

**MINISTRY OF SCIENCE AND HIGHER EDUCATION
RUSSIAN FEDERATION**

**FEDERAL STATE AUTONOMOUS EDUCATIONAL INSTITUTION OF
HIGHER EDUCATION
NORTH-CAUCASUS FEDERAL UNIVERSITY**

Methodological Guidelines
for Students on arranging and performing independent work
in the Discipline of Neurology
for Students majoring (Specialty) in 31.05.01 General Medicine

Methodological Recommendations for Studying Theoretical Material

When performing the independent study of theoretical material, the student must follow the rules as set below. The working curriculum of the respective academic discipline shall be recommended to be used as the basis for such activity. According to the schedule of classroom lessons and independent work, a different number of hours is to be allocated for studying individual topics. A significant portion of the student's independent work should be allocated to mastering the material on the covered topic, writing a summary (notes) on the specified theoretical blocks, and searching for additional literature based on the NCFU library and via the Internet system. The lecture material shall not cover all theoretical material; the greater part of it must be mastered through independent work. Given the above, working with the recommended literature is mandatory. Special attention must be paid to the content of the main provisions and conclusions, the explanation of phenomena and facts, and the understanding of the practical application of the theoretical issues under consideration. In the process of this work, the student should strive to understand and memorize the main provisions of the material being considered, the examples illustrating it, as well as to understand the illustrative material. Preparation should be completed by drawing up a plan (summary/notes) on the material (issue) being studied. This allows for the creation of a concentrated, concise representation of the issues being studied. First, studying the recommended literature is to be done. Special attention must be paid to the content of the main provisions and conclusions, the explanation of phenomena and facts, and the understanding of the practical application of the theoretical issues under consideration.

During this work, the student should strive to understand and memorize the main provisions of the material being considered, the examples illustrating it, as well as to understand the illustrative material. Preparation should be completed by drawing up a plan (summary/notes) on the material (issue) being studied. This allows for the creation of a concentrated, concise representation of the issues being studied. If necessary, one should seek (advice) consultation from the instructor. When going to a consultation, it is necessary to thoroughly think through the questions that require clarification. Keeping records contributes to turning reading into an active process, mobilizing motor memory along with visual memory. The following should be born in mind: a student who systematically keeps records creates their own individual stock of auxiliary materials for a quick review of what has been read and for the mobilization of accumulated knowledge. Records are especially important and useful when they reflect the thoughts that arose during independent work.

It is important to develop the students' capacity to compare sources and to think through the material being studied.

Improving note-taking skills among students is of great importance.

The instructor may recommend the following main forms of recording to students: a plan (simple and detailed), excerpts, and theses (abstracts).

The results of note-taking can be presented in various forms.

- A plan is an outline of the read material, a brief (or detailed) list of questions reflecting the structure and sequence of the material.
- A detailed plan fully replaces a summary.
- A summary (notes) is a systematized, logical presentation of the source material. Four types of summaries are distinguished:
 - Outline-summary (Plan-notes) – this is an expanded, detailed plan in which sufficiently detailed records are provided for those points of the plan that need explanation.
 - Textual summary – this is the reproduction of the most important provisions and facts of the source.
 - Free summary – these are clearly and briefly formulated (stated) main provisions resulting from a deep understanding of the material. It may contain excerpts, quotations, and theses; part of the material may be represented by a plan.

- Theme-based summary – this is compiled on the basis of studying a number of sources and gives a more or less exhaustive answer according to a certain scheme (issue).

Methodological Guidelines for the Preparation for Practical Activities

When preparing for practical activities, the recommendation implies studying the control questions for the given lesson and the theoretical material from one's own notes.

The main form of work during the lessons is an interview (discussion). Each student must be ready to speak on all issues raised in the plan and demonstrate maximum activity during their consideration.

The speech must be constructed freely, convincingly, and with arguments. The instructor ensures that the speech is not reduced to a reproductive level (simple reproduction of the text); simple reading of the summary is also not allowed.

