

TARAS SHEVSHENKO NATIONAL UNIVERSITY OF KYIV

Education scientific center "Institute of biology and medicine"

Department of Internal Medicine

«APPROVED BY»

Deputy director

Of scientific and pedagogical work



Olga KHARCHENKO

«20» June 2023

EDUCATIONAL PROGRAM

OPHTHALMOLOGY

For students

branch of knowledge 22 «Healthcare»
specialty 222 «Medicine»
educational level «Master»
educational program «Medicine»
type of discipline selective

Form of study daytime
The academic year 2023/2024
Semester 10
Number of credits ECTS 4
Language of teaching, learning
And evaluation english
Form of final control credit

Teachers: _____

Prolonged: on 20__/20__ year st. _____ (_____) «__» 20__ year
(signature, name, date)

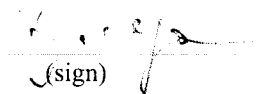
on 20__/20__ year st. _____ (_____) «__» 20__ year
(signature, name, date)

Kyiv – 2023

Developers: O.Vitovska, DMSc., professor department of internal medicine

APPROVED

Acting head of internal medicine chair


(sign)

Volodymyr BULDA

Protocol № 8 від «22» June 2023

**Approved by scientific and methodical commission of
Education scientific center «Institute of biology and medicine»
Taras Shevshenko National University of Kyiv**

Protocol from «20» June 2023 № 6

Head of the scientific and methodical commission  **Natalia SKRYPNYK**

«20» June 2023

1. Purpose of discipline – to formulate necessary for the professional medical practice theoretical knowledge and practical skills, based on deep scientific insight, to demonstrate acquirement of the diagnostic and treatment algorithms in clinical practice, to formulate competence in applying experience in diagnostics, treatment and prophylactics of ophthalmological diseases, competence in applying premedical help, treatment and prophylaxis and first aid in cases of acute diseases and traumas, to formulate skills in organization of medical practice within the healthcare system.

2. Requirements to comprehend and choose the studying discipline:

1. Successful completion of studying disciplines: «Biological and bioorganic chemistry», «Human anatomy», «Histology, cytology and embryology», «Physiology», «Microbiology, virology and immunology», «Pathomorphology», «Pathophysiology», «Pharmacology», «Propedeutics of internal medicine», «Propedeutics of pediatrics», «General surgery», «Neurology», «Psychiatrics and narcology», «Internal medicine», «Pediatrics and children's infectious diseases», «Clinical surgery with course of anesthesiology and intensive care», «Obstetrics and gynecology».

2. Capability to implement knowledge from propaedeutics of internal medicine, propaedeutics of pediatrics, general surgery, neurology, psychiatrics and narcology, internal medicine, pediatrics and children's infectious diseases, clinical surgery with course of anesthesiology and intensive care and other disciplines for solving certain scientific and practical tasks; capability to work with scientific-technical literature.

3. Possession of basic systemic analysis skills.

3. Анотація навчальної дисципліни

Studying discipline «Ophthalmology» is a part of the «Magistrate» level. «Ophthalmology» is a mandatory discipline, which grasps study of concept, terminology, diagnostic and treatment measures in medical practice, connected with applying qualified medical help within the whole specter of eye diseases, considering patients individual characteristics and attitude towards the illness.

Discipline teaches planning of medical examination of an ophthalmic patient and interpretation of examination results, applying premedical, applying premedical help, treatment and prophylaxis help and sanitary and prophylaxis help, first aid in cases of acute diseases and traumas.

4. Goals (study aims):

- 1) Comprehension of diagnostic algorithms in clinical practice overall and within a hospital in particular;
- 2) Learning to interpret the results of eye functional and conditional examinations while

- \ diagnosing chronic and acute eye diseases;
- 3) Study of acute and chronic ophthalmological diseases treatment approaches;
- 4) Familiarization with chronic and acute eye diseases prophylaxis, ophthalmological pathology risk factors.
- 5) Giving first aid with applying rules of professional ethics and deontology;
- 6) Formulating active approach toward healthy lifestyle.

Discipline «Ophthalmology» formulates basics for further study of clinical disciplines and ability to apply clinical thinking for differential diagnostics, planning examinations, interpreting results within further studying and professional practice.

According to the requirements of the Ukrainian higher education standards (second (magistrate) level of higher education, field of knowledge 22 «Healthcare», specialty 222 «Medicine») discipline «Modern ophthalmic surgery» provides students with such **abilities**:

- ***integral:***

Ability to solve typical and complicated specialized tasks and practical problems within professional field of healthcare, or within studying process, which includes research and/or innovation and is characterized with complex and indefinite requirements and conditions.

