

MINISTRY OF HEALTH OF UKRAINE
KHARKIV NATIONAL MEDICAL UNIVERSITY

Department of Obstetrics and Gynecology No.2
Academic year 2021-2022

SYLLABUS OF THE ACADEMIC DISCIPLINE

_____ «Fundamentals of Perinatology» (e/c) _____
(name of academic discipline)

Field of knowledge _____ 22 Healthcare _____

Specialty / EQL EPP 222 Medicine, second Master's level
Medicine
Year V

The syllabus of the discipline was approved at
the meeting of the department of Obstetrics
and Gynecology No.2

Approved by the methodical commission of
KhNMU on the problems of surgical
profile _____
(name)

Protocol of
“_28_” August 2021 No. 10

Protocol of.
“_28_” August 2021 No. 1

Head of the department

(signature) Professor V.V. Lazurenko
(initials and surname)

Head _____
(signature) Professor V.O. Syplyvyi
(initials and surname)

Syllabus builders

Prof. Victoria Valentynivna Lazurenko,
 Assoc. Prof. Valentyna Ivanivna Cherepova
 Assoc. Prof. Olga Borysivna Ovcharenko

Data on teachers who teach the discipline

First name, patronymic, surname of the teacher	Prof. Victoria Valentynivna Lazurenko, Assoc. Prof. Olga Borysivna Ovcharenko
Contact phone number	0977089434
E-mail:	kaf.3med.akusherstva2@kntmu.edu.ua
Schedule of classes	According to the schedule of academic year 2021-2022
Consultations	Offline consultations: by prior arrangement; Online consultations: in the Moodle system.

INTRODUCTION

Syllabus of the discipline "Fundamentals of Perinatology" is made for the educational-professional program Medicine of the second (Master's) level of knowledge, 22 Health care, specialty 222 Medicine

Description of the discipline (abstract)

The amount of study load is described in ECTS credits, which are credited to students upon successful mastering of the relevant sections of obstetrics. Types of educational activities of students according to the curriculum are: practical classes, independent work. The list of criteria for obstetric care is regulated by the relevant protocols for the specialty "Obstetrics and Gynecology" of the Ministry of Health of Ukraine.

The **subject** of the elective course is the basics of perinatology in obstetrics.

Interdisciplinary relationship: "Fundamentals of Perinatology" as a branch of the discipline "Obstetrics and Gynecology" is based on knowledge obtained by students in the study of medical biology, normal and pathological anatomy, topographic anatomy, normal and pathological physiology of the female reproductive system, histology and embryology, microbiology, pharmacology, clinical genetics, internal occupational and infectious diseases, surgical diseases, hygiene, social medicine, social medicine health economics and integrates with these disciplines.

The program of the discipline

Section 1 Fundamentals of perinatology

Topic 1. Physiology of the fetus.

1) Fertilization and fetal development (physiological fertilization, insemination, in vitro fertilization). Important periods of fetal development (embryonic, embryonic, fetal).

2) Placenta, a complex mechanism of formation, the basic structural and functional unit. Variety of placental functions at different stages of development, the main mechanisms of regulation of maternal-placental relationships. The degree of maturity at different stages of pregnancy.

3) Fetal membranes, their components and functions. Amniotic fluid formation, its quantity and characteristics.

4) The umbilical cord, as an organ that provides fetoplacental circulation, parameters, structure, mechanism of blood circulation through the vessels of the umbilical cord.

5) Functional system of mother-placenta-fetus. The formation of placental hormones (estrogen, progesterone, placental lactogen, chorionic gonadotropin), fetal protein, immune complexes, which have a personal biosynthesis and metabolism, affect the organs and systems of the mother and fetus. Compensatory-adaptive mechanisms of the fetoplacental complex (side of the placenta, mother, fetus), critical periods of development of the embryo, fetus.

Topic 2. Perinatal risk factors

1) Definition of perinatal pathology, the current state of perinatal medicine in Ukraine.