It is necessary for the speaker to show their own attitude towards what they are talking about, express their personal opinion and understanding, substantiate it, and be able to draw the correct conclusions from what has been said. In doing so, the student may refer to the entries in the summary, directly to the primary sources, use knowledge of previously studied disciplines, etc. In addition, to obtain a grade at an advanced level, students solve situational tasks based on the results of the mastered topics.

During the execution of practical works, a defense of practical skills is provided, the full list of which is specified in the fund of assessment tools.

Methodological Recommendations for the Preparation of Presentations and Reports

The report must contain elements of novelty; along with the fundamental aspect, an analysis of the current state of the problem under study must be carried out, as well as inclusion in regional issues. The report must include an introduction, a theoretical part, a conclusion, a list of literature, and a presentation that reveals the essence of the topic in graphs, pictures, diagrams, and formulas.

The report is recommended to be submitted on 1 printed sheet. The text of the work must be printed with 1.5 line spacing on one side of a standard sheet (A4) of white paper.

The text and other printed elements of the work must be black, and the contours of letters and signs must be clear, without halos and shading. The font must be Times New Roman, size 14. The titles of chapters and paragraphs are highlighted in bold. The sheet with text must have margins: left – 30 mm, right – 10 mm, top – 20 mm, bottom – 20 mm.

Page numbering of the text is done in the lower right corner of the sheet. It is necessary to number pages starting from the page where the Introduction is printed, on which the number 3 is placed. After that, all pages, including appendices, are numbered.

A space equal to two intervals is placed between the title of the chapter and the title of the paragraph of this chapter, and the title of the paragraph must not be separated from the text of this paragraph by a space. The titles of paragraphs shall be separated from the text of the previous paragraph by a space equal to two intervals. Each chapter, as well as the introduction, conclusions, appendices, and the list of used literature, begin on a new page. The word Chapter is not to be written. Chapters have ordinal numbers within the entire work, designated by Arabic numerals (for example: 1, 2, 3), followed by a period.

The word **PARAGRAPH** or the paragraph symbol (§) is not placed in the title. Paragraphs have ordinal numbers within the chapters, designated by Arabic numerals (for example: 1.1. and 1.2.).

Headings of chapters and paragraphs in the text must be centered; a period shall not be placed at the end of the title of the chapter and paragraph. It is not allowed to hyphenate (transfer) a part of a word in a heading. 4.5. The numbering of tables and figures can be running (continuous) or relate to the number of the chapter and paragraph. For example, if a table or a figure is included in the text of the first paragraph of the second chapter, the numbering is as follows: Table 2.1.1., Fig. 2.1.1.

The last digit means the ordinal number of the table (or figure) in this paragraph.
The table is to be placed as the next page after the first mention of it in the text.

Educational, Methodological, and Informational Support for the Discipline

1. List of Main and Additional Literature Required for Mastering the Discipline (Module)

1.1. List of Main Literature:

1. Cheng-Ching E., Baron E.P., Valappil A.M.N. (eds.) *Comprehensive Review in Clinical Neurology: A Multiple Choice Book for the Wards and Boards*. - 3rd ed. - Philadelphia: Wolters Kluwer, 2025.
2. Lewis S.L., Berkowitz A.L. (eds.) *Neurology for the Non-Neurologist*. - 7th ed. - Philadelphia: Wolters Kluwer, 2025/2026.
3. Vanderah T.W., Gould D.J. *Nolte's The Human Brain: An Introduction to Its Functional Anatomy*. - 9th ed. - Philadelphia: Elsevier, 2026.

