

University of Medicine and Pharmacy
“Iuliu Hațieganu” Cluj-Napoca
Faculty of Medicine

ECTS Study Guide

Academic year 2023 – 2024

Cluj-Napoca
2023

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ECTS STUDY GUIDE
FACULTATEA DE MEDICINĂ

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Universitatea de Medicină și Farmacie "Iuliu Hațieganu" Cluj - Napoca.
400012 Cluj-Napoca, Str. Victor Babeș nr.8, tel. + 40-264-597256,
Fax: +40-264-597257

Supervizori:

Professor Șoimița Mihaela Suciu, MD, PhD
Professor Simona Valeria Clichici, MD, PhD

Tehnoredactor: Dumitrița-Bianca Barabas-Bunea

Coperta: **Copy Center COLORAMA.**

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DEAN'S INTRODUCTION

For more than 150 years, the Faculty of Medicine of Cluj-Napoca has educated numerous generations of valuable physicians, devoted to their profession and their patients. Our faculty represents a brand of our city, and the community we serve recognizes the endeavor and commitment of teachers, graduates and students alike.

You will find in the Faculty of Medicine in Cluj great learning and research opportunities. The developments of last decade have led to European and international integration and recognition of our faculty. Currently, the Faculty of Medicine has been awarded Label CIDMEF, the quality certificate released by the International Conference of the Deans of French Language Speaking Medical Schools, is accredited by European Association of Medical Schools AMSE, and the diplomas are fully recognized by the State of Israel.

The medical school in Cluj is modern, dynamic, and is distinguished from other medical schools by an attractive educational offer: four undergraduate study programs, twelve master programs, a remarkable doctoral school and all the residency specialties. The management team's mission is the continuous increase in the quality of the didactic act and implicitly of the medical act. As an additional advantage of our school, we can mention the fact that the Faculty of Medicine in Cluj is among the few institutions in the world that offer a study program in three languages, namely medicine in Romanian, English and French. Currently, more than 2500 international students are enrolled in the study program Medicine of our faculty.

Internationalization represents a prominent component of our medical school, more important than ever, as major challenges of our times require international solutions. Studying abroad gives you the wonderful opportunity to live in a multicultural environment, to expand your horizon, to meet colleagues who may inspire you.

The hereby guide offers you information about medical studies in the Faculty of Medicine in Cluj, namely the structure of the academic year, the content of the disciplines, examination, mandatory and optional references, and more.

We all, teachers and students, invite you to discover us!

**Dean,
Professor Șoimița Mihaela Suciu, MD, PhD**

A BRIEF HISTORY OF THE FACULTY OF MEDICINE

Founded in Cluj, 150 years ago, at the "Franz Josef" University, Transylvania's medical higher education has a long and valuable tradition. The Romanian study program of the Faculty of Medicine in Cluj was founded in 1919, within the "Dacia Higher University".

Its first dean was Iuliu Hațieganu, who founded the Transylvanian internal medicine school and contributed decisively to the fast development of the young academic institution as a whole. The faculty has quickly gained wide national recognition and international reputation through the work of professors of great prestige, such as Victor Babeș, Constantin Levaditi, Iacob Iacobovici, Iuliu Moldovan, Victor Papilian, who remain in history under the name of the "Golden Generation". The second interwar decade was marked by remarkable personalities of medicine, such as Valeriu Bologna, Leon Daniello, Ion Manta and Grigore Benetato. The departments of Medical Semiology, under the direction of Ion Goia (1930), and Balneology, under the direction of Marius Sturza (1930), were created for the first time in Romania. For a decade (1930-1940), Emil Racovita - who was at that time a professor at the Faculty of Sciences of the "King Ferdinand" University of Cluj - held the biology and genetics courses for the medical students.

The Faculty underwent great difficulty during the Second World War when the University was relocated in Sibiu (1940-1945). Despite these hardships, through the care and competence of Iuliu Hațieganu, the Rector of the University (1941-1945), of Victor Papilian, who was the Dean of Medicine (1940-1944) and through the enthusiastic support of the academic staff, the activity continued at high quality standards.

After returning to Cluj and following the education reform in 1948, the Faculty of Medicine was separated from the University and became the Medical-Pharmaceutical Institute. During the post-war years, despite hardships that affected the entire Romanian higher education system, the Faculty of Medicine continued to give to society valuable people such as Octavian Fodor, Aurel Moga, Aurel Chișu, Aurel Nana, Ion Chiricuță, Constantin Velluda, Victor Preda, Ion Baci, personalities who influenced the Romanian medical education as a whole.

In its early years, the faculty took over everything that was innovator in the prestigious medicine schools in Europe. During the long period of the communist regime, the faculty was given the chance to have leaders and teachers who knew how to preserve the original values of the medical school, so that the tradition of professional and humanistic performance was not lost.

In 1990, the Medical-Pharmaceutical Institute was transformed into the University of Medicine and Pharmacy, which had three Faculties: Medicine,

Dental Medicine and Pharmacy. Since 1992, the university has been named after the illustrious founder of the Romanian School of Medicine in Cluj, Iuliu Hațieganu. It was during these years of enthusiastic activity that the difficult process of modernizing the University and the Faculty of Medicine was initiated, a process that has lately led to European integration and recognition of the medical education of Cluj.

I. ACADEMIC MANAGEMENT

The Senate

The highest governing body of "Iuliu Hațieganu" University of Medicine and Pharmacy is the Senate. The Chairman of the Senate represents the Senate in relation to the Administration Council and the Rector of the university and heads the Senate meetings.

The principles governing the organization and functioning of the university, as well as the rules governing the activity of the academic community are laid down in the Charter of the University, adopted by the Senate.

The Administration Council

The Administration Council consists of the Rector, the Vice-Rectors, the Deans, the General Director of Administration and the students' representative and is in charge of the executive direction of the university. The head of the Administration Council is the Rector.

The Senate, The Administration Council and the Rector make decisions on the main issues of the educational process, decisions based on the university autonomy and the respect for academic freedom, and on the provisions of the Ministry of National Education. The Senate consists of academic staff members and 25% students' representatives.

The Council of the Faculty of Medicine

The Council is the highest management board of the Faculty of Medicine and has 30 teaching staff and 10 students. The representatives of foreign students and resident physicians are invited mandatorily to participate to the Council meetings. The Faculty Council is chaired by the Dean of the faculty.

The decisions of the Council are carried out by the dean of the Faculty and by the 5 Vice-Deans. The Dean has the responsibility of the entire activity of the Faculty and represents the Faculty within and outside the university, coordinates the activity and follows the application of the decisions of the Faculty council.

The activity of the faculty's academic leadership team is supported by an administrative team headed by the chief secretary of the faculty.

The direction of the University of Medicine and Pharmacy "Iuliu Hațieganu" was elected in December 2019 for a four-year term and it is represented by the following teachers:

The direction of the University of Medicine and Pharmacy “Iuliu Hațieganu”

Prof. Anca Dana Buzoianu , MD, PhD	- Rector
Prof. Daniel Mureșan , MD, PhD	- President of the Senate
Assoc. Prof. George Călin Dindelegan , MD, PhD	- Vice-Rector, resident and postgraduate students
Prof. Carmen Mihaela Mihu , MD, PhD	- Vice-Rector, Didactic Activities
Prof. Sorin Man , MD, PhD	- Vice-Rector, Academic Development and University Administration
Prof. Mihaela Felicia Baciut , MD, PhD	- Vice-Rector, Research and Scientific Activities
Prof. Radu Nicolaie Oprean , MD, PhD	- Vice-Rector, Quality Management and International Relations

The direction of the Faculty of Medicine

Prof. Șoimița Mihaela Suciu , MD, PhD	- Dean of the Medical Faculty
Prof. Anca Simona Bojan , MD, PhD	- Vice-Dean, International Relations and Foreign Students' Issues
Prof. Simona Valeria Clichici , MD, PhD	- Vice-Dean, Teaching activities
Prof. Olga Hilda Orășan , MD, PhD	- Vice-Dean, Evaluation and Quality Control
Assoc. Prof. Sorin Crișan , MD, PhD	- Vice-Dean, Management, Accademic Development and Students' Issues
Assoc. Prof. Dana Crișan , MD, PhD	- Vice-Dean, Scientific and Evaluation activities

Address:

FACULTY OF MEDICINE

Dean's Office

Gh. Marinescu Street, No. 23, ground floor

Cluj-Napoca, Romania

Tel: +40-374-834114

Fax: +40-374-834267

Email: decanat_mg@umfcluj.ro

II. EDUCATIONAL OFFER

A) UNDERGRADUATE STUDIES:

- **Romanian Study Program (courses taught in Romanian)**
- **French Study Program (courses taught in French)**
- **English Study Program (courses taught in English)**
- **Field of study: HEALTH**
- **Study Program: MEDICINE – 360 ECTS**
Graduate degree in Medicine (medical-doctor), 6-year university studies.
- **Study Program: GENERAL NURSING – 240 ECTS**
Graduate degree in Nursing (university degree as nurse), 4-year university studies (courses taught in Romanian).
- **Study Program: RADIOLOGY AND MEDICAL IMAGING – 180 ECTS**
Graduate degree in Radiology and Medical Imaging (radiology and imaging assistant), 3-year university studies (courses taught in Romanian).
- **Study Program: PHYSIO-KINESIOTHERAPY AND REHABILITATION - 180 ECTS**
Balneo-physio-kinesiotherapy and recovery diploma (balneo-physio-kinesiotherapy and rehabilitation assistant), 3-year university studies (courses taught in Romanian).

The Faculty of Medicine in Cluj-Napoca is among the few medical faculties in the world that offer a study program - Medicine - in three different languages: Romanian, English and French.

B) POSTGRADUATE STUDIES

- Master's Degree

There are 10 masters within the Faculty of Medicine, with the duration of 1 or 2 years of study.

- Doctoral Studies

As the master degree program is considered to be included in the 6 years of study of the Faculty of Medicine, the graduates of this specialization can apply directly to the doctorate.

C) TRAINING SPECIALISTS IN MEDICAL FIELDS, THROUGH RESIDENCY PROGRAMS (3-7 YEARS)

D) CONTINUOUS MEDICAL EDUCATION, THROUGH NUMEROUS POSTGRADUATE PROGRAMS, COVERING ALL MEDICAL SPECIALTIES.

