

ODESSA NATIONAL MEDICAL UNIVERSITY
Medical faculty
Department of Normal and Pathological Clinical Anatomy

SYLLABUS OF THE COURSE
" Pathomorphology"

The volume of the course	Medical Faculty, 210 hours, 7 credits ECTS
Semester, year of study	Medical faculty, 5-6 semester , III year of study
Days, time, place	According to the schedule in the classrooms of the Department of Normal and Pathological Clinical Anatomy (cycle of pathomorphology)
Teachers	Sytnikova VO, MD , professor of the department; Litvinenko MV, Candidate of Medical Sciences, Associate Professor; Oliynyk NM, Candidate of Medical Sciences, Associate Professor; Buryachkivsky ES , Candidate of Medical Sciences, Associate Professor; Narbutova TE, Ph.D. , Assistant Professor; Artyomov OV, Candidate of Medical Sciences , Assistant Professor; Vasiliev VV assistant; Gray SM, assistant; Logachova AI, assistant; Savenko TO, assistant;
Contact phone	(048) 728-54-17
E-mail	anatomy@onmedu.edu.ua
Workplace	Odessa , Valikhovsky Lane, 3a. Morphological building. Department of Normal and Pathological Clinical Anatomy, 2-nd floor (cycle of pathomorphology).
Consultations	Consultations are conducted by teachers of the department according to the schedule: Face-to-face consultations: Thursday from 14.30 to 16.00; Saturday from 9.00 to 14.00 On -line consultations: Thursday from 14.30 to 16.00; Saturday from 9.00 to 12.00 https://moodle.odmu.edu.ua/or via <i>Microsoft Teams</i> / Telegram / Viber / Zoom

COMMUNICATION is carried out with the help of the e- mail of the department: anatomy@onmedu.edu.ua , as well as with the help of Viber and Telegram messengers and through the

COURSE ANNOTATION

The discipline "Pathomorphology" is studied in accordance with the Standard of higher education of the second (master's) level of knowledge 22 "Health" specialty 222 "Medicine" of the educational program of Master of Medicine.

The subject of the study discipline "Pathomorphology" , is the structural basis of human diseases for advanced mastering the fundamentals of medicine and clinical picture of the disease then use the obtained knowledge in practice of physician.

The purpose of the course : The purpose of teaching the discipline " Pathomorphology " is to study the microscopic and ultramicroscopic structure of the human body, their development and changes in various living conditions to study the clinic, differential diagnosis and use of knowledge in practice, taking into account age characteristics.

Prerequisites of the discipline: normal anatomy, physiology, histology, microbiology.

Postrequisites of the discipline: internal medicine, family medicine, obstetrics and gynecology, surgery, infectious diseases.

The main tasks of studying the discipline " Pathomorphology ":

Knowledge: study of typical general pathological processes, the set of which determines the morphological manifestations of diseases; be able to define various pathologies; briefly explain the etiology and pathogenesis, form the basic principles of classification, describe the macro- and microscopic picture taking into account age characteristics, name the results, complications and causes of death.

Understanding: to explain the patterns of development of various pathologies , to explain the features of macro- and microscopic changes depending on the etiology, form and stage of the disease; to carry out differential diagnosis, to explain the nature of possible complications and results that have developed in the tissues.

Use of knowledge in practice: to demonstrate mastery of the terminological apparatus of the discipline, to conduct a macro- and microscopic description of pathological changes, to mark on microphotographs detected pathological changes, to solve educational situational clinical problems using knowledge of pathomorphology.

Expression of opinions, evaluation of ideas and formation of conclusions: formation of own conclusions on the results of macro- and microscopic research, expression of opinions on the functional significance of the detected morphological changes, description of the impact of structural changes of affected tissue on other organs, systems and organism as a whole.

Transfer of own understanding and skills: ability to compile knowledge of pathomorphology with coverage of own considerations and formation of conclusions in the form of abstracts and presentations; improving public speaking skills with analysis and synthesis of information.

Ability to continue further independent learning: to use knowledge of pathomorphology to master post-requisite clinical disciplines.

