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MINISTRY OF SCIENCE AND HIGHER EDUCATION

RUSSIAN FEDERATION

Federal State Autonomous Educational Institution of Higher Education

NORTH-CAUCASUS FEDERAL UNIVERSITY

APPROVED

Assoc. Prof. Kubanov S.I.

PhD in Medical Sciences

Dean

Faculty of Medicine and Biology

COURSE OUTLINE OF THE DISCIPLINE (MODULE)

Endocrinology

- Specialty: 31.05.01 General Medicine
- Mode of training: Full-time
- Year of commencement of studies: 2026
- Delivered in Semester 11

Developed by:

Professor of the Department

of Therapy

Dr. of Medical

Sciences Pozdnyakova O.Yu.

Stavropol 2026

1. Aim and Objectives of Mastering the Discipline Endocrinology

- Aim of mastering the discipline - "Endocrinology" consists of mastering knowledge about neuroendocrine mechanisms of regulation of body functions and behavior, and forming modern ideas about the participation of neuropeptides, hormones, and hormone-like substances in interneuronal interactions and the formation of short-term and long-term memory, emotional state, which are integral components of adaptive behavior, the role of the neuroendocrine system in regulating stress responses, the etiology and pathogenesis of endocrine diseases, the course, complications, and outcomes of diseases, and international classification of diseases; mastering the ability to justify the necessity and scope of a patient's laboratory and instrumental examination, methods for determining hormone levels in biological fluids, and the skills of collecting complaints, life history, and medical history of the patient; mastering the skills of establishing a diagnosis based on the current international statistical classification of diseases and health-related issues; and mastering the algorithm for performing basic diagnostic and treatment measures in the treatment of endocrine diseases. The desire to study the neuroendocrine substrate of mental functions is necessary not only for understanding the nature of man, but also because in the future this will give the opportunity to correct defects of behavioral reactions or restore functions lost as a result of the disease by psycho- and pharmacocorrection.
- Objectives of mastering the discipline-
 - Mastering this discipline to the required extent.
 - Consider the sex and age characteristics of the endocrine system, including perinatal development (organogenesis); anatomical and topographic interrelations of the neuroendocrine and central nervous systems, reveal the interdependence of the nervous and neuroendocrine regulation of the body's functions.
 - Show the relationship of the body as a whole and the neuroendocrine system in particular with changing environmental conditions.
 - To master the algorithm for performing basic diagnostic and therapeutic measures in the treatment of endocrine and related diseases; the skills of conducting scientific research, preparing presentation and information-analytical materials, articles.
 - In the process of teaching, to cultivate ethical standards of behavior in the "anatomical theater", to respect and take care of the organs of the human body and the corpse. To instill high moral standards of behavior in the section rooms of a medical university.

2. Place of the Discipline Endocrinology in the Structure of the Training (educational) Program

The discipline Endocrinology belongs to the part compulsory .

3. List of Potential Learning Outcomes for the Discipline Endocrinology, Correlated with the Outcomes of Mastering the Educational Program.

Code and definition of the competence	Code and definition of the indicator	Planned learning outcomes for the discipline Endocrinology describing the stages of competency and indicator development
PC 3. Capable of determining the patient's main pathological conditions, symptoms, disease syndromes, nosological forms in accordance with International statistical classification of diseases and health-related problems, X revision	ID-1 PC-3 He is able to build an algorithm and select criteria for determining patients of various profiles. the main pathological conditions, syndromes, diseases in accordance with International Statistical Classification of Diseases and Related Health Problems, X revision (ICD-X).	Forming clinical thinking Acquiring special medical skills and applying them in practical healthcare.
	ID-2 PC-3 Identifies the main pathological symptoms and syndromes, formulates clinical diagnosis in accordance with ICD-10.	

