б11	The student is able to act on a professional level in the international academic environment.	Group discussions, problem solving exercises.
ПК-1	ИК-Б1.1-1.3НИД_ПЕД_ПД_ЭД_АД_ОУД_РД_ПрД/ИК-Б2.1-2.3_2.6(ФЛ)	The student is able to use the main terms and concepts of modern linguistics in one's professional activities	Group discussions, problem solving exercises.
ПК-4	ИК-Б2.1-2.3/2.4.2(ФЛ)	The student is able to express oneself freely both in written and oral forms in English	Reading assignments, group discussions
ПК-10	ИК-Б3	The student is able to write up and present results of one's research in Russian and in a foreign language	Reading assignments, problem solving exercises.
ПК-18	СЛК-Б1	The student is able to adhere to legal and ethical norms of professional activity	Problem solving exercises, group discussions.
ПК-20	СЛК-Б3	The student is able to set goals, to develop professionally and personally	Group discussions, problem solving exercises.
ПК-23	СЛК-Б8	The student is able to adapt to different professional environments, act creatively, show initiative and persistence in achieving one's goals both professional and personal	Problem solving exercises, group discussions.

#### 4. Course Plan

№	Topic	Total hours	Contact hours		Independent students' work	
			Lectures	Seminars		
1.	Major theoretical questions in the experimental study of language.		2			
2.	An overview of behavioral and neurolinguistic experimental methods.	8	2	0	6	
3.	Mental grammar in comprehension: major parsing models.	12	2	2	8	
4.	Mental grammar in production: major generation models.	12	2	2	8	
5.	Mental lexicon.	9	1	2	6	
6.	Case studies: long-distance dependencies.	10	2	2	6	
7.	Case studies: agreement (number, gender, case).	9	1	2	6	
8.	Case studies: anaphora.	9	1	2	6	
9.	One experiment from the beginning to the end: running a self-paced reading study.	9	1	2	6	
10.	Specialized methods to assess children's syntax and morphology	18	0	4	14	
11.	Comprehension and production in Broca's aphasia: an interaction of theory and experiment.	9	2	1	6	
	Total	114	16	20	78	

#### 5. Requirements and Grading

Type of grading	Type of work	module	Characteristics
		3	
Continuous	Assigned reading		Reading tasks for seminars.
	Home works	2	Two tasks connected with conducting an experiment, analyzing experimental data.
	Class participation		Discussion of reading assignments and collected experimental data.
	Written test	1	A short test designed to make sure that students remember important details from previous lectures and seminars.
Final	Exam		Oral discussion of the topics of the course.

## 5.1. Course Grade Criteria

*Continuous assessment:* students have to demonstrate their acquaintance with the basic facts, concepts, notions, and theories in the domain of language production and comprehension. By the end of the course students are expected to be able to apply their knowledge in their independent work on topics in linguistics.

*Final assessment:* students have to demonstrate the knowledge of the basic facts, their command of analysing problems using methods of experimental linguistics, and their ability to understand and interpret these problems.

## 5.2. The cumulative grade formulae:

Cumulative grade ( $G_c$ ) for the student's work during the module(s) consists of lecturer's assessment of the student's work during seminars (presence, participation, quality and quantity of answers) ( $G_p$ ), and the mean scores for homework assignments ( $G_h$ ).

$$G_c = G_p + G_h,$$

where  $G_p = 0.33$ , and  $G_h = 0.66$ .

The finale grade ( $G_f$ ) is the sum of cumulative grade ( $G_c$ ) and the final assessment (exam) mark ( $G_e$ ):

$$G_f = G_c + G_e$$

where  $G_c = 0.6$  and  $G_e = 0.4$ .

The grades are rounded in favour of the student.

During *the re-examination*, the student has no option of obtaining additional mark to heighten the grade for current or intermediate controls.

The resultant grade for the course goes to the certificate of Bachelor's degree.

## 6. Course Description

### 1. Major theoretical questions in the experimental study of language.

Different approaches to the competence vs. performance distinction, psycholinguistic adequacy of the grammar, the problems of modularity and its repercussions in psycholinguistics, the idea of innateness and its role in child language acquisition experiments.

### 2. An overview of behavioral and neurolinguistic experimental methods.

Behavioral methods including questionnaires, lexical decision task, self-paced reading, cross-modal priming, eye-tracking while reading, visual world paradigm. Neurolinguistic methods including EEG / MEG, PET, fMRI. How do we choose the right method for an experiment?