1.2. List of Additional Literature:

1. Ropper A.H., Samuels M.A., Klein J.P., Prasad S. *Adams and Victor's Principles of Neurology*. - 12th ed. - New York: McGraw Hill, 2023. - 1605 p.
2. Jankovic J., Mazziotta J.C., Pomeroy S.L., Newman N.J. (eds.) *Bradley and Daroff's Neurology in Clinical Practice*. - 8th ed. - Edinburgh: Elsevier, 2022.
3. Rowland L.P., Pedley T.A. (eds.) *Merritt's Neurology*. - 12th ed. - Philadelphia: Wolters Kluwer/Lippincott Williams & Wilkins, 2010. - 1172 p.
4. Blumenfeld H. *Neuroanatomy through Clinical Cases*. - 3rd ed. - New York: Sinauer Associates/Oxford University Press, 2021.
5. Howard R., Kullmann D., Werring D., Zandi M. (eds.) *Neurology: A Queen Square Textbook*. - 3rd ed. - Hoboken: Wiley Blackwell, 2024.
6. Gorelick P.B., Testai F.D., Hankey G.J., Wardlaw J.M. (eds.) *Hankey's Clinical Neurology*. - 3rd ed. - Boca Raton: CRC Press, 2020.
7. Gelb D.J. *Introduction to Clinical Neurology*. - 6th ed. - New York: Oxford University Press, 2024.

2. List of Educational and Methodological Support for the Independent Work of Students in the Discipline (Module)

1. Louis E.D., Mayer S.A., Noble J.M. (eds.) *Merritt's Neurology Review*. — Philadelphia: Wolters Kluwer.
2. Jordan J.T., Mayans D.R. *Neurology Self-Assessment: A Companion to Bradley and Daroff's Neurology in Clinical Practice*. — 2nd ed. — Elsevier.
3. *Neuroanatomy: Illustrated Colour Text*. — 6th ed. — Elsevier, 2024.
4. *Clinical Neurology and Neuroanatomy: A Localization-Based Approach*. — 2nd ed. — New York: Springer.
5. *Anatomic Basis of Neurologic Diagnosis*. — 2nd ed. — New York: Thieme, 2024.
6. *Blueprints Neurology*. — 6th ed. — Philadelphia: Wolters Kluwer, 2025.
7. *The Neuronomicon: A Case-Based Review of Acute Neurology*. — Springer.

3. List of Resources of the Information and Telecommunications Network **Internet Required for Mastering the Discipline (Module)**

1. American Academy of Neurology (AAN) — <https://www.aan.com>
2. World Federation of Neurology (WFN) — <https://wfneurology.org>
3. Neurology Journal (official journal of AAN) — <https://www.neurology.org>
4. Practical Neurology (BMJ) — <https://pn.bmj.com>
5. JAMA Neurology — <https://jamanetwork.com/journals/jamaneurology>
6. The Lancet Neurology — <https://www.thelancet.com/journals/lanneur/home>
7. AccessNeurology (McGraw-Hill) — <https://neurology.mhmedical.com>

8. Medscape Neurology — <https://www.medscape.com/neurology>
9. PubMed — <https://pubmed.ncbi.nlm.nih.gov>
10. MedLink Neurology — <https://www.medlink.com>
11. NeuroBytes (AAN) — <https://www.aan.com/education/neurobytes/>
12. Whole Brain Atlas (Harvard Medical School) — <http://www.med.harvard.edu/aanlib/>

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Aim of mastering the discipline “Neurology” is to develop competencies that provide theoretical and fundamental knowledge of the basics and patterns of the normal and pathological functioning of the nervous system; master of skills and abilities required to solve professional problems essential to medicine.