4. Volume of the Academic Discipline Endocrinology and Control *

Volume of classes: Total: 3 ECTS credits, 108 academic hours.	Full-time type of study, in academic hours
Face-to-face work	54
Lectures / including practical training	18
Practical classes / including practical training	36
Independent work	54
Forms of control	
Credit (Pass/Fail)	

5. Content of the Discipline Endocrinology, Structured by Topics (Sections) with an Indication of the Hours and Types of Classes

#	Section (topic) of the discipline and brief content	Competencies and indicators to be developed	Full-time training		Forms of current control of academic progress
			Contact work of students with the teacher / of them practical skills training, hours	Independent work, hours	

			Lectures	Practical classes	Laboratory work		
11th semester							
1.	Introductory session. Scheme of the patient's history. Anamnesis. Type 1 diabetes mellitus. Etiology. Pathogenesis of the development of clinical syndromes. Treatment with insulin. Mode of introduction. Types of drugs. Treatment goals. 1. Diabetes mellitus. 2. Epidemiology. Risk factors for the development of diabetes mellitus. 3. Etiology of development, genetic aspects, classification, pathogenesis of the main syndromes and symptoms.	ID-1 PC-3 ID-2 PC-3	2	4		6	Interview (discussion)
2.	Type 1 diabetes. Vascular complications. Classification. Differential diagnosis. 1. Clinical forms (differences in the development of vascular complications in type 1 and type 2 diabetes), their characteristics. 2. Classification of vascular complications. Diabetes in pregnant women. 3. Principles of treatment of various vascular complications. Insulin therapy. 4. Principles of diagnostics complications of diabetes. 5. Dispenserization and prognosis.	ID-1 PC-3 ID-2 PC-3	2	4		6	Interview (discussion),
3.	Type 2 diabetes mellitus. 1. Treatment of type 2 diabetes mellitus type: the main groups of tableted drugs. 2. Principles of prescription various groups of tableted sugar-lowering drugs.	ID-1 PC-3 ID-2 PC-3	2	4		6	Interview (discussion),

4.	Emergency conditions in the clinic of type 1 and type 2 diabetes mellitus. 1. Pathogenesis of diabetic ketoacidosis. 2. Etiology. Development and pathogenesis of the main syndromes. 3. Differential diagnosis of hyperosmolar coma, ketoacidosis, and lactic acidosis. 4. Principles of diagnosis of various diabetic comas. 5. Principles of therapy for acute complications of diabetes mellitus. 6. Forecast and analysis of the causes of development.	ID-1 PC-3 ID-2 PC-3	2	4		6	Interview (discussion),
5.	Thyroid disease. Diffuse toxic goiter. 1. Diffuse toxic goiter. 2. Etiology and pathogenesis development of thyrotoxicosis. 3. Main syndromes thyrotoxicosis.	ID-1 PC-3 ID-2 PC-3	2	4		6	Interview (discussion),
6.	Hypothyroidism. 1. Classification of hypothyroidism: primary, secondary, tertiary. 2. Etiology of various forms of hypothyroidism, pathogenesis of the main syndromes and symptoms. The problem of iodine deficiency, cause, clinical picture, diagnosis, therapy. 3. Differential diagnosis of diseases that occur with hypothyroidism syndrome. 4. Diagnosis of various forms of hypothyroidism. Therapy hypothyroidism.	ID-1 PC-3 ID-2 PC-3	2	4		6	Interview (discussion),

7.	Diseases of the adrenal glands. Cushing's disease and syndrome. 1. Etiology of Cushing's disease and syndrome. 2. Pathogenesis of the main pathological syndromes and symptoms. 3. Arterial endocrine hypertension. 4. Differential diagnosis of Cushing's disease and syndrome. 5. Diagnosis of Cushing's syndrome and disease	ID-1 PC-3 ID-2 PC-3	2	4		6	Interview (discussion),
8.	Primary and secondary insufficiency of the adrenal cortex. Hyperaldosteronism. 1.Primary and secondary insufficiency of the adrenal cortex. Clinical picture. 2.Main clinical syndromes, pathogenesis of their development. 3.Differential diagnosis. 4.Methods of research laboratory and instrumental Diagnostics.	ID-1 PC-3 ID-2 PC-3	2	4		6	Interview (discussion),
9.	Diseases of the pituitary gland and parathyroid glands. Pituitary tumors. Hyper and hypoparathyroidism. 1.Pituitary tumors. 2.Concept of somatotropinoma, prolactinoma. 3.Indications for surgical treatment. Medications for drug therapy. 4.Adrenal tumors. Androsteroma. Aldosteroma. Hyperparathyroidism. 5.Classification. Diagnosis, treatment.	ID-1 PC-3 ID-2 PC-3	2	4		6	Interview (discussion),
	TOTAL for the 11th semester		18	36		54	
	TOTAL		18	36		54	