### **3. Mental grammar in comprehension: major parsing models.**

Early models relying on heuristic strategies. Subsequent evidence suggesting that different types of information (syntactic, lexical, semantic, contextual) are taken into account during the earliest stages of parsing. Contemporary approaches: interactionist and weakly modular.

### **4. Mental grammar in production: major generation models.**

Types of data production studies rely on (error analysis, elicited production etc.). Models with and without stages. Experimental evidence in favor of the former. Levelt's (1999) model in more detail. Feedback loops in production.

### **5. Mental lexicon.**

An overview of existing approaches with an emphasis on morphologically complex words and forms. Which words and forms undergo morphological decomposition and which are stored as a whole? Can these two routes be combined? Does morphological regularity play any role in it?

### **6. Case studies: long-distance dependencies.**

Experimental evidence from various sources demonstrating the psycholinguistic reality of long-distance dependencies. Data that let us tease apart different approaches to long-distance dependencies (the presence/absence of movement/internal merge and traces/copies). Different experimental profiles for different types of dependencies.

### **7. Case studies: agreement (number, gender, case).**

Agreement attraction errors as a window into the process of agreement during production and comprehension. Representational and retrieval-based approaches. Hierarchies of feature values and the problem of markedness. Subject-predicate agreement and semantics.

### **8. Case studies: anaphora.**

An overview of different formal approaches to anaphoric dependencies. Formulating predications that can be tested experimentally. The difference between bound variable and coreferential readings. Studies with healthy adult and children participants and participants with Down syndrome and Williams syndrome.

### **9. One experiment from the beginning to the end: running a self-paced reading study.**

Creating experimental stimuli (estimating their number, balancing factors, deciding on the nature and quantity of fillers etc.), programming an experiment, collecting data, analyzing data (excluding outliers, performing statistical analysis), interpreting the result.

### **10. Specialized methods to assess children's syntax and morphology**

Various pitfalls one must avoid conducting experiments with children. Truth-value judgment task, act-out task. Several domains where children's performance was different from adults' performance, figuring out the reasons (different grammars vs. different processing abilities etc.).

## **11. Comprehension and production in Broca's aphasia: an interaction of theory and experiment.**

From the early ideas that Broca's area is responsible for language production and Wernicke's area for comprehension, attempts to give a more precise answer to this question relying on more or more sophisticated ideas about brain and about language. Various constructions that are difficult to produce and comprehend for Broca's aphasics and how this depends on the task and context.

## **7. Educational Technology**

The following educational technologies are used in the study process:

- group discussion and analysis of the results of home reading;
- group discussion and analysis of experimental data collected by the students.

## **8. Grading**

### **8.1. Provisional topics for continuous assessment (home assignments):**

- Discuss three experiments exploring the difference between ‘regular’ and irregular’ morphological procedures. What methods do they rely on and why? How many stimuli and fillers are used, which factors are balanced? How are the results interpreted? What notion of regularity is assumed in these studies, what potential problems are associated with it?
- Discuss one production and one comprehension experiment on agreement attraction. What methods do they rely on and why? How many stimuli and fillers are used, which factors are balanced? How are the results interpreted? Which approaches to agreement do they support? What do they tell us about the hierarchy of feature values?

### **8.2. Provisional questions for final assessment:**

- The concept of modularity and its role in psycholinguistics.
- The problem of innate linguistic knowledge and its role in the experimental studies of child language acquisition.
- Explain how an appropriate experimental method is selected comparing speeded grammaticality judgment, self-paced reading and eye-tracking while reading.
- Describe two behavioral methods – cross-modal priming and visual world paradigm – and explain major features of their design and how they are used.
- Describe major methods used in neurolinguistics, their strengths and weaknesses.
- Describe major features of early parsing models relying on heuristic strategies.
- Describe interactionist and weakly modular parsing models and explain how they can be compared.
- Describe different approaches to ambiguity resolution in current parsing models.
- Describe Levelt's model of language production and how it can be tested experimentally.
- Describe different approaches to storage and processing of morphologically complex words.
- Describe several experiments exploring long-distance dependencies and what theoretical questions do they bear on?