2) Exogenous adverse factors affecting the body of the mother and fetus (mechanical, physical, chemical, psychoemotional).

3) Extragenital diseases of pregnant women, their impact on fetal development and the formation of malformations.

4) Perinatal infections, their impact on fetal development and the formation of defects.

5) Genetic risk factors (increased frequency of chromosomal aberrations, disorders of gametogenesis, fertilization, zygote fragmentation). Indications and scope of prenatal diagnosis (history, karyotyping, medical and genetic counseling, determination of AFP, NE, PAPP-A, HCG, CA-125).

6) Pharmacotherapy during pregnancy and breastfeeding. Principles that are taken into account when using drugs during pregnancy (features of drug metabolism, the possibility of transplacental transition of pharmacological antigens, embryotoxic and teratogenic effects). Features of penetration of drugs into breast milk, factors that must be taken into account when prescribing drugs to the mother.

Topic 3. Prenatal diagnosis of pathology of the fetus, placenta and amniotic membranes.

1) Methods for assessing the state of the fetoplacental system:

- Ultrasound can assess the condition of the uterus, cervix and appendages, determine the presence of the embryo, fetus in the uterus or outside the uterus, gestational age, anatomical structures of the fetus, the location of the placenta.

- CTG - monitoring of fetal heart rate and uterine contractions during pregnancy and childbirth, CTG rating scale.
 - Doppler is used to assess the speed of blood flow to the uterine arteries, umbilical cord, cerebral vessels of the fetus.
 - Biophysical profile of the fetus - assessment of respiration, movements, muscle tone of the non-stress test of the fetus, the amount of amniotic fluid, scoring the biophysical profile of the fetus.
- 2) Diagnosis of hereditary diseases and anomalies of fetal development (history, obstetric and gynecological examination, medical-genetic, bacteriological, serological, biochemical, hormonal). Ultrasound scan, electrocardiography of the fetus. Chorionic villus sampling, placenta, amniocentesis, cordocentesis. Fetoscopy, biopsy of fetal tissues.

Topic 4. Miscarriage

- 1) Definition, terminology (abortion by pregnancy, nature of occurrence, premature birth).
- 2) Etiology and pathogenesis of miscarriage (endocrine, immunological, anatomical, infectious, genetic, idiopathic causes). The main links in the pathogenesis of abortion at different times.
- 3) The main clinical manifestations of abortion at different times.
- 4) Features of diagnosis of miscarriage:
 - determination of basal temperature;
 - cytological examination of vaginal smears;
 - dynamic determination of hCG in urine; dynamic determination of placental lactogen in the blood;
 - determination of the excretion of total estrogen in the urine;
 - determination of the excretion of estriol, pregnandiol, 17-KS in urine;
 - study of the characteristics of cervical mucus;
 - Ultrasound, Doppler, color Doppler mapping;
 - examination for APS (determination of cardiolipin antibodies, lupus anticoagulant, D-dimers, coagulogram).

Topic 5. Extragenital diseases in pregnant women, their impact on the fetus, especially the tactics of pregnancy, childbirth, the postpartum period.

- 1) Blood diseases (anemia, leukemia, thrombocytopenia), features of the impact on the fetus.
- 2) Kidney disease (cystitis, pyelonephritis, glomerulonephritis, urolithiasis). Renal failure. Indications for abortion.
- 3) Diseases of the cardiovascular system (congenital and acquired heart defects, cardiomyopathy, primary pulmonary hypertension, hypertension, coronary heart disease). Classification of circulatory failure. Indications for abortion.
- 4) Liver disease (hepatitis: A, B, C, D, E, F).
- 5) Endocrine diseases (diabetes, diseases of the thyroid gland, adrenal glands). Features of the functions of the endocrine glands during pregnancy.

Topic 6. Perinatal infections.