- ***overall:***

- Ability to apply knowledge in practical situations.
- Ability to adapt and act in a new situation.
- Certainty and persistence in relation to the tasks and duties taken.

- ***special (occupational, objective):***

- Ability to gather medical intel about the patient and to analyze clinical data. PC.02. Ability to define required set of laboratory and instrumental examinations and to interpret the results.
- Ability to determine preliminary and clinical diagnosis.
- Ability to formulate principles and specifics of treatment.

5. Results of the discipline study:

Studying results (1- toknow;2- tobeableto;3 - communication; 4 - autonomy and responsibility)		Forms (and/or methods and technologies) teaching and studying	Rating methods	Percentage within conclusive rating of the discipline
Code	Studying results			
To know				
1.1.	Most spread clinical symptoms and syndromes in ophthalmology	Lecture, individual work	Intermediate control, final control; presentation ratings / reports; verbal answers / additions	5
1.2.	To classify and analyze typical clinical pattern of the most spread ophthalmic diseases	Practical lesson, individual work	Intermediate control, final control; presentation ratings / reports; verbal answers / additions	5
1.3.	To compose an examination plan of laboratory and instrumental examinations within typical cases of the most spread ophthalmological diseases	Lecture, practical lesson, individual work	Intermediate control, final control; presentation ratings / reports; verbal answers / additions	5
1.4.	To prognose an outcome for sight and working capacity within cases of the most spread ophthalmological diseases	Lecture, practical lesson, individual work	Intermediate control, final control; presentation ratings / reports; verbal answers / additions	5
1.5.	T o determine etiological and pathogenetic factors of the most spread ophthalmological diseases	Practical lesson, individual work	Intermediate control, final control; presentation ratings / reports; verbal answers / additions	5
To be able to				
2.1.	Demonstrate mastery of moral and deontological principles of a medical specialist and mastery of special subordination principles	Individual work	Presentation ratings / reports	5
2.2.	Interpret general principles of treatment principles, rehabilitation and prophylaxis of the most spread ophthalmological diseases	Practical lesson	Intermediate control, final control; presentation ratings / reports; verbal answers / additions	5
2.3.	Compose an examination plan within typical cases of the most spread ophthalmological diseases	Practical lesson, individual work	Intermediate control, final control; presentation ratings / reports; verbal answers / additions	10
2.4.	Analyze results of basic ophthalmological examination methods	Practical lesson, individual work	Intermediate control, final control; presentation ratings / reports; verbal answers / additions	10
2.5.	Determine connection between an eye illness and pathological processes within patients organism	Practical lesson	Intermediate control, final control; presentation ratings / reports; verbal answers / additions	10

2.6.	State methodically correct examination results in the history of present illness form with diagnose substantiation	Practical lesson	Intermediate control, final control; presentation ratings / reports; verbal answers / additions	10
2.7.	Diagnose and apply medical help in emergency cases within ophthalmology	Practical lesson	Intermediate control, final control; presentation ratings / reports; verbal answers / additions	5
2.8.	Treatment prescription for ophthalmic diseases according with the protocols	Practical lesson	Intermediate control, final control; presentation ratings / reports; verbal answers / additions	10
Communication				
3.1	Apply the state language for special and work communication and for documentation; foreign language for professional field; set personal connections for effective task and duty completion	Practical lesson, individual work	Presentation ratings / reports; verbal answers / additions	5
Autonomy and responsibility				
4.1.	Take responsibility for making decisions and taking actions about the righteousness of the set syndrome diagnosis according to the ethical and legal norms	Individual work	Presentation ratings / reports	5

6. Disciplinary study results and program study results ratio

Disciplinary study results (code) Program study results (name)	1.1	1.2	1.3	1.4	1.5	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	3.1	4.1
To set and analyze additional (mandatory and by choice) examination methods (laboratory, X-ray, functional and/or instrumental), for patients with organic and systemic diseases to conduct differential diagnosis.			+					+	+		+			+	
To set the final diagnosis by analyzing subjective and objective data from clinical and additional examination, differential diagnosis. Compliance with the ethical and legal norms, under doctors control within hospital environment	+	+			+	+	+		+		+				+
Define treatment principles (conservatory, operative) within hospital environment, by intermediate clinical diagnosis. Complying with ethical and legal norms and with existing algorithms and standard schemes. To be able to set personalized recommendations within hospital environment in cases of standard scheme additions needs.		+		+	+		+		+	+	+	+	+	+	+