- Describe several experiments studying agreement errors and explain what they can tell us about the representation of features and the process of agreement in production and comprehension.
- Describe several experiments studying anaphoric dependencies and explain how they help teasing apart different theories of anaphora.
- Describe several methods used in the experimental studies of child language and explain why they are so complicated. Give two examples of linguistic problems that were addressed using these methods.
- Explain how the progress in the studies of Broca’s aphasia changed our ideas about what Broca’s area is responsible for and outline some questions for further research.

## 9. Reading and Materials

### 9.1. Textbook

Traxler, M. (2011). *Introduction to Psycholinguistics: Understanding Language Science*. Cambridge: Wiley-Blackwell.  
Handbook of Psycholinguistics / Ed. by Traxler, M.J., Gernsbacher, M.A. 2nd ed. Amsterdam, 2006.

### 9.2. Additional reading

Лурия А. Р. Язык и сознание. М., 1979.  
Современная американская лингвистика: фундаментальные направления / Под ред. А. А. Кибрика, И. М. Кобозевой, И. А. Секериной. 2-е изд. М., 2002.  
Ahlén E. *Introduction to Neurolinguistics*. John Benjamins Publ. Company, 2006.  
Bock, K., Miller, C.A. (1991). Broken agreement. *Cognitive Psychology*, 23, 45-93. Gleitman, L. R., Newport, E. *The Invention of Language by Children: Environmental and Biological Influences on the Acquisition of Language // An Invitation to Cognitive Science. Vol. 1: Language / Ed. by L. R. Gleitman, M. Liberman. 2nd ed. Cambridge, MA, MIT Press, 1995. Pp. 1-24.*  
Crain, S., & Thornton, R. *Investigations in Universal Grammar: A Guide to Experiments on the Acquisition of Syntax and Semantics (Language, Speech, and Communication)*. Cambridge, MA, MIT Press, 2000.  
Ferreira, F., & Fodor, J. D. *Reanalysis and Sentence Processing*. Dordrecht, Kluwer, 1998.  
Frazier, L., & Clifton, C. *Construal*. Cambridge, MA, MIT Press, 1996.  
Gazzaniga M.S., Ivry R.B., Mangun G.R. *Cognitive neuroscience: The biology of mind*. New York, 1998.  
Handbook of Perception and Cognition. Speech, Language, and Communication / Ed. by Miller, J.L., Eimas, P.D. New York, 1995.  
Levelt, W. J. M. *Speaking: From intention to articulation*. Cambridge, MA, MIT Press, 1993.  
McClelland J. L., Patterson K. 2002. Rules or connections in past-tense inflections: what does the evidence rule out? // *Trends in Cognitive Sciences. Vol.6. P. 465-472.*  
Miller, J.L., & Eimas, P.D., eds. (1995). *Handbook of Perception and Cognition. Speech, Language, and Communication*. New York: Academic Press.  
Ni, W., Crain, S., & Shankweiler, D. Sidestepping Garden Paths: Assessing the Contributions of Syntax, Semantics and Plausibility in Resolving Ambiguities // *Language and Cognitive Processes*, 1996, 11, 283-334.  
Pinker S. *The Language Instinct: How the Mind Creates Language*. NY, 1994.  
Pinker S., Ullman M. T. (2002). The past and future of the past tense // *Trends in Cognitive*

Sciences. Vol.6. P. 456-463.

Pritchett, B. Grammatical Competence and Parsing Performance. Chicago, University of Chicago Press, 1992.

The Cambridge Handbook of Child Language / Ed. by Bavin, L. Cambridge, 2009.

The handbook of clinical linguistics / Ed. by Ball, M.J., et al. Oxford, 2008.

The Handbook of Second Language Acquisition / Ed. by Doughty, C.J., Long, M.H. Oxford, Blackwell, 2005.

Tomasello, M. Constructing a Language: A Usage-Based Theory of Language Acquisition. Harvard, MA, Harvard University Press, 2003.

Wagers, M.W., Lau, E.F., Phillips, C. (2009). Agreement attraction in comprehension: Representations and processes. *Journal of Memory and Language*, 61, 206-223.

### **9.3. Textbooks in Russian**

Ахутина Т. В. Порождение речи. Нейролингвистический анализ синтаксиса. 2-е изд. М., 2007.

Венцов А. В., Касевич В.Б. Проблемы восприятия речи. 2-е изд. СПб., 2003.

## **10. Equipment**

The course requires a laptop, projector, and acoustic systems.