According to the requirements of the Standard, the discipline " Pathomorphology " provides students with the acquisition of competencies :

- **Integral (IL) :** The ability to solve complex problems and problems in a particular field of professional activity or in the learning process, which involves research and / or innovation and is characterized by complexity and uncertainty of conditions and requirements.

- **general (GC) :**

1. Ability to abstract thinking, analysis and synthesis.
2. Ability to know and understand the subject area and professional activity.
3. Ability to communicate in the state language.
5. Ability to adapt and make an informed decision in a new situation.
- 9 . Ability to act on the basis of ethical considerations, socially responsible and consciously .

- **special (professional, subject) (SC):**

2. Ability to determine the list of required clinical, laboratory and instrumental studies and evaluate their results.
3. Ability to establish a preliminary and clinical diagnosis of the disease.
8. Ability to perform medical manipulations.
14. Ability to keep medical records.

Learning outcomes:

Evaluate information on the diagnosis in the health care institution, its unit, using knowledge of the structural basis of the disease, based on the results of autopsy and methods of lifelong diagnosis of diseases.

PLO 2 Evaluate information on the diagnosis using a standard procedure, based on the results of laboratory and instrumental studies. To determine the list of appropriate clinical laboratory and have the option cial studies and evaluate her her results.

PLO 3 Highlight the leading clinical symptom or syndrome. To establish a preliminary diagnosis, differential diagnosis and implement determined h atm clinical diagnosis of the disease.

PLO 8 Perform medical manipulations.

PLO 14 Maintain medical records.

PLO 17 Plan, implement and analyze measures for the organization and integration of medical care.

PLO 18 Adhere to the requirements of ethics , bioethics and deontology in their professional activities.

COURSE DESCRIPTION

Forms and methods of teaching

The course will be presented in the form of lectures (40 hours) and practical classes (70 hours), organization of independent work of students (100 hours).

The lecture course covers problematic issues of the relevant sections of pathomorphology. Methods of educational and cognitive activity: explanatory-illustrative method, method of problem statement. This is done using multimedia presentations

Discipline section 1. General pathomorphology .

Topic 1. Subject and tasks of pathomorphology. Methods of pathomorphological research. The main stages of development of pathomorphology. Ascending level of knowledge. Morphology of reversible and irreversible damage to cells and tissues. Intracellular accumulation of proteins, carbohydrates and lipids (parenchymal dystrophies).

Topic 2. Elements of ultrastructural cell pathology. Cell-matrix interactions. Cellular and extracellular mechanisms of trophic regulation.

Topic 3. Morphological changes of the extracellular matrix (stroma) in response to damage (stromal-vascular dystrophies). Pathomorphology of extracellular accumulation of complex proteins (hyalinosis) and lipids. Exhaustion of the body

Topic 4. Metabolic disorders and their metabolism. Morphology of pathological accumulation of endogenous and exogenous pigments. Morphology of mineral metabolism disorders.

Topic 5. Necrosis - definition, terms and phases of development, consequences. Clinical and morphological forms of necrosis. Pathological anatomy of multiorgan failure. Basics of Thanatology. Death, mechanisms, signs. Biological, medical, social aspects due to chronic incurable disease. The concept of thanatogenesis . Structural mechanisms of termination of vital organs during the natural course of the disease. Complications of heart failure, lung, brain, kidney, liver.

Topic 6. Final lesson. (Section Introduction. Morphology of damage and death of cells and tissues). Practical skills

Topic 7. Acute systemic circulatory disorders (acute coronary insufficiency, shock) and systemic circulatory disorders in chronic heart failure and their consequences. Regional circulatory disorders (hyperemia, ischemia, plasmorrhagia , bleeding and hemorrhage). Disorders of lymph formation and circulation

Topic 8. Violation of ion-osmotic and water balance

Topic 9. Hemostasis disorders: hemorrhagic syndrome, thrombosis, DIC syndrome. Embolism. Thromboembolism of pulmonary artery thanatogenesis

Topic 10. Inflammation: causes, morphogenesis. Pathomorphology of exudative inflammation

Topic 11. Proliferative (productive) inflammation: with the formation of acute genital warts, around parasitic animals, intermediate productive inflammation, granulomatous inflammation. Specific proliferative inflammation

