Odessa National Medical University
Faculty of Medicine №2
Department of Biophysics, Informatics and Medical Equipment

Syllabus course
Medical informatics

Amount	76 hours, 2.5 credits
Semester, year of study	3rd semester, 2nd year
Days, time, place	The time and place (number of the lecture hall, auditorium, laboratory, studio, etc.) of the discipline is determined in accordance with the approved schedule.
Teacher (s)	Full Prof. Godlevsky LS, M.D., Head of Department Assoc. Prof.Zhumatiy PG, Ph.D Assoc. Prof.Mandel OV, Ph.D Assoc. Prof.Matsko OM, Ph.D. Senior Lecturer Danilyuk O.Yu. Senior Lecturer Marchenko SV Senior Lecturer Pribolovets TV Senior Lecturer Tatarchuk TV Senior Lecturer Bidnyuk KA, Candidate of Medical Sciences
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Workplace	Department of Biophysics, Informatics and Medical Equipment, vul. Sofiyivska 2.

Consultations	*Face-to-face consultations* : Thursday from 15:00 to 17:00; Saturday from 9:00 to 12:00 *Online consultations:* By prior arrangement with the teacher.

COMMUNICATION

Communication with students can be done via e-mail, social networks, telephone, face-to-face meetings.

COURSE ANNOTATION

The subject of study of the discipline are computer equipment, personal computer software, modern technologies for processing medical and biological information.

Prerequisites and postrequisites of the course:

The course is based on the study of students' disciplines: medical and biological physics, medical biology, morphological disciplines and integrates with these disciplines.

The course lays the foundations for the study of the disciplines of biostatistics and social medicine, and the organization of health care

The course promotes students' study of clinical, hygienic and social disciplines.

The purpose of the course . The course involves the formation of skills to apply knowledge of medical informatics in the process of further study and professional activities.

The main tasks of studying the discipline "Medical Informatics" are mastering the basics of modern information and communication technologies, trends in their development, acquaintance with the principles of building information models, methods of medical image processing, methods of searching, storing, processing and transmitting medical and biological data. formalization and algorithmization of medical tasks.

Expected results. Competences and learning outcomes, the formation of which is facilitated by the discipline (relationship with the normative content of training of higher education seekers, formulated in terms of learning outcomes in the Standard of Higher Education).

According to the requirements of the Standard of Higher Education, the discipline "Medical Informatics" provides students with the acquisition of competencies:

-general: the ability to abstract thinking, analysis and synthesis; ability to learn and master modern knowledge; ability to apply knowledge in practical situations; knowledge and understanding of the subject area and understanding of professional activity; ability to make informed decisions; skills of using information and communication technologies; certainty and persistence in terms of tasks and responsibilities; ability to apply knowledge in practical situations.

-special (professional, subject): the ability to maintain medical records; ability to intelligent multidimensional analysis of data and their operational analytical processing with visualization of analysis results using modern information technologies; demonstration of skills in working with a personal computer and searching for medical and biological data using information technology.

COURSE DESCRIPTION

Forms and methods of teaching

The course will be presented in the form of practical classes (30 hours) and of organization of independent work of students (46 hours).

Indicate which teaching methods are used in teaching the discipline.

The content of the discipline

1. Safety. Input control. Introduction and structure of medical informatics.

2. Transfer of information. Network technologies. Basics of telemedicine.

3. Computer data: data types, processing and management.

4. Coding and classification of medical and biological data.

5. Analysis of biosignals. Methods of processing biosignals.

6. Visualization of medical and biological data. Processing and analysis of medical images.

7. Methods of biostatistics. . Application of statistical methods for processing the results of medical and biological research.

8. Methods of decision support. Strategies for obtaining medical knowledge.

9. Formal logic in solving problems of diagnosis, treatment and prevention of diseases.

10. Formalization and algorithmization of medical problems.

11. Clinical decision support systems. Forecasting tools. Modeling of decision support system.

12. Evidence-based medicine.

13. Types of information systems in the field of health care. Hospital information systems and their development.

14. Individual medical cards. Structuring the content of electronic medical records (EMC).

15. Information resources of the health care system.

16. Protection of calculation and graphic work.

17. Ethical and legal principles of information management in the health care system.

Test

List of recommended reading

1. Gerasevich VA computer for a doctor. Self-taught. - 2nd ed., Reworked. and ext. - СПб .: БХВ - Петербург, 2004. - 512 с.