III. DEPARTMENTS AND DISCIPLINES OF THE FACULTY OF MEDICINE

Departments	Disciplines
1. Morpho-functional Sciences	Anatomic Pathology Anatomy and Embryology Histology Pharmacology, toxicology and clinical pharmacology Physiology Pathophysiology Immunology and Allergology
2. Molecular Sciences	Medical Biochemistry Medical Biophysics Cell and Molecular Biology Medical Genetics Microbiology
3. Community Medicine	Hygiene Occupational Medicine Family Medicine Forensic Medicine Public Health and Management
4. Internal Medicine	Medical Clinic I Medical Clinic II Medical Clinic III Medical Clinic IV Medical Clinic V Cardiology – Heart Institute Cardiology - Rehabilitation
5. Medical Specialties	Medical Rehabilitation Dermatology Diabetes and nutrition-related diseases Endocrinology Pneumology Rheumatology Nephrology Geriatrics
6. Surgery	Infectious Diseases. Epidemiology Anesthesia and Intensive Care I Anesthesia and Intensive Care II Vascular, cardiovascular and thoracic surgery Plastic and Reconstructive Surgery

	Surgical Clinic I
	Surgical Clinic II
	Surgical Clinic III
	Surgical Clinic IV
	Surgical Clinic V
	Emergency Medicine
	Practical skills
7. Surgical Specialties	Orthopedics, Traumatology and Pediatric Orthopedics
	Urology
	ENT
	Ophthalmology
	Medical Imaging
8. Mother and child	Medical Imaging. Nuclear medicine
	Obstetrics and Gynecology I
	Obstetrics and Gynecology II
	Neonatology
	Pediatrics I
	Pediatrics II
	Pediatrics III
	Surgery and Pediatric Orthopedics
	Nursing
9. Neurosciences	Neurology and Pediatric Neurology
	Psychiatry and Pediatric Psychiatry
	Medical psychology and psychiatry
	Neurosurgery
10. Oncology	Medical Oncology
	Oncology and Radiotherapy
	Hematology
	Palliative medicine
	Oncologic Surgery and Oncologic Gynecology
11. Medical Education	Sport
	Medical Informatics and Biostatistics
	Modern Languages
	Humanistic Sciences

THE STRUCTURE OF THE ACADEMIC YEAR 2023-2024

LINEAR TEACHING

MEDICINE – 1st – 3rd YEAR

1st SEMESTER

02 October 2023 – 22 December 2023	→	classes (12 weeks)
25 December 2023 – 05 January 2024	→	Christmas holiday (2 weeks)
08 January 2023 – 19 January 2024	→	classes (2 weeks)
22 January 2024 – 16 February 2024	→	exam session (4 weeks)
19 February 2024 – 23 February 2024	→	winter holiday (1 week)

2nd SEMESTER

26 February 2024 – 07 June 2024	→	classes (14 weeks)
06 May 2024 – 10 May 2024	→	Easter holiday (1 week)
10 June 2024 – 05 July 2024	→	exam session (4 weeks)
09 July 2024 – 12 July 2024	→	re-examination session 1
16 July 2024 – 19 July 2024	→	re-examination session 2
22 July 2024 – 27 September 2024	→	Summer holiday

*The number of weeks for summer practice and the period in which they take place is different for each year and specialization.

**The summer practice of the Faculty of Medicine runs from 08.07.2024 to 20.09.2024 and can start on any Monday of the mentioned period.

September 2024 = License Exam for General Nursing, Physio-Kinesiotherapy and Rehabilitation, Radiology and Imaging, Nutrition and Dietetics.

MODULAR TEACHING

MEDICINE – 4th – 6th YEAR

(Modular structure: 36 weeks, representing 30 weeks of courses and 6 weeks of exam sessions)

1st Semester

1st Module

02 October 2023 – 24 November 2023 → classes (8 weeks)
27 November 2023 – 01 December 2023 → exam session (1 week)

2nd Module

04 December 2023 – 22 December 2023 → classes (3 weeks)
25 December 2023 – 08 January 2024 → Christmas holiday (2 weeks)
08 January 2024 – 9 February 2024 → classes (5 weeks)
12 February 2024 – 16 February 2024 → exam session (1 week)
19 February 2024 – 23 February 2024 → winter holiday (1 week)

2nd Semester

3rd Module

26 February 2024 – 19 April 2024 → classes (8 weeks)
22 April 2024 – 26 April 2024 → exam session (1 week)

4th Module

29 April 2024 – 03 May 2024 → classes (1 week)
06 May 2024 – 10 May 2024 → Easter holiday (1 week)
13 May 2024 – 28 June 2024 → classes (7 weeks)
01 July 2024 – 05 July 2024 → exam session (1 week)

09 July 2024 – 12 July 2024 → re-examination session 1

16 July 2024 – 19 July 2024 → re-examination session 2

22 July 2024 – 27 September 2024 → Summer holiday

July 2024 → License Exam for the English and French study program

September 2024 → License Exam for the Romanian study program

The summer practice of the Faculty of Medicine runs from 08.07.2024 to 20.09.2024 and can start on any Monday of the mentioned period.

MASTER'S DEGREE

1st SEMESTER

02 October 2023 – 22 December 2023	→	classes (12 weeks)
25 December 2023 – 05 January 2024	→	Christmas holiday (2 weeks)
08 January 2023 – 19 January 2024	→	classes (2 weeks)
22 January 2024 – 16 February 2024	→	exam session (4 weeks)
19 February 2024 – 23 February 2024	→	winter holiday (1 week)

2nd SEMESTER

26 February 2024 – 07 June 2024	→	classes (14 weeks)
06 May 2024 – 10 May 2024	→	Easter holiday (1 week)
10 June 2024 – 05 July 2024	→	exam session (4 weeks)
09 July 2024 – 12 July 2024	→	re-examination session 1
16 July 2024 – 19 July 2024	→	re-examination session 2

September 2023 → dissertations session I (1 week)

EXAMINATIONS AND CONTESTS

12 February 2024 – 16 February 2024 = exam for the 2nd License

12 February 2024 – 16 February 2024 = exams for the 2nd Dissertation

September 2024 = exams for the Dissertation

16 September 2024 - 27 September 2024 = registration and admission to Master's degree courses

OTHER EVENTS

04 – 08 December 2023 → „University Days“

July 2024 → The 2024 Ceremony for the students' graduation

1. The procedure for the 1st year student's registration is the following:

- For students declared admitted after the entrance exam, registration is based on the matriculation decision issued by the rector; fee-paying students will be enrolled after paying the tuition fee and signing the study contract.
- For foreign students, scholars of the Romanian state, registration is based on the nominal order issued by the Ministry of National Education, on the approval given by the direction of the university and after signing the study contract.
- For fee-paying foreign students, the registration is made on the basis of the registration decision issued by the Foreign Students Department and of the registration order issued by the Ministry of National Education, provided that the tuition fee is paid and the study contract is signed.
- The complete application file, verified by the Foreign Students Department, will be handed over to the Dean's office only after getting the approval of the Ministry of National Education, until the end of December of the current academic year.
- The candidates admitted in the first year and not enrolled within the period established by the direction of the university lose the right to be enrolled.
- According to Ministry's decision, a student may study only one specialty financed by the state budget. The student has to pay a tuition fee to attend a second specialty.

2. Each student is enrolled in the matriculation register under a unique number, valid for the entire duration of his undergraduate studies.

3. The student's application file must contain the following documents when he enrolls at the faculty:

- the original Baccalaureate diploma. Students who pay tuition fees to attend a second faculty must submit a copy of the Baccalaureate diploma authenticated by the notary public and a document proving that his/her original Baccalaureate diploma is in the university where he/she benefits from a state subsidized place;
- the graduates of a faculty where they benefited from a state subsidized place and who have to pay the tuition fee for attending a second faculty, must submit an authenticated copy of MD or BSc diploma as well;
- the enrollment form;

- an authenticated copy of the birth certificate;
- the medical tests required by the university;
- the written and signed agreement proving the fact that the student knows and agrees to respect the regulations of the university, concerning the academic activity and examinations, and those of the study contract;
- four passport-size photographs.

4. The application file of the foreign student must contain the following documents when he enrolls at the faculty:

- the original Baccalaureate diploma and transcript (as the case may be) and its authenticated translation in an international language;
- the language certificate (Romanian, French, English), according to the teaching language of the section the student applies for;
- a photocopy of their passport;
- an authenticated copy of their birth certificate;
- the certificate of recognition and equivalency of the Baccalaureate diploma or the letter of acceptance, issued by the Ministry of national Education;
- the enrollment forms;
- the medical tests required by the university;
- the written and signed agreement proving the fact that the student knows and agrees to respect the regulations of the university, concerning the academic activity and examinations, and those of the study contract;
- four passport-size photographs.

The registration of the international students takes place within the period established by the direction of the university.

5. When the student enrolls at the faculty, the Dean's office issues a student card. The student card contains all the marks obtained by the student at examinations or other assessment forms. It also includes the marks of the failed exams. The examiner has the responsibility to fill in the marks and to sign them. In case of transfers, studies interruption or expulsion, the Dean's office withdraws the student card and the transport card, where applicable.

6. The student's enrollment in an upper year

Enrollment at the beginning of the academic year is as follows:

1. For years I-III, a student who has subjects not promoted in the years of schooling totaling 10 or less than 10 outstanding credits will be enrolled in the year of study superior to the one from which he comes
2. For years I-III, the student who totals more than 10 outstanding credits in the subjects not promoted, will be enrolled in the complementary year.
3. For years IV-VI, a student is enrolled in the senior year if he / she passes all 60 ECTS credits related to the current year.

4. A student who, after the last year of study, has at least one subjects not promoted of the curriculum of the study program to be followed, will be enrolled in the year of grace.

Students declared admitted in the complementary year (repeaters) have the obligation to enroll until the beginning of the academic year.

Students declared in the complementary year will pay their financial obligations on time and in the amounts established annually by the Board of Directors and validated by the University Senate.

International students

International students are welcome both in the academic community and in the civic community of our city.

In addition to the Romanian study program, the Faculty of Medicine has been offering for over ten years medical education in English and French, with increasing attractiveness for many students from over 56 countries.

At present, about 40% of students of the Faculty of Medicine are foreign students who study in English, French or Romanian.

Foreign students are admitted to studies following a selection procedure based on their application files, according to criteria established by the Faculty of Medicine and approved by the Senate of the University. They don't have an entrance exam.

The European Credit Transfer and Accumulation System (ECTS) was created to facilitate student mobility from one university to another. The European Union encourages study periods at partner universities, and the Bologna and Berlin Declarations state the need to remove obstacles to academic mobility. Student mobility within the Socrates-Erasmus programs offers students the opportunity to study for a semester or academic year at another European university. Then, they return to the home university, where they graduate and where they will receive the diploma at graduation. In this way, students benefit from continuity of studies in conditions in which they have access to other educational perspectives and to a new academic, cultural, social and linguistic environment.

The main objective of creating this system was to support students' mobility in order to complete their training by adding the experience of other European universities and obtaining total academic recognition for the period they spent away from the home university.

Total academic recognition translates into replacing a study period at a home university with a period spent at a university abroad, without home studies being prolonged at that time.