- 1) Terminology. Etiology and pathogenesis of intrauterine infections. Features of influence on organs and systems of a fruit.
- 2) TORCH-infections (toxoplasmosis, rubella, cytomegalovirus, herpes and other bacterial, viral and parasitic infections).
- 3) Sexually transmitted infections (chlamydia, mycoplasmosis, gonorrhea, trichomoniasis).
- 4) HIV-infection in pregnant women and newborns (epidemiology, factors contributing to the transmission of the virus from mother to child, etiology and pathogenesis of the disease, diagnosis, clinical stages. Features of pregnancy, childbirth, postpartum. pregnant women.

Topic 7. Pathology of the fetus.

- 1) Fetal distress during pregnancy and childbirth (etiology, pathogenesis, clinical manifestations, diagnostic methods, obstetric tactics at different stages of pregnancy).
- 2) Intrauterine infections (etiology, pathogenesis, clinical manifestations, diagnostic methods, obstetric tactics at different stages of pregnancy).
- 3) Syndrome of fetal growth retardation (IUGR)
 - Factors that contribute to fetal growth retardation (maternal, placental, socio-biological, fetal);
 - classification of growth retardation (symmetrical, asymmetric, severity);

- diagnosis (detection of risk factors, assessment of weight gain of the pregnant woman, ultrasound in the dynamics, Doppler study of blood flow in the vessels of the fetoplacental complex, examination of amniotic fluid).

4) Congenital malformations of fetal organs and systems (hereditary, exogenous, multifactorial; isolated, systemic, multiple. Methods of prenatal diagnosis of congenital malformations (ultrasound, fetoscopy, amniocentesis, cordocentesis, chorionic biopsy, biochemical, microbiological, biological, immunological, serological).

5) Childbirth trauma (urgency of the problem, definition, frequency);

- risk factors (prolonged or rapid labor, abnormal fetal presentation and limb prolapse, macrosomia, disproportion between fetal and pelvic sizes, dehydration, use of forceps, vacuum extractor, fetal rotation and extraction, caesarean section, very low body weight, prematurity, abnormalities of fetal development);

- traumatic injuries of the nervous system (intracranial hemorrhage, damage to the spine and spinal cord, Erb-Duchenne paralysis); epidemiology, etiology, diagnostic possibilities;

- traumatic injuries of the internal organs of the fetus, bones, soft tissues (epidemiology, etiology, diagnosis).

Topic 8. Physiology of the newborn period.

- supervision of a full-term newborn;

-features of supervision of the premature newborn;

-modern principles of breastfeeding;

-clinical examination of newborns.

Description of the elective course "«Fundamentals of Perinatology»

Name of indicators	Field of knowledge, direction of training, educational and qualification level	Characteristics of the discipline		
		Full-time training		
Number of credits – 3	Training direction <u>22 Healthcare</u> (code and name)	Elective course		
Total number of hours - 90	Specialty: <u>222 Medicine</u> (code and name)	Year of training:		
		5th		
		Term		
		9th		
		Lectures		
Hours for full-time form of study: Classroom hours - 20 independent student work hours - 70	Education and qualification level: <u>Second (Master's level)</u>	Practical classes, seminars		
		20 hours		
		Laboratory		
		Independent work		
		70 hours		
		Individual classes:		
Type of control: credit				

**Topics of lectures.
Not included in the program**

Topics of practical classes

No.	Topic name	Number of hours
1	Physiology of the fetus.	2
2	Perinatal risk factors	2
3	Prenatal diagnosis of pathology of the fetus, placenta and amniotic membranes.	2
4	Miscarriage	3
5	Extragenital diseases in pregnant women, their impact on the fetus, especially the tactics of pregnancy, childbirth, the postpartum period.	2
6	Perinatal infections.	2
7	Pathology of the fetus	3
8	Physiology of the newborn period	2
	Final term control	2
13	Total	20