2. D. Waterman. Guide to expert systems. - M .: World, 2015.

3. Lopochuchi ZN, Chubenko AV, Babych PN Statistical methods in medical and biological research using EXCEL. - D .: Morion, 2001. - 408 p.

4. Gelman W. I . Medical informatics: workshop. - СПб: Пітер, 2001.- 480 с.

5. G. Hart - Davis. Microsoft Windows XP Professional. Complete guide./ Per. from English - M .: СП ЕКОМ, 2004. - 816 с.

6. Gabrusev V. We study computer networks. - To .: View. house "Schools. world ": Ed. L. Galicia, 2005. - 128 p.

11. Distance learning in the system of medical education (teaching method. Manual). Polyasny VA, Godlevsky LS, Kresyun NV etc.

12. Bulakh IE, Lyakh YE, Martsenyuk VP, Khaimzon II Medical informatics. Textbook for students of VM (F) NZ III-IV r.a. - Ternopil: Ukrmedknyha, 2012. - 308 p.

13. Godlevsky LS, Nenova OM Telemedicine consulting: information and technical support. Training manual 2016. Odessa - ONMedU edition.-19 p.

14. Godlevsky LS, Mandel OV, Nenova OM, Prybolovets TV, Ponomarenko AI, Zhumatiy PG, Danyliuk OI, Tatarchuk TV, Marchenko SV, Bidnyuk KA, Lyashenko AV Extended terminology from the course of medical informatics. Training manual. (electronic resource) .- Odessa- 2020.- 57 p.

15. Godlevsky LS, Mandel OV, Nenova OM, Prybolovets TV, Ponomarenko AI, Zhumatiy PG, Danyliuk OI, Tatarchuk TV, Marchenko SV, Bidnyuk KA, Lyashenko AV Telemedicine technologies in the health care system Training manual (electronic resource). - Odessa- 2020.- 354 p.

EVALUATION

The university uses various forms of control of classes in a particular discipline (oral, written, combined, testing, practical skills, etc.). The results of students' academic performance are presented in the form of assessment on the national scale, 200-point and ECTS scale and have standardized generalized criteria for assessing knowledge:

National scale:

- the grade **"excellent" is given** to the student who systematically worked during a semester, showed during examination various and deep knowledge of a program material, is able to successfully carry out tasks which are provided by the program, has mastered the maintenance of the basic and additional literature, has understood interrelation of separate sections of discipline. 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);

- a grade of **"good" is given** to a student who has shown full knowledge of the curriculum, successfully completes the tasks provided by the program, mastered the basic literature recommended by the program, showed a sufficient level of knowledge in the discipline and is able to independently update and update during further study and professional activity; 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 the tasks provided by the program,

has made separate mistakes in answers on examination and at performance of examination tasks, but has the necessary knowledge to overcome mistakes under the guidance of a researcher; 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 tasks provided by the program, cannot without knowledge of the teacher to use knowledge at the further training, failed to master skills of independent work; level of competence - low (receptive-productive).

The final control in the form of tests is evaluated on a two-point scale:

- grade **"credited" is given** to a student who has completed the curriculum of the discipline, has no academic debt; level of competence - high (creative);

- the grade **"not credited" is given** to a student who has not fulfilled the curriculum of the discipline, has an academic debt (average score below 3.0 and / or absences); level of competence - low (receptive-productive).

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:

average grade point average (current / discipline) x 40

national grade	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	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. Grade "A" on the ECTS scale cannot be equal to grade "excellent", and grade "B" - grade "good" and so on.

Students who have received grades "Fx" and "F" ("2") are not included in the list of ranked students. Such students automatically receive a score of "E" after reassembly.

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 30 control. Grade "F" is given to students who have attended all classes in the discipline, but did not score a grade point average (3.00) for current educational activities and are not admitted to the final control.

Criteria for assessing the current performance of students should be reflected by the departments in the work programs in the disciplines, indicating a clear structure of student receipt in the assessment class.

COURSE POLICY
Deadline and recompilation policy:
Deadlines and transfers are carried out according to the schedule.
Attendance and lateness policy :
In the absence of a student in class or when he is late, the student receives a mark n / b (was not), which requires further work in accordance

with the provisions on the organization of the educational process by applicants for higher education at Odessa National Medical University.

Mobile devices

During practical classes, the use of a smartphone, tablet or other device for storing and processing information is allowed only with the permission of the teacher.

The use of mobile devices and their accessories is strictly prohibited during any form of control.

Behavior in the audience: observance of silence among students at lectures, exceptions - 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.