7. Rating scheme.

7.1. Form of student rating (control form):

- current rating (current control):

1. *Intermediate control 1 — PH1.1—1.5, 2.2-2.8 — 20 points / 10 points*
2. *Intermediate control 2 — PH1.1—1.5, 2.2—2.8 — 20 points / 10 points*
3. *Presentations / reports - PH PH1.1—1.5, 3.1, 4.1 — 10 points /5 points*
4. *Verbal answers /additions - PH1.1—1.5, 2.2—2.8, 3.1 — 10 points / 5 points*
5. *Practical tasks completion rating - PH 2.2—2.8 — 40 points /20 points.*

- final evaluation: in the form of credit

The final score of the educational component, the final form of control for which is credit, is defined as the sum of marks (points) for all successfully evaluated learning outcomes. Marks below the minimum threshold are not added to the final score.

Mandatory for a positive final score (60 points and above and "credited") is the completion of all practical classes.

It is not allowed to retake the semester control in order to improve the positive assessment.

7.2. Organization of evaluation:

Intermediate control is made after the completion of lectures from chapter 1. Assessment of practical tasks is made after the end of the course of lectures. Assessment of prepared presentations/reports and their defense, oral answers/additions is made throughout the semester. The final examination is made after the completion of the lectures from chapters 1 and 2 and the completion of all practical classes.

7.3. Validity Scale

Passed	60-100
Fail	0-59

8. Study discipline structure. Theme plan

№ п/п	Theme	Number of hours			
		Lectures	Practical lessons	Consultations	Individual work*
Content module 1 Anatomical and functional features of the eye. Ophthalmological examination plan.					
1.	Lecture 1. Eye physiology and functioning. Modern technologies in ophthalmology	2			
2.	Practical lesson 1. Eye functions. Refraction and accommodation. Ophthalmic examination methods. Examination results interpretation (sight acuity, field of view, color sensitivity, darkness adaptation, binocular sight, refractometry)		3		
3.	Individual work. Anatomical and topographical eye features. Modern diagnostic methods (optical coherent tomography, corneal topography etc.). Ophthalmological examination plan. Blindness.				5
4.	Practical lesson 2. Refraction and accommodation. The concept of the main types of refraction, methods of correction. Prevention of myopia		3		
5.	Independent work. Methods of determining refraction. Subjective and objective. The concept of aberrations and devices for diagnosis. Keratoconus. Biometrics, its role in the diagnosis and treatment of refractive disorders.				4
6.	Practical lesson 3. Acute and chronic eye lid and lacrimal organs diseases. Diagnostics, examination results interpretation, treatment, prophylaxis. Surgical treatment.		3		
7.	Individual work. Eye lid neoplasia. Orbital diseases. Etiology, clinic, diagnostics, prophylaxis, treatment. Shirmer test, meybomography, canal probe, exophthamometry - results interpretation.				4
8.	Lecture 2. Red eye.	2			
9.	Practical lesson 4. Conjunctival diseases. Clinic. Etiology. Pathogenesis. Diagnostics. Treatment. Prophylaxis.		3		
10.	Individual work. Scleral diseases. Diagnostics, examination results interpretation, treatment,				4