6. Assessment Tools Fund for the Discipline Endocrinology

The assessment tools fund (ATF) for the discipline Endocrinology is based on the list of competencies to be mastered, indicating the stages of their formation in the process of mastering the discipline (module). The ATF provides an objective control over the achievement of the planned learning outcomes. The ATF includes:

- A description of indicators and criteria for evaluating competencies at various stages of their formation, a description of evaluation scales;
- Methodological materials determining the procedures for evaluating knowledge, skills, abilities and (or) work experience characterizing the stages of competency formation;
- Standard control tasks and other materials necessary for assessing knowledge, skills, and the level of mastery of the formed competencies in the process of mastering the discipline Endocrinology.

The ATF is an appendix to this discipline Endocrinology program.

7. Methodological Guidelines for Students on Mastering the Discipline

When starting work, each student must take into account the following provisions.

The discipline Endocrinology is structured on a thematic principle; each topic represents a logically completed section.

The lecture material is dedicated to the consideration of key, basic provisions of the courses and the clarification of learning tasks assigned for the independent work of students.

Practical classes are conducted with the aim of consolidating the mastered information, acquiring skills for its application in solving practical problems in the relevant subject area.

Laboratory works are aimed at gaining practical experience in the relevant subject area.

The independent work of students is aimed at the independent study of additional material, preparation for practical and laboratory classes, as well as the execution of all types of independent work.

In order to successfully master the discipline, it is important to complete all types of independent work employing the recommended sources of information.

8. Educational, Methodological, and Informational Support for the Discipline

8.1. List of Main and Additional Literature Required for Mastering the Discipline Endocrinology.

8.1.1. List of Main Literature:

1. Bulatova O.V. Physiology of Regulatory Systems: Textbook Part 1.1

Endocrinology KSU, 2016 – 162 p.

http://biblioclub.ru/index.php?page=book_red&id=481493&sr=1

2. Drozdov, A. A. Endocrinology : Textbook / A. A. Drozdov, M. V. Drozdova. – 2nd ed. – Saratov : Nauchnaya kniga, 2019. – 159 p. – ISBN 978-5-9758-1825-6. –

Text : electronic // Electronic library system IPR BOOKS : [website]. – URL:

<http://www.iprbookshop.ru/80995.html>

3. Complete Handbook of Endocrinologist / G. I. Dyadya, G. Yu. Lazareva, M. A. Krasnova [et al.]. – Saratov : Nauchnaya kniga, 2019. – 892 c. – ISBN 978-5-9758-1865-2. – Text :

electronic // Electronic library system IPR BOOKS : [website]. – URL:

<http://www.iprbookshop.ru/80178.html>.

8.1.2. List of Additional Literature:

1. Blagosklonnaya Ya.V., Shlyakhto E.V., Babenko A.Yu. Endocrinology. SPb-2011.-424

p. http://biblioclub.ru/index.php?page=book_red&id=105781&sr=1

2. Koryagin, A. S. Fundamentals of Endocrinology : Educational and Methodological Guide / A. S.

Koryagin, E. A. Gracheva. – Nizhny Novgorod : NNGU n.a. N. I. Lobachevsky, 2016. – 109 p. – Text : electronic // Lan : electronic library system. – URL: <https://e.lanbook.com/book/152932>

3. Malysenko, O. S. Clinical tasks in gastroenterology, endocrinology and hematology : a textbook / O. S. Malysenko, T. V. Protasova, T. A. Raskina. – Kemerovo : Kemerovo State Medical Academy, 2011. 140 p. – ISBN 2227-8397. – Text : electronic // IPR BOOKS Electronic Library system : [website]. – URL: <http://www.iprbookshop.ru/6052.html>