Theme 12. Concluding session. (Unit Violation of blood and lymph circulation . Inflammation). Practical skills

Topic 13. Molecular pathomorphological basis of the immune response. Immune system in the prenatal and postnatal period. Pathology of immune processes: amyloidosis, hypersensitivity reactions , graft rejection reaction. Immune deficiency. Autoimmune diseases

Topic 14. Regeneration. Structural bases of physiological adaptation of organs and cells. Morphology of cell accommodation processes. Compensatory-adaptive processes

Topic 15. Oncogenesis . Anatomical and microscopic features and types of growth of benign and malignant tumors. Morphological characteristics of the main stages of development of malignant tumors. Clinical and morphological nomenclature of tumors. Benign and malignant non-epithelial (mesenchymal) tumors. Sarcoma: features of development and metastasis. Tumors of fibroblastic , myofibroblastic and fibrohistiocytic genesis . Tumors of adipose and muscle tissue, tumors of blood vessels

Topic 16. Tumors of the epithelium: benign organ-specific epithelial tumors, cancer (features of development, metastasis, histological forms).

Topic 17. Morphological features of epithelial tumors of individual organs

Topic 18. Nomenclature and morphological features of tumors of nervous tissue. Features of tumors of the central nervous system. Nomenclature and morphological features of tumors originating from melanin-forming tissue

Topic 19. Tumors of cambial embryonic tissues. Childhood tumors that develop by the type of adult tumors

Topic 20. Final lesson. (Subdivisions Immunopathological processes. Regeneration, processes of adaptation and compensation. Tumors). Practical skills

Topic 21. Anemia. Thrombocytopathy . Tumors of hematopoietic and lymphoproliferative tissue.

Section of the discipline - 2. Special pathomorphology

Topic 1. Atherosclerosis and arteriosclerosis. Coronary heart disease

Topic 2. Hypertension and arteriosclerosis . Hypertension and symptomatic hypertension. Cerebrovascular disease.

Topic 3. Alzheimer's disease. Multiple sclerosis. Lateral amyotrophic sclerosis. Postreanimation encephalopathy. Diseases of the peripheral nervous system

Topic 4. Systemic connective tissue diseases with autoimmunization : rheumatism, systemic lupus erythematosus, rheumatoid arthritis, systemic scleroderma, dermatomyositis , ankylosing spondylitis .

Topic 5 . Cardiomyopathies , Leffler's endocarditis , idiopathic myocarditis, acquired heart defects. Systemic vasculitis.

Topic. 6 Final lesson (section Diseases of the blood and cardiovascular system). Practical skills.

Topic 7. Respiratory diseases.

Topic 8. Tumors of the respiratory system

Topic 9. Diseases of the esophagus, stomach and intestines. Diseases of the liver, biliary system and pancreas

Topic 10. Peritonitis , adhesive disease

- Topic 11. Tumors of the gastrointestinal tract
- Topic 12. Liver tumors
- Topic 13. Kidney disease
- Topic 14 . Hypothalamic-pituitary disorders. Pathology of the adrenal glands. Pathology of the thyroid gland. Pathology of the endocrine system of the pancreas.
- Topic 15 . Parathyroid osteodystrophy , osteomyelitis, fibrous dysplasia , osteopetrosis , Paget 's disease , muscular dystrophy, myasthenia.
- Topic 16. Pathomorphological changes in diseases related to nutrition. Avitaminosis . Occupational diseases. Radiation sickness
- Topic 17. Diseases of the female and male reproductive system. Pathology of pregnancy, postpartum and placenta. Breast disease
- Topic 18. Pre- and perinatal pathology.
- Topic 19. Asphyxia of newborns. Childbirth trauma
- Topic 20. Final lesson. (Subsection Diseases of the nervous system. Respiratory diseases. Digestive diseases. Diseases of the endocrine system. Diseases of the urogenital system. Diseases of the musculoskeletal system. Diseases of pregnancy and postpartum period. Pathology of pre- and perinatal period. Patomorfologiy of hypo- and avitaminoses . Diseases caused by human activities and environmental influences) . Practical skills.
- Topic 21. General concepts of human infectious pathology. Classification of infectious diseases. Intestinal infectious diseases.
- Topic 22. Diseases caused by protozoa, helminths. Mycoses
- Topic 23. Viral airborne infections. Coronavirus disease. HIV and AIDS. Rabies.
- Topic 24. Rickettsioses. Prion infections.
- Topic 25. Infections of childhood
- Topic 26. Tuberculosis
- Topic 27. Sepsis. Syphilis.
- Topic 28. Particularly dangerous (convection, quarantine) infections.
- Topic 29. Final lesson. (Subsection Pathomorphology of Infectious Diseases). Practical skills.
- Topic 30 . FEA (final educational activity).