	prophylaxis. Dystrophic Conjunctival diseases.				
11.	Practical lesson 5. Corneal diseases. Clinic. Etiology. Pathogenesis. Diagnostics. Treatment. Prophylaxis. Surgical treatment. Corneal transplantation.		3		
12.	Individual work. Congenital corneal pathology. Modern methods of corneal condition diagnostics. Keratoplasty in Ukraine.				4
13.	Lecture 3. Pathology of uveal tract. Clinic. Etiology. Pathogenesis. Diagnostics. Treatment.	2			
14.	Practical lesson 6. Pathology of uveal tract. Clinic. Etiology. Pathogenesis. Diagnostics. Treatment.		3		
15.	Individual work. Basic methods of instrumental diagnostics. Eye vascular layer neoplasty. Congenital eye vascular layer anomalies				4
16.	Unit 1 final control		1		
17.	Content module 2. Dystrophic diseases. Emergency.				
18.	Lecture 4. Gradual sight loss. Glaucoma. Cataract.	2			
19.	Practical lesson 7. Lens diseases.		3		
20.	Individual work. Congenital cataract. Clinic. Diagnostics. Differential diagnostics. Treatment. Lens growth anomalies. Lens development anomalies. Complications of cataract surgery. Modern IOLs. Artificial intelligence in cataract surgery				4
21.	Practical lesson 8. Glaucoma. Etiology. Pathogenesis. Classification. Clinic. Diagnostics. Treatment. Surgery.		3		
22.	Individual work. Congenital glaucoma. Secondary glaucoma. Etiology. Pathogenesis. Classification. Clinic. Diagnostics. Treatment.				5
23.	Lecture 5. Eye changes within general conditions	2			
24.	Practical lesson 9. Changes of the eye in general diseases. Diabetes and its complications in ophthalmology		3		
25.	Individual work. Modern laser technologies in the treatment of diabetic retinopathy. What is anti-VEGF therapy, modern molecules and treatment protocols. Neovascular glaucoma				4
26.	Practical lesson 10. Changes of the eye in general diseases. Hypertensive disease. Disease of the thyroid gland.		3		
27.	Individual work. Endocrine ophthalmopathy. Description of the normal ocular fundus. Diagnosis of hypertensive retinopathy. Modern technologies,				4

	artificial intelligence				
28.	Practical lesson 11. Age-related macular degeneration. Etiology. Pathogenesis. Diagnosis and treatment.		3		
29.	Individual work. Epidemiology of ADM. Programs for the prevention of blindness due to ADM. Laser treatment of ADM. AntiF-VEGF therapy. OCT and angioOCT in the diagnosis ofAVDM. Antioxidants in ophthalmology.				4
30.	Practical lesson 14. Rapid sight loss (thrombosis, embolia) Etiology. Pathogenesis. Classification. Clinic. Diagnostics. Treatment.		3		
31.	Practical lesson 13. Rapid sight loss (optic nerve neuritis, retinal detachment) Etiology. Pathogenesis. Classification. Clinic. Diagnostics. Treatment. Modern surgical treatment		3		
32.	Individual work. Differential diagnosis of neuritis and congestive disc. Visual pathways. Topography of lesions. Methods of prevention and treatment of retinal detachment				5
33.	Lecture 6. Eye trauma	2			
34.	Practical lesson 14. Strabismus. Etiology. Pathogenesis. Classification. Clinic. Diagnostics. Treatment, prophylaxis.		3		
35.	Individual work. Modern therapeutic strabismus treatment methods. Strabismus surgery.				4
36.	Practical lesson 15. Eye trauma. Classification. Clinic. Diagnostics. Treatment. Emergency. Complications. Eye surgery.		3		
37.	Individual work. Orbit and eye appendages trauma Pathogenesis. Classification. Clinic. Diagnostics. Treatment. Emergency.				5
38.	Unit 2 final control		2		
	Overall 120 hours / 4 credits	12	48	0	60

* Look addition 1 in cases of lesson process changes

Overall amount 120 hrs., including:

Lectures – 12 hrs.

Practical lessons – 40 hrs.

Individual work – 60 hrs.

RECCOMENDED LITERATURE:

Basic:

1. Ophthalmology: textbook / O.P. Vitovska, P.A. Bezditko, I.M. Bezkorovayna et al.
— 2nd edition
2. Kanski's Clinical Ophthalmology: A Systematic Approach
3. Vaughan & Asbury's General Ophthalmology, 19th Edition 19th Edition
4. History of Ophthalmology 7 Sub auspiciis Academiae Ophthalmologicae Internationalis
5. Editor DANIEL M. ALBERT Madison, Wisconsin, USA Associate Editor
CLAUDIA ZRENNER Tübingen, Germany

Journals:

1. BMJ Open Ophthalmology (<https://www.ncbi.nlm.nih.gov/pmc/journals/3334/>)
2. Case Reports in Ophthalmology (<https://www.ncbi.nlm.nih.gov/pmc/journals/1269/>)
3. Digital Journal of Ophthalmology : DJO
(<https://www.ncbi.nlm.nih.gov/pmc/journals/1913/>)

Sources of information

1. <https://www.aao.org/medical-students>
2. <http://www.icoph.org/downloads/icomedicalstudentenglish.pdf>
3. <https://www.rcophth.ac.uk/training/ophthalmology-for-medical-students-and-foundation-doctors/>
4. <https://eyeguru.org/blog/ophtho-resource-guide/> www.ncbi.nlm.nih.gov
5. www.ncbi.nlm.nih.gov