4. Marshalko, O. V. Therapy. Part 3. Gastroenterology. Nephrology. Hematology. Endocrinology. Joint Diseases. Allergies: Textbook / O. V. Marshalko, A. I. Karpovich. – Minsk: Republican Institute of Professional Education (RIPO), 2016. – 344 c. – ISBN 978-985-503-637-2. – Text : electronic // Electronic Library System IPR BOOKS : [website]. – URL: <http://www.iprbookshop.ru/67747.html>

5. Mokhort, T. V. Clinical Endocrinology: Textbook / T. V. Mokhort, Z. V. Zabarovskaya, and A. P. Shepelkevich. – Minsk: Vysheyschaya Shkola, 2013. – 415 p. – ISBN 978-985-06-2305-8. – Text: electronic // Lan: electronic library system. – URL: <https://e.lanbook.com/book/65456>

6. Skvortsov, V. V. Clinical Endocrinology: A Short Course / V.V. Skvortsov; A.V. Tumarenko. - St. Petersburg: SpetsLit, 2015. - 194 p. - ISBN 978-5-299-00621-6.

7. Okorokov, A. N. Emergency endocrinology / A. N. Okorokov. – 2nd ed. - Moscow: Medical Literature, 2018. – 188 p. – ISBN 978-5-89677-196-8. – Text: electronic // Electronic Library IPR BOOKS system: [website]. – URL: <http://www.iprbookshop.ru/75514.html>

8.2. List of Educational and Methodological Support for the Independent Work of Students in the Discipline Endocrinology.

1. Educational and methodological guide: Guidelines for students on the organization and conduct of independent work in the discipline "Endocrinology". – Stavropol: NCFU, 2026.

2. Educational and methodological guide: Guidelines for performing laboratory work in the discipline "Endocrinology". – Stavropol: NCFU, 2026.

8.3. List of Resources of the Information and Telecommunications Network Internet Required for Mastering the Discipline Endocrinology.

1. <http://rudocor.net/> - Medical Portal
2. <http://www.e-reading.club/> - Large Online Library
3. <http://www.pubmed.com/> - Database of Full-Text Articles on Medicine
4. <http://www.spravocnikpolekarstvam.ru/> - Free Online Pharmacological Reference Book
5. <https://dic.academic.ru/> - Dictionaries and Encyclopedias.
6. <https://www.rmj.ru/> - Russian Medical Journal
7. <http://studentam.net> – an electronic library of textbooks.

9. List of Information Technologies Employed through the Discipline Endocrinology, Including a List of Software and Information Reference Systems.

When delivering lectures, computer equipment and demonstrations of multimedia presentation materials are used. In seminars and practical classes, students deliver presentations prepared by them during the hours of independent work.

Information Reference Systems:

Information-reference and information-legal systems used in the study of the discipline:

1.	Electronic library system "University Library Online" - www.biblioclub.ru (Contract No. 50-04/19 for the provision of information services dated 13.05.2019)
2.	Electronic library system "IPRbooks" (LICENSE AGREEMENT No. 5168/19 dated 13.05.2019 for providing access to the electronic library system IPRbooks. Organization: IPR Media LLC)
3.	"eLIBRARY.RU": [Scientific Electronic Library]. – URL: http://elibrary.ru
4.	Legal Information Portal "Garant" - http://www.garant.ru/
5.	Reference Legal System Russian Legislation and Judicial Practice in Free Access - http://www.pravo.ru/

Software:

1.	Alt Workstation 10
2.	Alt Workstation K
3.	Alt Server
4.	Office software package – P7-Office

10. Description of the Material and Technical Resources Required for the Educational Process for the Discipline Endocrinology.

Lecture classes	A classroom equipped with multimedia equipment and technical training facilities.
Practical classes	A classroom, equipped with multimedia equipment and technical training facilities.
Independent work	A room for the independent work of students, equipped with computer hardware with the capability to connect to the Internet network and provide access to the electronic information and educational environment of the university.
Practical training	Carried out in the structural subdivisions of the university and (or) in organizations engaged in activities matching the profile of the respective training program, including its structural subdivision.

11. Specific Features of Mastering the Discipline Endocrinology by Persons with Disabilities

Students with disabilities shall be provided with special textbooks, teaching aids, and didactic materials, special technical training facilities for collective and individual use, the services of an assistant (helper) providing the necessary technical assistance to the students, as well as the services of sign language interpreters and tactile sign language interpreters.