ECTS credits

ECTS credits are allocated to courses and practical activities in order to assess the students' effort to gain the notions of the activity. They reflect the amount of work each course requires in relation to the overall amount of work necessary to complete a full academic year of study at the university, which includes: courses, seminars, practical work and individual work in the laboratory, in the library or at home, exams and other types of evaluation.

In the ECTS system, 60 credits represent one year of study (in terms of workload). Normally, 30 credits are allocated per semester.

ECTS credits are also allocated to practical internships and to the preparation of the license thesis when these activities are part of the regular curriculum at both home and host institutions.

Each course allocates a number of credits, which will only be obtained by students who fully promote the activities following exams or other types of assessment. In order for the student to be recognised for Erasmus+ mobility, he/she must accumulate a minimum of 25 ECTS credits for a period of 1 semester and a minimum of 50 ECTS credits for a period of 1 academic year spent in the host institution abroad. The credits obtained abroad must be related to subjects that the student would study at UMF "Iuliu Hațieganu" Cluj-Napoca during the academic year in which he/she is enrolled and in which

he/she travels. A maximum of two examinations per academic year may be recognised (maximum 20 credits in advance).

The ECTS grading scale

In general, examination and assessment results are expressed in grades. There are different grading systems in Europe, which is why an ECTS grading scale has been created to equate the grades students get at their host university. This procedure also provides other information about the student's work, but does not replace the grade the student will receive at the home university.

How does it work?

The main ECTS tools to facilitate academic recognition are:

- Information Package
- Learning Agreement
- Transcript of Records
- Certificate attesting to the period of mobility at the partner university

The Information Package is provided by all institutions wishing to use the ECTS system; it details the courses available at that university. It also provides general information about the institution, its location, student accommodation, administrative registration procedures and academic calendar. This package is yearly updated.

The Learning Agreement describes the study program abroad and is completed by the student in collaboration with the two academic institutions involved, before he / she reaches the host university.

The Transcript of Records details the student's academic achievements before and after the period of study abroad. It contains, in addition to the ECTS credits granted, the mark received by the student according to the local grading system as well as the ECTS grading scale. The combination of ECTS credits and the grades obtained according to the local grading system describe quantitatively and qualitatively the work done by the student at the host university.

The certificate attesting to the period of mobility at the partner university is issued by the partner university at the end of the Erasmus+ mobility, proving, together with the transcript of records issued, that the mobility has been completed.

These tools are then used by departmental and institutional coordinators on ECTS administrative and academic issues, designated by each institution. The grade obtained by the student for a certain subject, written in the transcript of records, is given by the ECTS academic coordinator of the Faculty, taking into account the grade obtained by the student in the host institution, according to the ECTS grading scale.

By using ECTS, students' curricula and academic performance are transparent, leading to greater academic recognition.

How can students obtain ECTS mobility?

They should contact the departmental coordinator of their home institution and go through the information package of other institutions to choose the best destination and prepare their study program abroad.

How is academic recognition ensured?

The ECTS study program must be approved by both home and host institutions before the student moves to that country. If the study program described in the Learning Agreement is satisfactorily fulfilled by the student, it is fully recognized by the home university. This means that the volume of study accumulated at the host university, translated into ECTS credits, will be the equivalent of the same volume of study that the student would have had to accumulate at the home university.

How are ECTS credits transferred?

Academic institutions prepare and transfer each other transcripts for all the students who benefit from ECTS mobilities. A copy of the transcript is given to the student and is checked by both home and host universities before and after the mobility.

Is it possible to continue studying abroad in the ECTS system?

A student who has benefited from ECTS mobility can choose to stay at the host university. This is possible, provided that both institutions agree and the student accepts the conditions for a degree or transfer.

The transcript of records provides a history of the student's academic pathway; it is therefore the document on the basis of which the partner institutions take decisions on further study under the ECTS mobility scheme and on the European openness to academic mobility in general.

Students' evaluation criteria and ECTS grading scale

Courses and study modules are evaluated through written and oral exams, practical work, demonstrations and other applicable methods. Students receive information about the evaluation criteria at the beginning of the study module.

ECTS	Grade in Romania	Definition
A	10	Excellent = outstanding achievement with some minor mistakes
B	9	Very Good = achievement above the average with some mistakes
C	7-8	Good = generally good achievement with a few mistakes
D	6	Satisfactory = medium with significant shortcomings
E	5	Sufficient = performance meets the minimum criteria
FX	4	Fail = requires more work to receive the credits
F	1-3	Fail = much extra work is needed

ECTS grading scales for different countries

Romania	1 - 4	5	6	7	8	9	10
ECTS scale	FX, F Fail	E Sufficient	D Satisfactory	C Good	C Good	B Very Good	A Excellent
Austria	5	-	4	-	3	2	1
Albania	1 - 4	5	6	7	8	9	10
Bulgaria	2 Слаб	5 Среден	-	-	4 Добър	5 Много добър	6 Отличен
Belgium	7, 8, 9	10	11	12	13, 14	15, 16, 17	18, 19, 20
China	0 - 59.99	60 - 69.99	70 - 74.99	75 - 79.99	80 - 84.99	85 - 89.99	90 - 100
Denmark	0, 3, 5	6	7	8	9	10	11, 13
Switzerland	< 3,5	3,5 - 3,99	4,0 - 4,49	4,5 - 4,99	5,0 - 5,49	5,5	5,51 - 6,0
Finland		1	1½	-	2	2½	3
France	Insuffisant (< 10)	Passable (10 - 10,49)	Passable (10,5- 10,99)	Assez bien (11,0 - 11,49)	Assez bien (11,5 - 12,49)	Bien (12,5 - 14,49)	Très bien (14,5- 20,0)
Germany	> 4,01	4,00 - 3,51	3,5 - 3,01	3,00 - 2,51	2,50 - 2,01	2,00 - 1,51	1,50 - 1,00
Greece	2, 3, 4	5	6	-	7	8,9	10

Jordan	0 - 49.99	50 - 50.99	51 - 59.99	60 - 69.99	70 - 79.99	80 - 89.99	90 - 100
Ireland	< 25% Fail	25% - 39% Pass	40% - 44% 3 rd pass	45% - 54% -	55% - 69% 2 nd /II	70% - 84% 2 nd /I	85% - 100% I
Iceland	Fail	5	-	6	7	8	9, 10
Italy	≤ 17	18, 19	20 - 22	23 - 24	25 - 26	27, 28	29, 30, 30+
Great Britain	0 - 39% (Fail)	40 - 49% (3 rd)	50 - 54% (2ii)	55 - 59% (2ii)	60 - 64% (2i)	65 - 69% (Upper 2i)	70 - 100% (First)
Norway	6 - 4.1	4 - 3.5	3.5 - 3	2.9 - 2.4	2.3 - 2	1.9 - 1.2	1.1 - 1.0
The Netherlands	1 - 4	5	6	-	7	8	9, 10
Polland	< 3,00	3,00	3,01 - 3,49	-	3,50 - 3,99	4,00 - 4,49	4,50 - 5,00
Portugal	1 - 9	10	11, 12	13	14, 15	16, 17	18, 19, 20
Slovakia	5	-	4	-	3	2	1
Slovenia	1 - 5.9	6	6.1 - 6.9	7 - 7.5	7.6 - 7.9	8 - 9.9	10
Spain	< 5 Suspendo	5,0 - 5,49 Aprobado	5,5 - 6,49 Aprobado	6,5 - 7,49 Notable	7,5 - 8,49 Notable	8,5 - 9,49 Sobresaliente Excellent	9,5 - 10 Matricula de Honor
United States of America	E - F/0 - 59	D/60 - 65	- /66 - 72	C/73 - 79	B/80 - 86	A - /87 - 93	A/94 - 100
Hungary	1,00 - 1,99 elegtelen	-	2,00 - 2,50 elegseges	-	2,51 - 3,50 közepes	3,51 - 4,50 jo	4,51 - 5,00 jelcs, kivalo
Turkey	1 - 4 Noksan/Pek Noksan	4,5 - 4,99	5,00 - 6,49 Orta	6,5 - 6,99 Orta	7,00 - 7,99 Lyi	8,00 - 8,99 Lyi	9,0 - 10,0 Pek iyi

For further information on the ECTS system of credits and how it is applied in “Iuliu Hațieganu” University of Medicine and Pharmacy, Cluj-Napoca, please access the regulations concerning the application of the European Credit

Transfer and Accumulation Sstem (ECTS) on the university website:
<http://www.umfcluj.ro>.

ECTS Coordinators

University ECTS Coordinator:

Prof. **Carmen Mihaela Mihu**, MD, PhD - Vice-Rector, Teaching and Educational Evaluation

Faculty of Medicine:

Prof. **Simona Valeria Clichici**, MD, PhD - Vice-Dean, Teaching and Educational Activities

Director of International Relations:

Prof. **Simona Rednic**, MD, PhD

Language of instruction

The language of instruction at the “Iuliu Hațieganu” University of Medicine and Pharmacy is Romanian.

The Faculty of Medicine offers study programs in English and French where the courses are held in English and French, but beginning with the fourth year, the clinical internships are in Romanian.

Linguistic Opportunities

All our University students have the opportunity to study a European language. Through these courses, students can acquire practical skills - reading, writing, listening and speaking. All the facilities of the Department of Modern Languages are available to all the students and the teaching staff of the University.

Scholarships

Over 40% of our students benefit from study or social scholarships, offered by the University.

These types of scholarships are granted to students with outstanding achievements and, under certain circumstances, to students with a special social situation.

During the mobility period, students keep their right to scholarship, granted in the national scholarship system.

Students who have benefited from mobility, but who could not accumulate the maximum number of credits to validate the year, are eligible for the scholarship criteria and for accommodation in the university campus, according to Senate Council's decision from 16.10.2007, and they are exonerated from paying remaining invalidated credits.

Food and Accommodation

Our University has its own campus; the 9 dormitories have a capacity of 2700 places, being completely renovated. Most Romanian students from outside Cluj live in the University dormitories, but the international students prefer rented apartments.

The University owns 2 student restaurants, one located near the campus, on Victor Babes Street 13 and the second on Gh. Marinescu, nr. 23. The 2 restaurants offer diversified menus and have a capacity of 250 seats.

There are also many restaurants and fast food restaurants at reasonable prices in the city centre and near the medical institutions where courses take place.

For foreign students who do not live in dormitories, the supermarkets and restaurants in neighborhoods offer convenient food supply as prices are much lower than in most European countries. The cost of food per month can reach 200-300 EUR.

Health

The student's medical cabinet is located within the Dormitory no. VII of the campus Haşdeu, providing medical assistance to the UMF students. The medical certificates necessary for motivating absences on medical grounds are countersigned here.

Sports

The Student Sports Club, founded in 1966, has a sports ground where students can practice basketball, volleyball, football, aerobics, tennis, etc. The University's Sports Hall has been recently renovated.