List of recommended literature:

Basic:

1. Артемов О.В. Динаміка імунологічних змін в процесі неоад'ювантної терапії раку молочної залози із застосуванням препаратів на основі ртутьвмісних хелатних комплексів / О.В. Артемов, Е.С. Бурячківський // Вісник проблем біології і медицини. - 2017. – Вип.1(135) - С. 79-82.
2. Атлас мікропрепаратів з патоморфології / І.І. Старченко, Б.М. Филенко, Н.В.Ройко та ін.; ВДНЗУ “УМСА”.- Полтава, 2018.-190с
3. Гавриш А.С. Ишемическая кардиомиопатия / А.С. Гавриш, В.С. Пауков. – М.: “ГЭОТАР-Медиа”, 2015. – 536с
4. Доброякісні новоутворення кісток щелепно-лищевої ділянки у дітей / П.І. Ткаченко, І.І.Старенко, С.О. Білокінь [та ін.] – П.: “УМСА”, 2016.

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8. Криволапов Ю.А. Макроскопическое исследование биопсийного и операционного материала. Руководство для врачей-патологоанатомов / под. ред. Ю.А. Криволапова. – М.: Практическая медицина, 2019. – 352 с.
9. Ларкина С. А., Олейник Н. Н., Вастьянов Р. С., Рудой Д. А. Концентрация гиалуроновой кислоты и эффекты биоревитализации. Результаты морфологического исследования. Инъекционные методы в косметологии. 2018. №1. С. 44-49.
10. Литвиненко М.В. Морфо-функциональные особенности яичников у ВИЧ-инфицированных женщин. Вісник проблем біології і медицини - 2020 - Вип. 4(158). с.296-299
11. Литвиненко М.В. Особенности пролиферативной активности цервикальной ткани при наличии алкогольной зависимости. Вісник проблем біології і медицини -2020- Вип. 3(157). с.274-277
12. Методики морфологічних досліджень / М.М. Багрій, В.А. Діброва, О.Г. Пападинець, М.І. Грищук; за ред.. М.М. Багрія, В.А. Діброви. – Вінниця: Нова Книга, 2016. – 328 с.
13. Нарбутова Т.Є. Морфологічна характеристика структурних компонентів аорти у дітей з критичною коарктацією аорти / Т.Є Нарбутова, Р.Й.Лекан, В.П. Бузовський // Досягнення біології та медицини. – 2016. – №1 (12). – С.48-52.
14. Новосельцева Т.В. Патологія статевої та ендокринної систем / Т.В. Новосельцева, Б.М. Филенко, Н.І. Гасюк. – Полтава: ТОВ “АСМІ”, 2015. – 199 с.
15. Новоутворення щелепно-лицевої ділянки у дітей / П.І. Ткаєнко, І.І. Старченко, С.О. Білоконь та ін.. – Полтава: Тов. “АСМІ” – 2018. – 190с.
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17. Основи патології за Роббінсом: у 2 томах. Том 1 / Віней Кумар, Абул К. Аббас, Джон К. Астер; переклад 10-го англ. видання. Видавництво:

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 19. Патоморфологія : нац.. підруч. / В.Д. Марковський, В.О. Туманський, І.В. Сорокіна [та ін.]; за ред.. В.Д. Марковського, В.О. Туманського. – К.: ВСВ «Медицина», 2015. – 936с.
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 21. Практикум з біопсійно-секційного курсу / І.І. Старченко, А.П. Гасюк, С.А. Проскурня [та ін.] – Полтава, 2016. – 160с.
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 28. Cervical transformation in alcohol abuse patients/ Lytvynenko M., Bocharova T., Zhelezniakova N., Narbutova T., Gargin V. // Georgian medical News № 10 (271) 2017. – С. 12- 17.
 29. Essentials of pathology: textbook / Ya.Bodnar, A.Romanyuk, V. Voloshyn, V. Gargin - Kharkiv, «Planeta-Print» Ltd, 2020, 219 p.