The mastery of the discipline Endocrinology by students with disabilities may be organized jointly with other students, as well as in separate groups.

Mastering the discipline Endocrinology by students with disabilities is to be carried out taking into account the peculiarities of psychophysical development, individual capabilities, and health status.

In order to ensure the accessibility of higher education under the educational program for persons with disabilities, the following is provided during the mastery of the discipline Endocrinology:

- 1) for persons with visual impairments:

- the presence of an assistant offering the student the necessary technical assistance, taking into account individual features (help taking the workplace, moving around, reading and formatting the task, including writing under dictation),
 - written tasks, as well as instructions on the procedure for their execution, are formatted in an enlarged font,
 - special textbooks, teaching aids, and didactic materials (having a large font or audio files), individual uniform lighting of at least 300 lux,
- if necessary, a magnifying device is provided to the student to complete the task;

2) for persons with hearing impairments:

- the presence of an assistant providing the student with the necessary technical assistance, taking into account individual characteristics (helps to take a workplace, move around, read and format the task, including writing with dictation),
- the availability of sound-amplifying equipment for collective use is ensured; if necessary, sound-amplifying equipment for individual use is provided to the student;
- provision with proper sound means of reproducing information is ensured;

3) for persons with musculoskeletal disorders (including severe motor function impairments of the upper limbs or the absence of upper limbs):

- written tasks are performed on a computer with specialized software or are dictated to an assistant;
- at the request of the student, tasks may be performed verbally.

12. Specific Features of Implementing the Discipline with the Use of Distance Learning Technologies and E-Learning

Subject to Part 1 of Article 16 of the Federal Law of December 29, 2012, No. 273-FZ On Education in the Russian Federation, e-learning shall be viewed as the arrangement of educational activities employing information contained in databases and used in the implementation of educational programs, as well as information technologies, technical means, and information and telecommunication networks that ensure the processing and transmission of the specified information via communication lines, and the interaction of students and pedagogical workers.

Remote (distance) learning technologies are understood as educational technologies implemented mainly with the use of information and telecommunication networks during the indirect (at a distance) interaction of students and pedagogical workers.

The implementation of the discipline may be carried out with distance learning technologies and e-learning in full or in part. The components of the Educational And Methodological Complex (EMC) of the discipline (working program of the discipline, assessment and methodological materials, forms of attestation) implemented with the use of distance learning technologies and e-learning contain an indication of their use.

When arranging educational activities with distance learning technologies and e-learning, asynchronous and synchronous methods of interaction between participants in educational relations via the information and telecommunications network Internet may be offered.

When using distance learning technologies and e-learning, the schedule for the discipline shall indicate: methods of interaction among participants in educational relations via the information and telecommunications network Internet (VCC – videoconferencing, ET – electronic testing); links to the electronic information and educational environment of NCFU, to educational platforms and resources of other organizations to which open access is provided via the information and telecommunications network Internet; for synchronous learning – the time of online classes and instructors; for asynchronous learning – the authors of online courses.

When arranging intermediate attestation with distance learning technologies and e-learning, the Methodological Recommendations on the use of technical means ensuring the

objective reliability of results when conducting intermediate and state final attestation for higher education educational programs – Bachelor's Degree programs, Specialist's Degree programs, and Master's Degree programs with distance learning technologies are used (Letter of the Ministry of Science and Higher Education of Russia dated December 7, 2020, # MN-19/1573-AN On sending methodological recommendations).

The implementation of the discipline with the use of e-learning and distance learning technologies is carried out using the electronic information and educational environment of NCFU, to which students are provided access via the information and telecommunications network Internet, or using the resources of other organizations, including platforms providing services for videoconferencing, online meetings, and distance learning (MTS-Link), as well as using the capabilities of social networks to carry out communication between students and instructors.

The educational and methodological support for a discipline shall be ensured with e-learning and distance learning technologies includes the working program presented in electronic form, educational and methodological manuals or a course of lectures, methodological guidelines for performing various types of educational activities of students provided for by the discipline, and other educational and methodological materials posted in the information and educational environment of NCFU.