STUDIES STRUCTURE

The structure of all study programs offered by UMF is based on the academic year system, divided into two semesters.

The educational process takes place in the following way:

- linear, with 2 exam sessions, one at the end of each semester (winter and summer)
- modular, organized in blocks of disciplines, with four exam sessions, two for each semester.

The studies include theoretical courses, clinical internships, seminars and practical work, elective courses, optional courses and a bachelor's examination.

The medical undergraduate studies aim at familiarizing the students with the main applications of the medical field and with their theoretical basis. After graduation, students must be able to work independently as medical experts, as practitioners or as researchers.

Language studies are absolutely necessary for Romanian students because acquiring a good level of competence in a foreign language is essential for students' professional development, due to the increased mobility of EU and non EU citizens.

International students are required to learn the Romanian language because starting with the fourth year practical training in clinics is conducted in Romanian.

Elective courses

Each academic year is assigned a number of elective courses. Students may choose one of these courses which will then become mandatory for the study.

According to the university curriculum, each elective course is allocated 14 hours / semester and 2 credits.

Optional courses

In each academic year, a number of optional courses are added to the compulsory courses. These are intended to deepen the knowledge gained during compulsory courses. The choice of these courses, their attendance and related examinations are not mandatory. Optional courses have additional credits.

The final exam

The final exam at UMF "Iuliu Hațieganu" is the bachelor's examination. It has two parts:

- 1. Specialty test** - with 2 components:

- **Written test** - consists of multiple choice questions from the bibliography approved by the Council of the Faculty at least 6 months before the exam.
- **Practical test** - is in the form of examination and presentation of a clinical case appreciated by a specialized multidisciplinary commission.

2. Presentation of the license thesis: the license thesis is the result of the personal research conducted by students for at least 2 years of study (1 year for the study programs of 180 and 240 ECTS), in a specialty chosen by each student, according to the personal development program.

The minimum average required to validate the final license exam is 6 (six).

License exam sessions: July (for the graduates of the English and French study programs), September (for the graduates of the Romanian study programs) and February.

ORGANIZING ACADEMIC ACTIVITIES. EXAMINATIONS. COMPLETING THE REQUIREMENTS OF A STUDY YEAR

1. Assessment of students' knowledge is done through exams, with marks from 1 to 10. The minimum mark to pass an exam is 5 and the highest mark is 10. The final forms of examination are represented by the theoretical exam and the practical exam. In case students' knowledge cannot be tested through practical examinations due to the specific features of a particular subject, an oral final evaluation will be organized instead. Successful completion of the final examination is conditioned by obtaining the promotion mark (minimum 5) for both forms of examination (written and practical). If the students are present at only one form of examinations, their final mark will be 4. These students will only take the examination which they failed during the re-examination session.
2. Students are allowed to go to the exam only on the basis of the official students' record issued by the Dean's Office. This official record certifies the students' status and fulfillment of their financial obligations.
3. At the beginning of each academic year, the departments will display the way in which the evaluation is done and the percentage each exam component holds within the student's final mark. It is mandatory that the marks obtained at both theoretical and practical examinations have a weight in the final mark of the student.
4. Validating a year of study requires a minimum of 50 credits out of 60 credits allocated to one year of study for years I-III, and 60 credits for years IV-VI. In order to be promoted to a higher year, the amount of outstanding credits from the lower years must not exceed 10 credit units. The calculation of credit units obtained in that academic year does not include credit units obtained in that year from outstanding credits. Students are required to accumulate all 180 credits for the first three years of undergraduate study at the end of the third year of study. If one of the requirements is not met, the student is enrolled in a complementary year, being considered a repeat. For the promotion of the outstanding credits, a fee is paid according to the annex "School fees".
5. All remaining credits must be obtained within maximum two years; otherwise students will be enrolled in a complementary year.
6. For the Medicine study program, at the end of the third year of study, students have the obligation to accumulate all the 180 credits of the first three years.
7. Students may go three times at the same exam during the same academic year. The curriculum includes four exam sessions (for linear

education: winter session, summer session and two summer re-examination sessions). For the third presentation to an exam, the student must pay a fee, according to the Fees Appendix. For the linear education, exams are organized only during the exam sessions and for the modular education, they are organized at the end of modules. Students must respect the examination dates as scheduled by departments, in agreement with the students' representatives. The absence to one scheduled exam is considered to be a failure of the exam and the loss of one chance of passing it.

8. Within the modular education, exams are mandatory at the end of each module, during the corresponding sessions. During an academic year, students have the right to be present only three times at the same exam, but only one presentation is admitted between October-July (with their own series), and the 2nd and 3rd presentation can only take place in the re-examination sessions.
9. In the groups of disciplines where the verification of the knowledge is in the form of a complex exam completed by a single grade, at the written exam each discipline will allocate a number of questions proportional to the weight of its hours of activity; the practical exam will be unique and will be organized at the end of the activity, and the final grade will be calculated by the proportionality ratio between the different disciplines, according to an algorithm accepted and announced in advance.
10. The dates for the written exams will be scheduled in agreement with the students' representatives, each discipline being required to submit at least two dates of exam for a series. If the theoretical exam takes place on the same day for the entire series of students, the practical exam will not exceed the three consecutive days.
11. Re-examination for a higher mark is allowed only based on the approval of the direction of the Faculty, as follows: maximum 6 re-examinations during the university years and no more than 2 re-examinations per year. The mark obtained after re-examination is final. A three-member commission will re-examine the student applying for re-examination.
The new mark obtained is taken into account in calculating the average that ensures social rights to the student. The fee for these exams is set out in the Fees Appendix. In order to be able to request a re-examination to increase the mark, a student must have passed all his/her exams.
12. The student who tries to validate the exam through fraud will be sanctioned. The sanctions that may be proposed by the direction of the Faculty can be found in Chap. VIII of the Regulations concerning student academic activity.

** All students enrolled in the study programs in foreign languages, except for those who have Romanian citizenship, must take a Romanian language test at the end of the third year of study. The test is organized at the Modern Languages Discipline of the Faculty of Medicine.*

Foreign students may be enrolled in fourth year only if they pass this test. Those who do not pass this test are enrolled in a complementary year.

Starting with the academic year 2017-2018, the exam is unique for each discipline of the curriculum, taking place on the same day, having the same topics, based on a unique bibliography, for all the series of a study program. Grading is based on unique criteria, the same for all students.

REGULATION FOR THE EQUIVALENCE OF STUDIES

carried out in other medical education institutions by students applying for enrollment in an academic year other than the first or the sixth year of study.

The provisions of this Regulation apply to foreign students who require enrollment, as well as to Romanian students who require transfer or equivalence and who have completed part of their studies in a similar institution in Romania.

Equivalence is not granted for courses taught in the academic year that the student is enrolling in.

Equivalence is not granted for courses of studies older than 6 years since their completion.

Requirements necessary for the studies to be eligible for equivalence:

- The content of the studied subjects (certified by the syllabus) and their duration (certified by the curriculum) should be at least 70% similar to the equivalent curriculum of the “Iuliu Hațieganu” University of Medicine and Pharmacy, Cluj-Napoca.
- The sum of the transferable credits corresponding to the subjects not studied but required by the syllabus of the “Iuliu Hațieganu” University of Medicine and Pharmacy faculties (difference exams) **cannot exceed 10 credits** (without Physical Education and Romanian as a Foreign Language).
- For students who have graduated from universities accredited in the EU, equivalence may be also granted to courses taught in the academic year that the student enrolls in, provided that the difference between the missing credits and the recognized extra credits does not exceed 15.
- Students must present an official certificate showing the marking system applied in the institution where they studied and its equivalence with the ECTS system.
- Only the subjects where the applicant has passed the examinations in the educational institution where he has completed his studies will be considered.
- Clinical internships performed, but not followed by passing the corresponding exam, will not be recognized.

For equivalence of studies, the applicant shall submit the following documents in original:

- the transcript of records
- the curriculum
- the syllabus of each subject for which equivalence is requested
- an official statement explaining the marking system used by the institution where the applicant studied as well as its correspondence to the ECTS system
- an empty folder

- a written application mentioning the subjects for which the applicant is requesting equivalence
- a request for the equivalence of studies by the Vice Rectorship for Teaching Activities.

All documents required for equivalence will be submitted **at the same time**. Subsequent additional documents will not be accepted in the application file.

Only studies completed within medical higher education institutions, leading to the awarding of a physician's diploma, will be eligible for equivalence. Equivalence of studies in biology, veterinary medicine, nursing, medical colleges or master's degrees, etc., is not acceptable.

These Regulations are appended to the Learning Agreement.

The requests for the equivalence of studies will be submitted to the Dean's Office in the first 10 working days of September for the next academic year or, with the approval of the Administration Council, by the deadline for enrollment of foreign students at our university, a date set by the Administration Council according to the instructions of the Ministry of National Education.

The direction of the Faculty appoints a member responsible for evaluating the applications for the equivalence of studies and then approves it by means of minutes, with the signature of all members. The evaluation of the applications is made within 7 working days from the date of their receipt by the Dean's office.

The direction of the Faculty has the right to request and take into account the opinion of the course holders of those subjects for which the duration of the studies and / or the content of the syllabus do not coincide with those of the faculties to which registration is requested.

Possible appeals to the decision of the Faculty shall be submitted within 48 hours after the communication of the decision to the applicant.

Appeals are discussed by the designated assessor of the Faculty and the applicant.

The decision taken by the direction of the Faculty following the discussion of the appeal is final and unassailable.

STUDENTS DISTRIBUTION TO STATE SUBSIDIZED – FEE-PAYING PLACES

Starting with the 2009-2010 academic year, students are allocated state subsidized places yearly according to their academic achievements.

The allocation is based on regulations available on the university website.

Main criterion: academic achievements.

Extracts from the Regulation regarding students distribution to state subsidized – fee-paying places:

This methodology applies to all students who were enrolled following a written entrance exam, beginning with the academic year 2005-2006. Students enrolled on special state subsidized places, fee-paying students, students who pay a fee for the equivalence of studies and students who were enrolled by order or letter of acceptance from the Ministry of National Education are not subject to this decision and do not benefit from its provisions.

1. The performance standard used to allocate the state subsidized places in one academic year is the students' school performances at the end of the second re-examination session of the previous academic year.
2. The average taken into account for the allocation of the state-subsidized places is the arithmetic average between the weighted average of student's marks and their arithmetic average, calculated for the academic year that ends.
3. In both types of averages (weighted and arithmetic), the unsuccessful exams, regardless of the marks obtained, will be quoted with 0 (zero).
4. Summer practice is not taken into account for the allocation of state subsidized places. In calculating the weighted average, the total number of credits used for the calculation is reduced accordingly.
5. The places distribution is in the descending order of the averages.
6. If several students have the same average, the following criteria are applied, in this indicated order:
 - a. The weighted average
 - b. If there are still students with the same average, the grade of the discipline having the most credits will be taken into account.
 - c. If there are still students with the same average, the following discipline having the most credits will be taken into account (if this discipline is divided into two semesters, the arithmetic average is calculated). This criterion will be applied until there aren't any equal averages. If there are several disciplines with the same number of credits, all these disciplines will be considered in alphabetical order.
7. Students' results are considered as unitary, according to the year of study and the faculty, without any differences among student series.