Independent work

No.	Topic name	Number of hours
1	Physiology of the fetus.	8
2	Perinatal risk factors	8
3	Prenatal diagnosis of pathology of the fetus, placenta and amniotic membranes.	8
4	Miscarriage	8
5	Extragenital diseases in pregnant women, their impact on the fetus, especially the tactics of pregnancy, childbirth, the postpartum period.	8
6	Perinatal infections.	8
7	Pathology of the fetus	8
8	Physiology of the newborn period	8
9	Final term control	8
14	Total	70

Teaching methods

Practical training:

- oral interview;
- discussions on various issues;
- role and business games;
- case methods;
- mastering of practical skills;

Control methods

When studying the discipline, the current and final semester control is used. Also, there is a mandatory control of the assimilation of educational material of the discipline, assigned to independent work.

Current control (assimilation of certain topics) is carried out in the form of oral interviews, testing, conversations of students on predetermined issues, in the form of speeches of higher education students with reports when discussing educational issues in practical classes.

In order to assess the independent work of students, an alternative option is offered (*optional*): traditional types of tasks: writing a test, abstract or creative types: preparation of a multimedia presentation, elaboration of educational literature (summary, review, citation, abstracts, additions to lectures).

The final semester control in the discipline is a mandatory form of control of academic achievements of higher education students. It is performed orally. The terms of the final semester control are set by the schedule of the educational process, and the amount of educational material, which is submitted for the final term control, is determined by the work program of the discipline.

The total number of rating points for the study of the discipline for the semester is calculated as the sum of points obtained from the results of the current control and points obtained from the results of the final semester control. The maximum amount of points for the semester is 200 points, the minimum – 120 points.

Form of assessment of students' knowledge

The form of final control of academic performance in the discipline is a grading test.

Recalculation of the average score for current academic activities on a multi-point scale

Assessment of students is carried out in accordance with the “Instructions for assessing the educational activities of students in the European credit transfer system for the organization of the educational process at KhNMU” (Table 2).

Table 1

Recalculation of the average score for current academic activities on a multi-point scale (for disciplines ending with credit)

4- point scale	200- point scale	4- point scale	200- point scale	4- point scale	200- point scale
5	200	4.22-4,23	169	3.45-3,46	138
4.97-4,99	199	4.19-4,21	168	3.42-3,44	137
4.95-4,96	198	4.17-4,18	167	3.4-3,41	136
4.92-4,94	197	4.14-4,16	166	3.37-3,39	135
4.9-4,91	196	4.12-4,13	165	3.35-3,36	134
4.87-4,89	195	4.09-4,11	164	3.32-3,34	133
4.85-4,86	194	4.07-4,08	163	3.3-3,31	132
4.82-4,84	193	4.04-4,06	162	3.27-3,29	131
4.8-4,81	192	4.02-4,03	161	3.25-3,26	130
4.77-4,79	191	3.99-4,01	160	3.22-3,24	129
4.75-4,76	190	3.97-3,98	159	3.2-3,21	128
4.72-4,74	189	3.94-3,96	158	3.17-3,19	127
4.7-4,71	188	3.92-3,93	157	3.15-3,16	126
4.67-4,69	187	3.89-3,91	156	3.12-3,14	125
4.65-4,66	186	3.87-3,88	155	3.1-3,11	124
4.62-4,64	185	3.84-3,86	154	3.07-3,09	123
4.6-4,61	184	3.82-3,83	153	3.05-3,06	122
4.57-4,59	183	3.79-3,81	152	3.02-3,04	121
4.54-4,56	182	3.77-3,78	151	3-3,01	120
4.52-4,53	181	3.74-3,76	150	Less than 3	Insufficient
4.5-4,51	180	3.72-3,73	149		

4.47-4,49	179	3.7-3,71	148
4.45-4,46	178	3.67-3,69	147
4.42-4,44	177	3.65-3,66	146
4.4-4,41	176	3.62-3,64	145
4.37-4,39	175	3.6-3,61	144
4.35-4,36	174	3.57-3,59	143
4.32-4,34	173	3.55-3,56	142
4.3-4,31	172	3.52-3,54	141
4.27-4,29	171	3.5-3,51	140
4.24-4,26	170	3.47-3,49	139

Table 2.