Objectives of mastering the discipline “Neurology”:

1. Developing the skill of basic clinical and neurological examination and description of the neurological status of the patient;
2. Learning to identify neurological syndromes and make a tentative topical diagnosis according to the results of clinical and neurological examination;
3. Studying basics of epidemiology, social significance, etiology, pathogenesis, clinical picture and diagnosis of the main and most common diseases of the nervous system, including medical emergencies, necessary for making a preliminary diagnosis, determining the plan of further examination and differential diagnosis;
4. Learning to formulate a clinical diagnosis taking into account the current International Statistical Classification of Diseases and Health-Related Problems (ICD);
5. Learning to choose the tactics of patient management, determine the indications for emergency hospitalization, prescribe basic treatment, including in collaboration with specialist doctors, plan and conduct rehabilitation measures for the most common diseases and emergency conditions associated with damage to the nervous system, in accordance with the current procedures of providing medical care, clinical guidelines (treatment protocols) on the provision of medical care, taking into account the standards of providing medical care;
6. Developing the ability to identify risk factors, conduct primary and secondary prevention of the most common diseases of the nervous system and their complications.

1. Anatomy of the CNS and PNS. Voluntary movement (pyramidal tract), disorders.

2. Anatomy and physiology of the CNS and PNS.
3. Pyramidal tract.
4. Diagnosis and characteristics of paresis (plegia).
5. Syndromes of motor disorders at various levels.

2. Types of sensation, syndromes of sensory disorders.

1. Superficial and deep sensation. Pathways.
2. Methods of sensory examination. Symptoms and syndromes of sensory impairment.
3. Syndromes of sensory disorders at various levels.

3. Cerebellum. Extrapyramidal system.

1. Main functions of the extrapyramidal system and symptoms of its lesion.
2. Clinical presentation of the symptom complex of striatal and pallidal involvement.
3. Main functions of the cerebellum.
4. Disorders of the extrapyramidal system.
5. Cerebellar dysfunction.

4. Brainstem and cranial nerves. Alternating syndromes.

1. Anatomical and physiological data of cranial nerves, localization of nuclei in the brainstem.
 2. Symptoms of cranial nerve lesions.
 3. Alternating syndromes.
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5. **Cerebral cortex. Higher cortical functions and their disorders.**
 1. Principles of structure and functions of the cerebral cortex.
 2. Localization of functions in the cerebral cortex.
 3. Disorders of higher cortical functions.
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6. **Paroxysmal disorders of consciousness – epilepsy and neurogenic syncope.**
 1. Clinical presentation, diagnosis and treatment of epilepsy, status epilepticus.
 2. Clinical presentation, diagnosis, treatment of neurogenic syncope.
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7. **Diseases of the peripheral nervous system.**
 1. Polyneuropathies, mononeuropathies: etiology, clinical presentation, diagnosis, treatment.
 2. Guillain-Barré syndrome: clinical presentation, treatment.
-
8. **Demyelinating diseases of the brain.**
 1. Clinical features of multiple sclerosis, diagnosis and differential diagnosis.
 2. Clinical presentation of acute disseminated encephalomyelitis, diagnosis, treatment, prognosis.
 3. Clinical presentation of acute demyelinating polyneuropathies, diagnosis, treatment, prognosis.
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9. **Inflammatory (infectious) diseases of the CNS.**
 1. Clinical presentation, diagnosis and treatment of encephalitis.
 2. Clinical presentation, diagnosis and treatment of meningitis.

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3. Neuroanatomy: Illustrated Colour Text. — 6th ed. — Elsevier, 2024.
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2. World Federation of Neurology (WFN) — <https://wfneurology.org>
3. Neurology Journal (official journal of AAN) — <https://www.neurology.org>
4. Practical Neurology (BMJ) — <https://pn.bmj.com>
5. JAMA Neurology — <https://jamanetwork.com/journals/jamaneurology>
6. The Lancet Neurology — <https://www.thelancet.com/journals/lanneur/home>
7. AccessNeurology (McGraw-Hill) — <https://neurology.mhmedical.com>
8. Medscape Neurology — <https://www.medscape.com/neurology>
9. PubMed — <https://pubmed.ncbi.nlm.nih.gov>
10. MedLink Neurology — <https://www.medlink.com>
11. NeuroBytes (AAN) — <https://www.aan.com/education/neurobytes/>
12. Whole Brain Atlas (Harvard Medical School) — <http://www.med.harvard.edu/aanlib/>