8. Students who do not have remaining credits for the re-examination sessions, may participate to re-examinations in order to increase their grades in the first re-examination session.
9. A student may go to re-examinations in order to increase his/her mark only twice in the same academic year.
10. Students' ranking for the allocation of state-subsidized places is carried out by the staff of the Dean's office, checked by the designated representatives of students and approved, under signature, by the dean of the Faculty.
11. The ranking is announced and displayed at the Dean's office within 15 working days after the end of first re-examination session.
12. Students may contest the ranking within 2 calendar days after its announcement.

For further details, please visit the regulations available on the university website: www.umfcluj.ro

CURRICULUM

1st YEAR (2023-2024)

Course code	Discipline	Course hours	Practical course hours	Credits	Semester	Evaluation
MED11201EN	General Anatomy and Embryology. Topographic and Sectional Anatomy	56	112	12 (5+5)	I/II	E1, E2
MED1102EN	Medical Biophysics	28	28	5	I	E1
MED1103EN	Cell and Molecular Biology	28	28	5	I	E1
MED1104EN	Medical Biostatistics and Informatics	14	28	3	I	E1
MED1105EN	Behavioral Sciences. Medical Sociology	14	14	2	I	E1
MED1106EN	Fundamentals of chemistry	10	4	2	I	C
MED1107EN	Medical Bioethics and History of Medicine	14	7	2	I	V
MED1108EN	Bases of Medical Communication	14	14	2	I	V
MED1109EN	Elective Course 1	14	-	2	I	V
MED1110EN	Academic integrity and ethics. Medical professionalism	10	4	2	I	V
MED1211EN	Descriptive Biochemistry	28	28	5	II	E2
MED1212EN	Physiology	28	28	5	II	E2
MED1213EN	First Aid	14	14	3	II	V
MED1214EN	Medical Psychology	14	14	3	II	E2
MED1215EN	Problem Based Learning	-	28	3	II	C
MED1216EN	Elective Course 2	14	-	2	II	V
MED1217EN	Modern/Romanian Language	-	56	2	II	C
MED1218EN	Sport*	-	28	*1	II	C
MED1219EN	Specialty Medical Practice	-	140	2	-	C

- Romanian Language is compulsory for international students and it will consists of 84 h = 3 hours/week;
- Modern Language is compulsory for Romanian students and elective for international students;

- Medical Biophysics, Cell and Molecular Biology and Medical Informatics and Biostatistics are fully studied during the first semester;
- First Aid is conducted in the mirror with the Bases of Medical Communication - 2 series (series 1 and 2) in the first semester and 2 series (series 3 and 4) in the second semester;
- Medical Psychology is conducted in the mirror with the Behavioral Sciences - 2 series (series 1 and 2) in the first semester and 2 series (series 3 and 4) in the second semester;
- *Sport is a COMPULSORY discipline with additional credits.

2nd YEAR (2023-2024)

Course code	Discipline	Course hours	Practical course hours	Credits	Semester	Evaluation
MED2101EN	Topographic and Sectional Applied Anatomy	28	28	6	I	E1
MED2102 EN	Metabolic Biochemistry	42	42	7	I	E1
MED21203EN	Histology	56	56	8 (4+4)	I/II	E1, E2
MED21204EN	Physiology	84	70	12 (6+6)	I/II	E1, E2
MED21205EN	General Microbiology. Clinical Microbiology	70	56	8 (4+4)	I/II	E1, E2
MED21206EN	Medical Genetics	42	56	7 (3+4)	I/II	E2
MED2207EN	Medical Research Methodology	21	21	3	II	E2
MED2208EN	Fundamental Epidemiology and Primary Healthcare	14	7	2	II	V
MED21209EN	Modern/Romanian Language	-	56	2	II	C
MED21210EN	Sport*	-	28	1*	II	V
MED2211EN	Elective Course	14	-	2	II	V
MED2212EN	Specialty Medical Practice	-	160	3	-	C

- Romanian Language is compulsory for international students and will consist of 84 h = 3 hours/week;
- Modern Language is compulsory for Romanian students and elective for international students.
- *Sport is a COMPULSORY discipline with additional credits.

3rd YEAR (2023-2024)

Course code	Discipline	Course hours	Practical course hours	Credits	Semester	Evaluation
MED31201EN	Medical Semiology	84	154	12 (5+7)	I/II	E1, E2
MED3102EN	Surgical Semiology	42	56	7	I	E1
MED31203EN	Pathophysiology	56	56	8 (4+4)	I/II	E1, E2
MED31204EN	Pathologic Anatomy	70	70	9 (4+5)	I/II	E1, E2
MED31205EN	Pharmacology	42	28	8 (4+4)	I/II	E1, E2
MED31206EN	Hygiene	42	42	7 (2+5)	I/II	V1, E2
MED3107EN	Basic Practical Skills. Interprofesional education	7	21	2	I	V
MED3108EN	Elective Course	14	-	2	I	V
MED3209EN	Immunology	14	14	2	II	V
MED3210EN	Speciality Medical Practice	-	140	3	-	C
MED3211EN	Romanian Language* (for foreign students)	-	*84	-	II	C

Surgical Semiology and Basic Practical Skills is conducted in the mirror with Immunology.

*Romanian language is compulsory for international students.

At the end of the 3rd year, students from English and French study programs are going to have an eliminatory Romanian language test.

4th YEAR (2023-2024) – MODULAR (30 WEEKS TEACHING, 6 WEEKS SESSION)

Course code	Discipline	Course hours	Practical course hours	Credits	Semester	Evaluation
MED4101EN	Internal medicine I*	28	63	5	I	E1
	Gastroenterology	21	42	4		
MED4102EN	Clinical Pharmacology	21	14	3	I	E1
MED4103EN	Nephrology	21	21	3	I	E1
MED4104EN	Hematology	21	21	3	I	E1
MED4105EN	Clinical Biochemistry	14	7	2	I	E1
MED4106EN	Ophthalmology	14	28	3	I	E1
MED4107EN	Urology	14	28	3	I	E1
MED4108EN	Endocrinology	14	21	2	I	E1
	Diabetes, Nutritional and Metabolic Diseases	14	14	2		
MED4209EN	Radiology. Locomotor system, excretory system and emergency	21	21	5	II	E2
	Medical Imaging	14	14			
MED4210EN	Occupational Medicine and Occupational diseases	14	28	3	II	E2
MED4211EN	General Surgery*	56	140	12	II	E2
	Oncologic Surgery	7	7			
	Cardiovascular Surgery	7	7			
	Vascular Surgery	7	10			
	Thoracic Surgery	7	7			
MED4212EN	Plastic Surgery	7	7			
MED4213EN	Cranio-Maxillo-Facial Surgery	14	14	2	II	E2
	Orthopedics – Traumatology	14	28	3	II	E2
Pediatric Orthopedics	7	7				
MED4214EN	Elective Course	14	-	2	II	V
MED4215EN	Speciality Medical Practice	-	160	3	-	C

- Modules are organized in 7-week blocks + 2 weeks of exam session;

- *Modules are organized in 8-week blocks + 1 week of exam session;

- Internal Medicine is studied in both semesters, 4 series in the first semester and 4 series in the second semester;

- Surgery is studied in both semesters, 4 series in the first semester and 4 series in the second semester;
- Internal Medicine has a clinical internship of 3 hours /day 4 days/week, in the guard service 1,25 h/week - > 10 hours/module in the emergency room (2 participations of 5 hours each);
- Surgery clinical internships take place 3 hours /day, 5 days/week, in the emergency service 2,5 h/week - >20 hours in the emergency room /module;
- The following exams: Radiology. Locomotor System, Excretory System and Emergency and Medical Imaging; General Surgery, Oncologic Surgery, Cardiovascular Surgery and Plastic Surgery; Endocrinology and Diabetes, Nutritional and Metabolic Diseases; Orthopedics -Traumatology and Pediatric Orthopedics are complex and carried out according to the methodology issued by the Dean's Office.

5th YEAR (2023-2024) – MODULAR (30 WEEKS TEACHING, 6 WEEKS SESSION)

Course code	Discipline	Course hours	Practical course hours	Credits	Semester	Evaluation
MED5101EN	Internal Medicine II*	28	56	6	I	E1
	Cardiology	28	63	6		
	Pneumology	14	14	2		
MED5102EN	Clinical Pharmacology	21	21	4	I	E1
MED5103EN	Neurosciences	-	-	10	I	E1
	Neurology	56	70			
	Neurosurgery	14	14			
MED5204EN	Elective Course	14	-	2	I	V
MED5205EN	Radiology. Respiratory System, Cardiovascular System and Neurology	14	14	2	II	E2
MED5206EN	Pediatrics**	70	160	12	II	E2
	Puericulture	14	14			
	Pediatric Surgery	7	21			
MED5207EN	ENT – Otolaryngology	28	28	4	II	E2
MED5208EN	Medical Oncology	14	14	2	II	E2
	Radiotherapy	7	14	2		
MED5209EN	Rheumatology	21	14	3	II	E2
	Medical Rehabilitation	14	14	2		
MED5210EN	Preparation of the License Thesis ***	-	80	2*	II	V
MED5211EN	Specialty Medical Practice	-	140	3	-	C

- Modules are organized in 7-week blocks + 2 weeks of exam session;
- *Modules are organized in 8-week blocks + 1 week of exam session;
- **For Pediatrics Clinical internships, there are 4 hours /day; 8 hours of clinical internship are required in the emergency service;
- ***Credits for the Preparation of the License Thesis are supplementary credits;

- The following exams: Internal Medicine. Cardiology, Interventional Cardiology, Pneumology; Neurology, Neurosurgery; Pediatrics, Puericulture, Pediatric Surgery; Oncology. Palliative care, Radiotherapy; Rhumatology and Medical Rehabilitation are complex and carried out according to the methodology issued by the Dean's Office.