Assessment of theoretical knowledge, if practical skills are assessed by the criteria of “passed”, “failed”

Number of questions	“5”	“4”	“3”	Oral answer for questions in the cards, which include the theoretical part of the discipline	For each answer the student receives from 10 to 16 points, which corresponds to: “5” - 16 points; “4” - 13 points; “3” - 10 points.
1	16	13	10		
2	16	13	10		
3	16	13	10		
4	16	13	10		
5	16	13	10		
	80	65	50		

Credit questions

1. Periods of fetal development
2. Periods of placental development
3. Functions of the placenta. Composition of amniotic fluid
4. What hormones are formed during pregnancy?
5. What perinatal risk factors should be considered before pregnancy and during pregnancy?
6. What indicators are considered in screening for the diagnosis of chromosomal disorders of the fetus.
7. What factors contribute to chromosomal disorders of the fetus and are the indications for prenatal karyotyping?
8. How do cardiovascular and kidney diseases of pregnant affect the condition of the fetus?
9. How does gestational diabetes affect the condition of the fetus?
10. How do infectious diseases in pregnant affect the condition of the fetus?
11. What drugs are contraindicated during pregnancy and breastfeeding?
12. Possibilities of ultrasound in perinatology.
13. Cardiotocography, biophysical profile of the fetus, cordocentesis.
14. Delayed fetal development
15. What methods are used to diagnose hemolytic disease of the fetus?
16. How is it possible to detect fetal-fruit transfusion syndrome?
17. Classification of causes of miscarriage.
18. Clinical forms of abortion.
19. Methods of diagnosis of miscarriage.
20. “Habitual miscarriage” of pregnancy.
21. Isthmic-cervical insufficiency.
22. Hypofunction of the ovaries.
23. Urinary tract infection during pregnancy.
24. Diabetes and pregnancy.

25. In which diseases of the cardiovascular system, is pregnancy contraindicated?
 26. Which way of delivery is preferred in liver diseases?
 27. Complications of pregnancy in blood diseases.
 28. Ways of transmission of infection from mother to fetus.
 29. How can maternal infection affect the fetus?
 30. What methods of diagnosing infections are used during pregnancy?
 31. Fetal distress during pregnancy and childbirth.
 32. What determines the supply of oxygen to the fetus?
 33. What is the compensatory mechanisms in the fetus?
 34. What does the term “placental insufficiency” mean?
 35. How cardiac activity of the fetus assessed?
 36. Congenital malformations of the fetus.
 37. How do traumatic injuries to internal organs, bones and soft tissues of the fetus occur?
 38. The neonatal period.
 39. Parameters of a full-term newborn.
 40. Signs of maturity of a full-term child.
 41. What are the features of the skin and its accessory organs in a newborn baby?
 42. What are the features of the subcutaneous fat base in a newborn baby ?
 43. Features of the muscular system in the newborn.
 44. Features of the skeletal system in the newborn.
 45. Features of the nervous system in the newborn.
 46. Features of the senses in the newborn.
 47. Features of the respiratory system in the newborn.
 48. What is the mechanism of the first breath?
 49. Blood and hematopoietic organs of the newborn.
 50. Features of the digestive system in the newborn.
 51. Features of the urinary organs in the newborn.
 52. What is the definition of transient states of the newborn?
53. Explain the meaning of physiological weight loss

Individual tasks

Preparation of presentations of problematic character.
Participation in student scientific conferences, round tables.

Tasks for independent work

Preparation for practical classes. Processing of material according to the reference abstract. Work with supporting literature. Search and analytical work.

Teacher's (department's) policy Academic expectations from students

Course requirements

Students are expected to attend all practical classes. Missed classes should be redone (according to the schedule on the information stand of the department)

Written tasks and homework must be done completely and on time, if students have questions, they can contact the teacher in person or by e-mail, which the teacher will provide in the first practical class.