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31. Pathology: textbook / I.V.Sorokina, V.D. Markovskiy, D.I. Halata et al.; edited by I.V.Sorokina, V.D. Markovskiy, D.I. Halata. - Kyiv : AUS Medicine Publishing, 2019. - 328p. + 2 colour inserts (8p. + 12p.).
32. Pathology: textbook / I.V.Sorokina, V.D. Markovskiy, D.I. Halata et al.; edited by I.V.Sorokina, V.D. Markovskiy, D.I. Halata. - 2 nd edition. - Kyiv : AUS Medicine Publishing, 2020. - 328p. + 2 colour inserts (8p. + 12p.).
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Additional :

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5. Патоморфоз хронічного гастриту у ліквідаторів наслідків аварії на Чорнобильській АЕС / В. П. Терещенко, Л. В. Дегтярьова, О. С. Самусева [та ін.] ; за ред. В. П. Терещенко. – К.: МВЦ «Медінформ», 2005. «Мединформ» 224с.
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EVALUATION

Criteria for assessing the current educational activities of the student

When assessing the mastery of each topic, the student is graded on a 4-point (traditional) scale ("2", "3", "4", "5"). Components of traditional assessment:

1. Survey - 50% of the assessment (2 assessment points).

The survey is evaluated as follows:

0 points - the student does not know the answer to the question or refuses to answer.

1 point - the student answers the question, but makes significant mistakes or did not answer in full.

2 points - the student in full and unmistakably answered the question.

The student has the right to receive 1 additional point for active participation in the survey (additions to questions that other students could not answer), but in the amount of not more than 3 points for the survey.

2. Control of practical skills and abilities (analysis of macro- and microscopic changes of organs and systems in diseases) - 50% assessment (2 assessment points).

The control of practical skills is assessed as follows:

0 points - the student did not perform or incorrectly performed practical skills and abilities;

1 point - the student performed practical skills and abilities, but made significant mistakes;

2 points - the student correctly performed practical skills and abilities.

3. Independent work of students, which is provided by the topic of the lesson along with classroom work, is assessed during the current control of the topic in the relevant lesson. Assimilation of topics that are submitted only for independent work is checked during the final control.

At the end of the study subjects current progress is calculated as the average current score is the mean arithmetic all student assessments obtained by traditional scale rounded to two (2) decimal places (eg, 4.76).

Final control of mastering (general lesson, exam)

A mandatory component of the curriculum is the final test control in the discipline, which includes 50 test questions (30 minutes), as an indicator of students' acquisition of knowledge. Compilation of the final test control takes place at the last practical lesson in the discipline at Center for Information Analysis and Internal Quality Control of Education (CIAIQCE) according to the schedule of the educational department, approved by the rector of the university. The student must provide the correct answers by at least 90% (45 questions). A paper copy of the results of test control in the discipline signed by the head of the Center is sent to the department. The teacher files a statement in the Journal of attendance and student performance and puts assessments of current performance for the last lesson in the discipline, converting the results on the following scale:

- grade "excellent" - 50 correct answers;
- grade "good" - 47-49 correct answers;
- assessment of "satisfactory" - 45-46 correct answers;
- score "unsatisfactory" - 44 correct answers and less

A student who has not passed the final test control in the discipline is considered to have not completed the program in the discipline.

Only those students who do not have academic debts and have an average score of at least 3.00 for their current academic activity are allowed to take the final attestation (exam).

The student's exam is assessed on a 4-point (traditional) scale.