6th YEAR (2023-2024) – MODULAR (30 WEEKS TEACHING, 6 WEEKS SESSION)

Course code	Discipline	Course hours	Practical course hours	Credits	Semester	Evaluation
MED6101EN	Family Medicine	28	42	5	I	E1
MED6102EN	Special epidemiology and healthcare associated infections	14	14	2	I	E1
MED6103EN	Dermatology	28	28	4	I	E1
	Alergology	7	14	2		
MED6104EN	Obstetrics-Gynecology*	56	140	10	I	E1
	Neonatology	7	14			
MED6105EN	Forensic Medicine	21	21	3	I	E1
MED6106EN	Emergency Medicine	7	14	2	I	E1
MED6207EN	Palliativ Care	14	14	2	I	E1
MED6208EN	Geriatrics	14	14	2	II	E2
MED6209EN	Psychiatry	42	42	8	II	E2
	Pediatic Psychiatry	14	14			
MED6210EN	Infectious Diseases	49	70	8	II	E2
MED6211EN	Anesthesia and Intensive Care	21	21	3	II	E2
MED6212EN	Training in the Practical Skills Center. Interprofessional education	7	21	2	II	V
MED6213EN	Public Health and Management	28	14	3	II	E2
MED6214EN	Malpractice and medical law. Medical deontology	14	-	2	II	V
MED6215EN	Elective Course	14	-	2	II	V
MED6216EN	Preparation of the License Thesis **	-	80	2*	II	C

Additional credits

Passing the graduate examination			10	E
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- Modules are organized in 7-week blocks of + 2 weeks exam session;
- * Gynecology internships are of 4 hours/day; 4 hours of internship/week are compulsory within the emergency service;

- **Credits for the Preparation of the License Thesis are supplementary credits.
- The following exams: Dermatology. Alergology; Obstetrics-Gynecology. Neonatology; Psychiatry. Pediatric Psychiatry are complex and carried out according to the methodology issued by the Dean's Office.

SYLLABUS – SUBJECTS DESCRIPTION

A. COMPULSORY COURSES

1st YEAR

GENERAL ANATOMY AND EMBRIOLOGY. TOPOGRAPHIC AND SECTIONAL ANATOMY

Field of Study	Health
Study program	Medicine
Course title	General Anatomy and Embryology
Course coordinator	Assoc. Prof. Iancu Dana Monica, MD. PhD Lecturer Carmen Micu, MD. PhD
Department	Morpho-functional Sciences
Discipline	Anatomy and Embryology
Course code	MED11201EN

Semester	Course type	Lectures			Practical activities			Individual study	TOTAL	Credits	Evaluation
		hours/week			hours/semester						
		L	PA	CI	PA	CI	CI				
I	Compulsory	2	4	-	28	56	-	41	125	5	Written + practical exam
II		2	4	-	28	56	-	41	125	5	

L = lectures; PA = practical activities; CI = clinical internship

Pre-requisites: -

General objectives:

- Progressive understanding of the human body through the gradual study of different body systems.
- The formation of a spatial, three-dimensional representation of the human body, in whole and by regions;
- Acquiring equivalences between the content of the large body cavities and superficial regions;
- Construction of ontogenetic representations in dynamics, useful for prenatal diagnosis;

Specific objectives:

- Knowledge of fundamental notions regarding the morphology of body systems;

- Development of synthesis skills and of being able to apply the acquired knowledge into clinical practice.

Course content:

Semester I

Semester I

1. The subject of anatomy: the human body. Introduction to the study of anatomy; definition, means, and methods of study: topographic anatomy, systemic anatomy, clinical anatomy. Anatomical-clinical terminology. Anatomical variations.
2. Embryology- the subject of embryology. Introduction to the study of embryology. Gametogenesis. Fertilization. Malformations - Developmental anomalies.
3. The first week of development (fertilization, cleavage, segmentation, blastocyst formation, implantation - anomalies). The second week of development (bilaminar embryonic disc). The third week of development (trilaminar embryonic disc - formation of intraembryonic mesoderm, notochord, trophoblast development). Weeks 4-8 of development: Formation of organ primordia. Fetal period (L3-birth).
4. Placental development. Anomalies. Development of the body walls, coelom, and diaphragm. Anomalies. Development of the limbs. Anomalies. Development of the respiratory system. Anomalies.
5. Development of the circulatory system. Heart development. Anomalies.
6. Generalities on the cutaneous system, fasciae, bone system. Generalities on the joint system and the muscular system.
7. Upper limb: topographic regions, vascularization, innervation.
8. Joints of the vertebral column, head with CV, joints of the upper limb.
9. Generalities about the thorax: walls, parietal topographic regions, pleuro-pulmonary regions. Mediastinum. Generalities about the respiratory system.
10. Generalities about the cardiovascular system.
11. Vascularization, innervation of the walls, and viscera of the thorax.
12. Topography of the anterolateral walls of the abdomen, vascularization, innervation.
13. Lower limb: topographic regions, vascularization, innervation.
14. Joints of the lower limb.

Semester II

1. Bones of the skull presentation.
2. Topographic regions of the head (skull, oral cavity, nasal cavity, paranasal sinuses). Anatomico-clinical considerations.
3. Topographic regions of the neck. Anatomico-clinical considerations.
4. The endocrine system. The diffuse neuro-endocrine system. General presentation of the thyroid, parathyroid, suprarenal, parotid, submandibular and sublingual glands.

5. Innervation and vascularization of the head and neck.
6. Development of the digestive system
7. General presentation of the abdomen, peritoneal cavity, vascularization and innervation.
8. General presentation of abdominal organs in situ: Stomach. Duodenum. Jejunum and ileum. Spleen.
9. General presentation of abdominal organs in situ: Liver. Hepatic pedicle. Biliary tree. Pancreas.
10. General presentation of abdominal organs in situ: The colon. Vermiform appendix. Rectum and anus.
11. General presentation of the urogenital system. Development of the urogenital system.
12. The kidney. The renal suprarenal and genital vessels. The ureter. Suprarenal glands.
13. General presentation of the pelvis: walls, pelvic peritoneal cavity, pelvis subperitoneal space differentiated by gender. Vascularization and innervation of the pelvic organs.
14. Revision

Practical activities:

Semester I

Week 1

Session 1. Axes, planes, anatomical terms. Generalities about bones, joints, and muscle insertions. Vertebrae; Sacrum and coccyx. The entire vertebral column and its joints.

Session 2. Ribs and sternum. The entire thorax and its joints. Clavicle and scapula. Joints of the scapular girdle.

Week 2

Session 3. Humerus. Radius and ulna. Scapulohumeral joint. Elbow joints and proximal and distal radioulnar joints.

Session 4. Hand bones. Radiocarpal joint and hand joints.

Week 3

Session 5. Hip bone; Bony pelvis, pelvic girdle joints.

Session 6. Femur, patella, tibia, fibula. Hip joint. Foot bones, plantar arch. Knee and talocrural joints.

Week 4

Session 7. Osteology test.

Session 8. Osteology test.

Week 5

Session 9. Exploration and delimitation of the topographic regions of the thoracic wall and the upper limb. Dissection of the posterior wall of the trunk, planes I, II, III.

Session 10. Anterior thoracic wall: superficial elements (nipple, pectoral muscles).

Week 6

Session 11. Dissection of the anterior region of the arm, elbow fold, and forearm (planes I, II, III, IV). Lateral region of the forearm. Dissection of the palm and fingers.

Session 12. Shoulder dissection. Dissection of the posterior region of the arm, forearm, and back of the hand.

THORAX DISSECTION

Week 7

Session 13. Dissection of the anterior thoracic wall: intercostal muscles, intercostal vasculonervous bundle. Sterno-costal plastron, internal thoracic vessels. Thymus.

Session 14. Pleura and lung in situ. Pulmonary pedicle. Thoracopleuropulmonary topography.

Week 8

Session 15. Removal of the lungs. External configuration and relations of the lungs. Structure of the lungs and pleura. Diaphragm.

Session 16. Test on the upper limb and respiratory apparatus (lungs, pleura).

Week 9

Session 17. Pericardium and heart in situ. External configuration and relations of the heart.

Session 18. Large vessels at the base of the heart. Aortic arch. Heart extraction. Opening of the heart. Internal configuration.

Week 10

Session 19. Vagus nerves (thoracic segment). Cardiac plexus. Heart lymphatics.

Session 20. Trachea, esophagus, thoracic duct. Thoracic sympathetic. Splanchnic nerves.

Week 11

Session 21. Mediastinum. Azigos vein system. Descending thoracic aorta. Thoracic anatomo-clinical syntheses. Clinical applications.

DISSECTION OF THE ABDOMINAL WALL AND LOWER LIMB

Session 22. Exploration and delimitation of the topographic regions of the abdominal walls and lower limb. Dissection of the anterolateral wall of the abdomen.

Week 12

Session 23. Thorax test (without pleura, lungs).

Session 24. Hernia areas. Inguinal canal. Dissection of the anterior and medial region of the thigh.

Week 13

Session 25. Femoral vessel sheath. Dissection of the knee and the anterolateral region of the leg. Dorsal region of the foot.

Session 26. Gluteal and posterior thigh region. Popliteal space.

Week 14

Session 27. Posterior region of the leg. Neck of the foot. Plantar dissection.

Session 28. Test on the abdominal walls and lower limb.

Semester II

BONES OF THE HEAD

Week 1

Session 1. Demonstration of bones: frontal, parietal, occipital, ethmoid, inferior concha, vomer, lacrimal, palatine, zygomatic.

Session 2. Demonstration of bones: temporal, sphenoid, mandible, maxilla, hyoid.

Week 2

Session 3. Calvaria. Skull base. Viscerocranium.

Session 4. Orbit. Nasal cavities. Temporal, infratemporal, and pterygopalatine fossae.

Week 3

Session 5. Skull test.

Session 6. Skull test.

Week 4

DISSECTION OF THE HEAD AND NECK

Session 7. Topographic regions of the head and neck. Muscles of the head and neck. Cervical fascia. Superficial regions of the face.

Session 8. Vascularization and innervation of the head and neck. Cervical loop. Cervical plexus. Cervical sympathetic.

Week 5

Session 9. Parotid gland. Thyroid gland and parathyroid glands. Facial nerve.

Session 10. Pharynx. Mandibulo-vertebro-pharyngeal space. Stylian diaphragm. Prestilian space. Pterygoid muscles. Temporomandibular joint.

Week 6

Session 11. Oral cavity, walls, and content. Maxillary artery.

Session 12. Mandibular nerve (and terminal branches). Hypoglossal nerve. Glossopharyngeal nerve. Sublingual and submandibular gland.

Week 7

Session 13. Larynx. Muscles of the larynx. External nose. Nasal fossae. Paranasal sinuses. Maxillary nerve.

Session 14. Recap head and neck. Sections.

Week 8

Session 15. Head and neck test.

ABDOMEN DISSECTION

Session 16. Opening the abdominal cavity. Abdominal organs in situ. Organization of the peritoneal cavity. Peritoneal formations. Omental bursa.

Week 9

Session 17. Descending abdominal aorta. Inferior vena cava. Portal vein and tributaries, accessory doors. Porto-caval and cavo-caval anastomoses. Lymphatics of the abdomen and cisterna chyli. Celiac plexus.