During the lectures, students are recommended to keep a synopsis of the class and keep a sufficient level of silence. Asking questions to the teacher is perfectly normal.

Practical training

When conducting practical classes at the patient's bedside, in the delivery room, operating room, students must follow the rules of medical ethics and deontology. They must have appropriate clothing and medical examination results.

Actively participating in the discussion in the classroom, students should be ready to understand the material in detail, ask questions, express their views, engage in discussion. During the discussion it is important to:

- show respect for colleagues,
- have tolerance for others and their experience,
- be receptive and impartial,
- be able to disagree with the opinion, but to respect the personality of the opponent,
- provide careful argumentation of one's opinion and the courage to change one's position under the influence of evidence,
- self-expression, when a person avoids unnecessary generalizations, describes his feelings and formulates his wishes based on their own thoughts and emotions,
- mandatorily get acquainted with primary sources.

A creative approach in its various manifestations is welcome. Students are expected to be interested in participating in city, national and international conferences, competitions and other events in the subject profile.

Occupational health

During the first class of the course it is necessary to explain the basic principles of labor protection by conducting appropriate training. It is expected that everyone should know where the nearest evacuation exit to the audience, where the fire extinguisher is, how to use it, and so on.

Behavior in the classroom

Basic "dos" and "don'ts"

It is important to follow the rules of good behavior at the university. These rules are common to all, they also apply to all faculty and staff, and do not differ in principle from generally accepted norms.

During classes it is allowed to:

- leave the classroom for a short time if necessary and with the permission of the teacher;
- drink soft drinks;
- take photos of presentation slides;
- take an active part in the class (see Academic expectations from students).

It is prohibited to:

- eat (except for persons whose special medical condition requires it - in this case, medical confirmation is required);
- smoke, drink alcohol and even low-alcohol beverages or drugs;
- use obscene language or use words that offend the honor and dignity of colleagues and faculty;
- gamble;
- damage the material and technical base of the university (damage inventory, equipment; furniture, walls, floors, litter the premises and territories);
- shout, yell or listen to loud music in classrooms and even in corridors during classes.

Plagiarism and academic integrity

The Department of Obstetrics and Gynecology No.2 maintains zero tolerance for plagiarism. Students are expected to constantly raise their awareness of academic writing. The first classes will provide information on what to consider plagiarism and how to properly conduct scientific research.

Recommended references**Basic**

1. Obstetrics and Gynecology: In two volumes. – Volume 1: Акушерство-Obstetrics: textbook/ Group of authors, Edited by V.I. Gryshchenko, M.O.Shcherbina. – К.: AUS Medicine Publishing, 2014. – 392 p.
2. Obstetrics By Ten Teachers: Editor by Geoffrey Chamberlain. - Seventeenth Edition. – Co-published in the USA by Oxford University Press, Inc., New York, 2004. – 284 p.
3. Roger P.Smith Netter's Obstetrics&Gynecology. – 3th Edition. – 2018. – 303 p.
4. Williams Obstetrics. In two volumes. – 25-th edition. McGrawHill Global Education Holding,LLC - 2018.
5. The Guide Obstetrics &Gynaecology. –MSSN. – 113 p.
6. Senchuk A., Chermak I.,Ventskivska I. Guidelines Oststetrics. Study guide / Ed ND, prof A. Senchuk. – К. : Книга Плюс – 2020 – 204 с.
7. Senchuk A., Chermak I.,Ventskivska I. Guidelines: Patological Oststetrics. Study guide / Ed ND, prof A. Senchuk. – К. : Книга Плюс – 2021 – 210 с.

Information resources

All-Ukrainian electronic library <http://youalib.com/medicine/obstetrics- and-gynecology>

Textbooks of medicine <http://www.ex.ua/74367524>

KhNMU repository <http://repo.knmu.edu.ua>

Official site of the testing center <https://testkrok.org.ua/>