- the grade "excellent" is given to the student who systematically worked during academic year, showed during examination various and deep knowledge of a program material, is able to successfully carry out practical tasks on the description of macro- and micropreparations, has mastered the maintenance of the basic and additional literature, has understood interrelation of separate sections of the discipline, their importance for the future profession, showed creative abilities in understanding and using educational material, showed the ability to independently update and replenish knowledge; level of competence - high (creative);

- the grade "good" is given to the student who has shown full knowledge of educational program material, successfully carries out the practical tasks provided by the program on the description of macro- and micropreparations, has mastered the basic literature recommended by the program, has shown sufficient knowledge of discipline and is capable of their independent updating. and renewal in the course of further training and professional activities; level of competence - sufficient (constructive-variable);

- the grade "satisfactory" is given to the student who has shown knowledge of the basic educational program material in the volume necessary for the further training and the subsequent work on a profession, copes with performance of practical tasks on the description of macro- and micropreparations provided by the program, has made separate mistakes theoretical questions and in the performance of practical tasks, but has the necessary knowledge to overcome mistakes under the guidance of a research and teaching staff; level of competence - average (reproductive);

- the grade "unsatisfactory" is given to the student who did not show sufficient knowledge of the basic educational program material, made fundamental mistakes in performance of the practical tasks provided by the program on the description of macro- and micropreparations, cannot use knowledge at the further training without the help of the teacher, to work independent; level of competence - low (receptive-productive).

To assess the discipline as a whole on a 4-point traditional (national) scale, the average score for the discipline is first calculated as the arithmetic mean of the two components:

- 1) the average current score as the arithmetic of all current estimates;
- 2) traditional grade for the exam.

The average score for the discipline is translated into the traditional grade from the discipline on a 4-point scale and is regarded as the ratio of this arithmetic mean to the percentage of mastering the required amount of knowledge in the discipline.

The obtained average score for the discipline allows you to convert to a score on a 200-point scale.

Thus, the student receives two grades: the first - on the traditional 4-point scale and the second - on a 200-point system.

The multi-point scale characterizes the actual success of each student in mastering the discipline. Conversion of the traditional grade from the discipline to

200-point is performed by the information and computer center of the university program "Contingent" according to the formula: the average score of the discipline x 40.

Thus we get:

National Assessment	Points
«5»	185-200
«4»	151-184
«3»	120-150

The ECTS rating scale evaluates the achievements of students in the discipline who study in one course of one specialty, in accordance with the points obtained by them, by ranking, namely:

ECTS score Statistical indicator

ECTS assessment	Statistical indicator
"A"	the best 10% of students
"B"	the next 25% of students
"C"	the next 30% of students
« D »	the next 25% of students
" E "	the last 10% of students

The ECTS scale establishes the student's belonging to the group of the best or worst among the reference group of classmates (faculty, specialty), ie his rating. When converting from a multi-point scale, as a rule, the limits of grades "A", "B", "C", "D", "E" do not coincide with the limits of grades "5", "4", "3" on the traditional scale.

Students who receive grades " Fx " and "F" ("2") are not included in the list of ranked students. Such students automatically receive a score of "E" after re-assembly. The grade " Fx " is given to students who scored the minimum number of points for the current educational activity, but who did not pass the final control. Grade "F" is given to students who have attended all classes in the discipline, but did not score an average score (3.00) for current academic activities and are not admitted to the final control.

COURSE POLICY

Deadline and recompilation policy : Timely completion of the tasks set by the teacher in a timely manner is mandatory. For late performance of the task during the current / final control of knowledge the student receives an unsatisfactory grade. Reassignment is carried out according to the approved schedule with the permission of the dean's office.

Policy on academic integrity: independent performance of all types of work, tasks, forms of control provided by the work program of this discipline; providing reliable information about the results of their own educational (scientific) activities, used research methods and sources of information; copying and plagiarism are not allowed.

Attendance policy: attendance at lectures and practical classes is mandatory, exceptions are possible only if an individual study schedule is approved for an individual student. Late classes are not allowed. The omission of classes, regardless of the reason for the omission, the student of higher education works for the teacher in accordance with the schedule of consultations and practice of missed classes.

Mobile devices: the use of a mobile phone, tablet or other mobile devices during the lesson is not allowed (except in cases provided by the curriculum and guidelines of the teacher).

Behavior in the audience: observance of silence among students at lectures, exclusion - students' questions to the teacher regarding the explanation of the material ; working discussion atmosphere in practical classes during the survey; adherence to the ethics of academic relations.