Session 18. Liver. Hepatic pedicle. Biliary tracts.

Week 10

Session 19. Stomach and spleen. Celiac trunk. Duodenum and pancreas. Lumbar sympathetic.

Session 20. Jejunum, ileum. Mesentery. Superior mesenteric vessels. Cecum, appendix, colon. Inferior mesenteric vessels.

Week 11

Session 21. Kidney. Renal, adrenal, and genital vessels. Adrenal glands. Ureter. Quadratus lumborum muscle. Iliopsoas muscle.

Session 22. Recap abdomen. Sections.

Week 12

Session 23. Abdomen test.

PELVIS - PERINEUM

Session 24. General presentation of the pelvic cavity. Pelvic peritoneum. Pelvisubperitoneal space. Urogenital diaphragm.

Week 13

Session 25. Urinary bladder, rectum, and anus. Internal iliac vessels and branches. Hypogastric plexuses.

Session 26. Uterus. Fallopian tube and ovary. Broad ligaments. External female genital organs.

Week 14

Session 27. Prostate. Seminal vesicles. Vas deferens. Scrotum, testicle, epididymis, and spermatic cord. External male genital organs.

Session 28. Recap pelvis-perineum. Sections.

Bibliography:

1. Moore's Clinically oriented anatomy. 7th Edition 2014. ISBN-13: 978-1451119459, ISBN-10: 1451119453
2. Gray's Anatomy. The Anatomical Basis of Clinical Practice. 41st Edition 2016. ISBN: 978-0-7020-5230-9

Evaluation – standardized exam

- | | |
|--|-----|
| ▪ Written exam | 50% |
| ▪ Practical exam | 40% |
| ▪ Verification throughout the semester | 10% |

BIOPHYSICS

Field of Study	Health
Study program	Medicine
Course title	Biophysics
Course coordinator	Assoc. Prof. Petru Vlaic, MD, PhD
Department	Molecular Sciences
Discipline	Medical Biophysics
Course code	MED1102EN

Semester	Course type	Lectures			Practical activities			Individual study	TOTAL	Credits	Evaluation
		hours/week			hours/semester						
		L	PA	CI		PA	CI				
I	Comp.	2	2	-	28	28	-	69	125	5	Written+ Practical exam

L = lectures; PA = practical activities; CI = clinical internship

Pre-requisites: -

General objectives:

Know the applications of physical phenomena and mechanisms in biological systems. Use applications of physical methods in qualitative, quantitative and functional analysis of biological systems

Specific objectives:

At the end of the course the student will be able to:

- Know the importance of surface tension, blood viscosity, capillarity, thermal and electrical phenomena in the body.
- Students will be able to explain the human body as a thermodynamic system and apply conservation of energy in calculating the energy balance of the body.
- Explain on a physical basis the generation of potential differences in cell membranes and the electrical excitability properties of membranes
- -Explain the physical and chemical phenomena underlying cellular transport mechanisms
- Evaluate the results obtained and make correct use of the International System of Units in medicine
- Apply modern biophysical methods to the study of membranes and cellular processes

- Know the principles of physical methods used in the micro- and macroscopic study of bio-systems; the impact of physical factors on the functioning of bio-systems

Course content:

1. Introduction to medical biophysics. The role of physics in the evolution of medicine. Biophysics - frontier science. Specific objectives of medical biophysics and medical physics
2. Fluid mechanics. Statics and dynamics of fluids. Applications in medicine. Flow of real fluids. Blood viscosity. Poiseuille's law. Blood pressure
3. Notions of molecular biophysics. Surface tension and its importance in medicine. Capillary phenomena. Jurin's law
4. Systems theory in biology and medicine. Elements of biological thermodynamics. Medical applications: calorimetric determinations First principle of thermodynamics and its applicability in the living world. Energy balance of the organism. Hess's law.
5. Enthalpy and its physical meaning. Diffusion and Fick's laws. Heat transport in the body. Second principle of thermodynamics. Entropy
6. Aqueous solutions. Water and its importance in the living world. Consequences of the dipolar structure of water. Water distribution in the human body. Colligative properties of solutions. Osmosis, osmotic pressure. Van't Hoff law Importance of osmosis in medicine
7. Cell biophysics. Cell membranes. Passive transport. Filtration. Simple diffusion. Facilitated diffusion. Biomedical applications: biological fluids. Active transport: ion pumps
8. Bioelectric phenomena. Electrophysiological potentials. Notions of clinical electrophysiology
9. Optics and visual defects. Convergent and divergent lenses. The eye - optical instrument. Convergence defects of the eye: myopia, hyperopia, presbyopia
10. Elements of radiobiology. Types of radiation. Natural and artificial radioactivity. Physical mechanisms of radiation interaction with matter. Characteristics of the action of radiation on living structure. Detection of ionising radiation. Dosimetric measurements and units. Physical basis of radiotherapy. Radiopathology. Radiation protection
12. Physical principles used in medicine. Physical bases of medical imaging. Clinical scintigraphy: radioactive tracers, radiopharmaceuticals, static and dynamic examination
13. Ultrasound: production and reception, Doppler effect, applications in medicine. X-rays in medicine: radioscopy, radiography, computed tomography

Practical activities:

1. Determination of viscosity with the Oswald viscometer
2. Determination of surface tension with the Traube stalagmometer

3. Determination of density using the pycnometer and the immersion method
4. Determination of the specific heat of solid and liquid bodies. Determination of enthalpy variation in the dissolution process
5. The isoelectric point of the casein
6. The study of lenses
7. Determination of the electrochemical coefficient of copper
8. Determination of air humidity
9. Spectrocolorimeter Specol. Radiation absorption
10. Potentiometric determination of PH
11. Determination of the refractive index using the refractometer Abbe
12. The study of polarized light
13. Determination of microscopic dimensions using the ocular micrometer
14. Migration of polyelectrolytes in the electric field

Bibliography:

1. Splinter, Robert, Physics in Medicine and Biology, CRC Press 2010
2. Tabakov, S, Milano, F., Strand S.E., Lewis C., Sprawls P., Encyclopedia of Medical Physics, Vol. I, II, CRC Press 2013
3. Petru Vlaic, Daniela Eniu, Medical Biophysics Laboratory Manual, Editura Medicală Universitară „Iuliu Hațieganu”, Cluj-Napoca, 2020

Evaluation – standardized exam:

- Written exam 70%
- Practical exam 20%
- Verification throughout the semester 10%

CELL AND MOLECULAR BIOLOGY

Field of Study	Health
Study program	Medicine
Course title	Cell and Molecular Biology
Course coordinator	Lecturer Lucian Frențescu, MD PhD Lecturer Adina Ancuța Chiș, MD PhD
Department	Molecular Sciences
Discipline	Cell and Molecular Biology
Course code	MED1103EN

Semester	Course type	Lectures	Practical activities			Lectures	Practical activities			Individual study	TOTAL	Credits	Evaluation
		hours/week			hours/semester								
		L	PA	CI	L	PA	CI						
I	Compulsory	2	2	-	28	28	-	69	125	5	Written+ Practical Ex.		

L = lectures; PA = practical activities; CI = clinical internship

Pre-requisites: Basic biology and chemistry notions

General objectives:

Students graduating this course will be able to understand the medical applications of fundamental theoretical concepts regarding cell and molecular biology needed for a physician and will develop some molecular medicine laboratory skills needed in the coming years of medical practice.

Specific objectives:

Students graduating this course will be able to:

- compare the general characteristics of prokaryotes and eukaryotes;
- discuss the structure - function relationship of the most important types of molecules (nucleic acids, proteins, carbohydrates and fats) and know how to spot them in cellular structures;
- argue the unity of the living matter's biochemical organization;
- explain the structure, functions and cellular location of the cytoplasmic matrix components and the medical applications resulting from their study;
- define biological membranes, classify the main types of cell membranes and describe their molecular organization;
- define receptors and exemplify key mechanisms they are involved in;

- classify membrane transport, explain the mechanisms by which the most important transport modalities occur and exemplify some pathological implications;
- classify membranes' implications in pathology based on their molecular mechanism;
- characterize morphologically and ultrastructurally the interphase nucleus, enumerate the chromosomes' functions and describe their morphological characters, characterize and present medical applications of the nuclear chromatin resulted from its study;
- list and describe the stages of mitosis and meiosis;
- describe the morphology, ultrastructure and chemical composition of cell organelles (endoplasmic reticulum, Golgi apparatus, lysosomes, peroxisomes, mitochondria), detail their functions and describe the medical applications resulting from their study;
- define cellular necrosis and apoptosis and explain their occurrence;
- explain the significance of the central dogma of molecular biology and summarize its schematic representation;
- describe the mechanisms of DNA replication, transcription and translation of genetic information, present medical applications resulting from the study of these processes, explain the significance of the genetic code and detail amendments to the central dogma of molecular biology;
- present the unifying theory of cancers and recognize the oncogenes' characteristics, exemplify carcinogens and detail the cellular mechanisms of cancers;
- describe the light microscope components, explain how images are formed on the human retina, properly use laboratory microscopes;
- describe the basic principles of some special light microscopy techniques, as well as transmission and scanning electron microscopy;
- recognize the main chemical cellular components and pigment inclusions in permanent histochemically stained preparations;
- recognize and describe mitosis stages in permanent histochemically stained preparations;
- recognize and describe the ultrastructure of cellular components based on the study of transmission/scanning electron microscopy images;
- perform various cell and molecular biology techniques like the subcellular fractioning by differential centrifugation, the separation of lipid fractions by thin layer chromatography, and the DNA isolation from animal liver cells;
- explain the general concepts of some cytogenetics methods like the Barr test and the human karyotyping, as well as some molecular medicine techniques: the separation of DNA fragments by agarose gel electrophoresis and the Polymerase Chain Reaction technique.

Course content:

- 1.Introduction to Cell and Molecular Biology. General information about the cells.
- 2.Molecular basis of chemical organization of the cell.
- 3.Cytoplasmic matrix, cytoplasmic differentiations.
- 4.Molecular basis of the cell motility.
- 5.Molecular biology of the cell membranes.
- 6.Nucleus. Eukaryotic chromosomes: cell and molecular biology aspects and medical applications.
- 7.Cell reproduction and cell division.
- 8.The endoplasmic reticulum.
- 9.The Golgi apparatus. Cell secretion.
- 10.Lysosomes. Peroxisomes.
- 11.Mitochondria.
- 12.Extracellular matrix and cell adhesion. Cellular recognition. Cell death.
- 13.The central dogma of molecular biology and its medical applications.
- 14.Malignant cells and oncogenes

Practical activities:

1. The light microscope. The study of cellular movements
2. Special techniques of light microscopy: immersion microscopy and dark field microscopy.
3. Special techniques of light microscopy: phase contrast microscopy and fluorescence microscopy.
4. The study of cell components on slides with specific histochemical stainings. The study of cell inclusions.
5. The study of cell division.
6. The light microscopy study of the cell organelles.
7. The separation of cells and obtaining the isolated cells.
8. Cell fractioning by differential centrifugation.
9. The study of deoxyribonucleic acid (DNA): extraction, ultraviolet spectrophotometry and concentration measurements.
10. DNA separation by agarose gel electrophoresis. General notions about the *Polymerase Chain Reaction* technique.
11. Study of mitochondria: determination of oxygen uptake and of oxidative phosphorylation.
12. Lipid extraction from cell membranes and separation of lipid fractions by thin layer chromatography.
13. Transmission electron microscopy applied in cellular studies.
14. Scanning electron microscopy. Electron microscopy images (electron micrographs).

Mandatory bibliography:

1. Lecture notes;

Supplementary bibliography:

2. Alberts B., Bray D., Hopkin K., Johnson A., Lewis J., Raff M., Roberts K. and Walter P., *Essential Cell Biology*, second edition, Garland Publishing, Inc., New York, 2014;

3. Alberts B., Heald R., Johnson A.D., Morgan D., and Raff M., *Molecular Biology of the Cell*, 7th edition, W. W. Norton & Company, Inc., New York, 2022;

4. Lodish H., Berk A., Kaiser C.A., Krieger M., Bretscher A., Ploegh H., Amon A., Martin K., *Molecular Cell Biology*, 8th edition, Palgrave Macmillan Higher Ed, New York, 2016.

Evaluation – standardized exam

- Written exam 70%
- Practical exam 20%
- Individual portofolio 10%

MEDICAL INFORMATICS AND BIOSTATISTICS

Field of Study	Health
Study program	Medicine
Course title	Medical Informatics and Biostatistics
Course coordinator	Assoc. Prof. Mădălina Văleanu, MD PhD Lecturer Tudor Călinici, MD PhD
Department	Medical Education
Discipline	Medical Informatics and Biostatistics
Course code	MED1104EN

Semester	Course Type	Lectures	Practical activities			Lectures	Practical activities			Individual study	TOTAL	Credit	Evaluation
		hours/week			hours/sem.								
		L	PA	CI	L	PA	CI						
I	Compulsory	1	2	-	14	28	-		33	75	3	Written + Practical Exam	

L = lectures; PA = practical activities; CI = clinical internship

Pre-requisites: -

General objectives:

The course aims to assimilate the main methods of information technology with applications in the medical field (medical office automation, databases, working in computer networks, etc.) as well as the basic methods of statistical modeling and processing of medical statistical data. At the end of the course, students will be able to correctly perform basic statistical analyses, specific to the medical field using computers, as well as to correctly interpret and present the obtained results.

Specific objectives:

At the end of the course, students will be able to:

- Search for medical information in dedicated databases – PubMed, Cochrane, etc.
- To draft documents specific to the medical field with the help of the Microsoft Word application
- To correctly identify the type of variables involved in a medical data collection process
- Collect medical data using the Microsoft Excel application
- To identify, based on the type of variables and specific objectives, the appropriate descriptive way of presenting medical data and to achieve this using Microsoft Excel and Epi Info applications

- To identify in a clinical scenario the events that compose it and to correctly establish their theoretical probability
- To correctly estimate different parameters in the population starting from a subset of it
- Correctly identify the statistical methods that must be applied to perform inferential statistical analyzes in the medical field and apply them using Microsoft Excel and Epi Info
- To correctly interpret the results of statistical analyzes in order to apply them in the medical decision

Course content:

1. Introduction to medical informatics, Objectives, Applications, Requirements, Regulations. Medical informatics applications, Medical expert systems, Medical documentation
2. Fundamentals, Measurement of information, Hard and soft structure, Operating system, Network structure, Current Internet technology
3. Introduction to statistics, Statistical population, Samples, sampling methods Variables
4. Descriptive statistics. Methods of presentation and representation of statistical data
5. Descriptive statistics, Calculation and interpretation of descriptive parameters
6. Probabilities, Random experiment, Classical definition of probability, Fundamental event space, Axiomatic definition
7. Conditional probabilities, Independence of two events, Conditional probability, Relative risk, VPP, NPV
8. Random variables. The main probability distributions
9. Estimation of statistical parameters. Estimators and confidence interval
10. Statistical tests, Statistical hypothesis testing, Steps of a statistical test, Errors in statistical hypothesis testing, Critical region
11. Statistical tests for comparison of means, Chi-square test
12. Corrected tests, ANOVA analysis of variance
13. Correlations and regressions, Correlation coefficients: scatterplot, sum of deviation products, covariance, Pearson correlation coefficient, Spearman, coefficient of determination, Pearson and Spearman significance tests
14. Summary course

Practical activities:

1. Introduction. Regulations. Good practices for using the computer network
2. Writing of the medical documents
3. Presentation of medical information

4. Collection of medical data. Calculation of the values of the dependent variables
5. Presentation of medical data with the help of charts
6. Calculation of descriptive statistical parameters for quantitative variables
7. Creation of frequency tables with the help of advanced analysis tools
8. Contingency table analysis
9. Descriptive statistical synthesis
10. Statistical inference for quantitative variables
11. Statistical inference for qualitative variables
12. Correlations and regressions
13. Statistical inference synthesis
14. Practical exam

References

Mandatory references:

1. Biostatistics and medical informatics - course notes - available online (www.info.umfcluj.ro)
2. Biostatistics and medical informatics – practical activities – available online (www.info.umfcluj.ro)

Supplementary references:

3. Bernard ROSNER, Fundamentals of Biostatistics, any edition.
4. Robert H. RIFFENBURGH, Statistics in Medicine, any edition.

Evaluation – standardized exam

- | | |
|--------------------|-----|
| ▪ Theoretical exam | 70% |
| ▪ Practical exam | 30% |

BEHAVIORAL SCIENCES AND MEDICAL SOCIOLOGY

Field of Study	Health
Study program	Medicine
Course title	Behavioral Sciences and medical sociology
Course coordinator	Lecturer Bogdan Nemeş, MD, PhD
Department	Neuroscience
Discipline	Medical psychology and psychiatry
Course code	MED1105EN

Semester	Courses type	Lectures			Practical activities			Individual study	TOTAL	Credit	Evaluation
		hours/week			hours/sem.						
		L	PA	CI	L	PA	CI				
I	Compulsory	1	1	-	14	14	-	22	50	2	Written+ practical exam

L = lectures; PA = practical activities; CI= clinical internship

Pre-requisites: -

General objectives:

At the end of the lecture, the students will have acquired the knowledge, attitudes and skills required for the assessment, understanding and change of human behaviour.

Specific objectives:

At the end of the lecture, the student will be able to:

- Clinically assess cognitive functions;
- Clinically assess affective functions;
- Clinically assess personality;
- Clinically assess risky behaviours;
- Clinically assess attitudes;
- Promote behavioural change based on the theories of learning;
- Adjust the attitude according to the patient's stage of development.

Course content:

1. Introduction – Mental processes. The human Cognitive system
2. Sensation, perception
3. Attention, memory
4. Thinking, intelligence and language
5. Affectivity
6. Motivation

7. Synthesis mental processes: conscience and personality
8. Neurobiological basis of behavior
9. Instinctual behaviour (1): aggressivity, feeding, maternal instinct
10. Instinctual behaviour (2): sexual instinct, development of human sexuality
11. Learned behavior
12. Elements of social psychology
13. Psychological development (1): Stages of human development (psychosexual – Freud, cognitive - Piaget, psychosocial – Erikson), infant, toddler, preschool-aged and school-aged child
14. Psychological development (2): Stages of human development adolescent, young adult, adult, senior; moral development

Practical activities:

1. Introduction. Clinical assessment of human cognitive system functioning
2. Clinical assessment of the sensorial functioning
3. Clinical assessment of attention and memory
4. Clinical assessment of intelligence
5. Emotional intelligence
6. Motivation for change. Motivational interview
7. Clinical assessment of personality
8. Neurological basis of behaviour
9. Alimentary and maternal instinct, aggressivity
10. Disorders of sexual instinct: paraphilias
11. Applying mechanisms of learning in human behaviour changes
12. Attitude change
13. Developmental problems in childhood
14. Developmental problems in adolescence and adulthood

References:

1. Erickson A & Parker J (eds). Essential MedNotes 2023. 39nd ed. Toronto Notes for Medical Students, Inc, Toronto, 2023.
2. Coman H, Nemeş B. Behavioral Sciences Lecture Notes (CD). Cluj-Napoca: Presa Universitară Clujeană; 2014.
3. Nemeş B. Behavioural Sciences [Internet]; c2022. Available from: <http://behaviouralsciences.ro>

Evaluation: standardized exam

- Written exam 75%
- Practical exam 25%

FUNDAMENTALS OF CHEMISTRY

Study domain: Health
Study programme: Medicine
Course: Fundamentals of chemistry
Course entitled: Prof. Ede Bodoki, MD, PhD
Department: Pharmacy I
Discipline: Chemistry
Course code: MED1106EN

Semester	Course type	Lectures			Practical activities			Individual study	TOTAL	Credits	Evaluation
		hours/week			hours/sem.						
		L	PA	CI	L	PA	CI				
I	Compulsory	0,70	0,30	-	10	4	-	36	50	2	Colloqui

L = lectures; PA = practical activities; CI = clinical internship

Pre-requisites: General notions of inorganic and organic chemistry

General objectives:

Learning and using correctly the main principles underlying the general, inorganic and organic chemistry

Specific objectives:

- Familiarize students with the theoretical aspects and practical application of the principles of general chemistry
- Gaining knowledge of the main physical and chemical characteristics of cations and anions with relevance to biology, medicine and pharmacy
- Gaining knowledge of basic principles of systematic analysis
- Understanding the principles and mechanisms of reaction that enable the selection of given techniques for quantification of the analytes
- Quantitative analysis of samples (inorganic and organic ions) of biomedical interest
- Writing and balancing chemical reactions and correctly performing the reactions used in the quantitative analysis of samples of biomedical importance
- Getting familiar with the main directions of research in the field biomedical analysis
- Exercise the capacity of data synthesis and of bibliographic documentation

Course content:

1.1. Introduction - The importance of chemistry in the biomedical field

Scientific observation in chemistry - the chemical experiment

Quantities, units and symbols used in chemistry - International system of units, SI

1.2. The structure of matter - Atoms, ions, molecules – review of fundamental concepts of general chemistry; Chemical bonds (metallic, ionic, covalent); intra/intermolecular interactions: van der Waals forces, hydrogen bonds

2. Classification of chemicals, classes of compounds

Chemical elements and combinations - simple and composed substances

Classes of compounds: oxides, acids, bases, salts, metal complexes, biomolecules (carbohydrates, proteins, lipids, nucleic acids). Definition, general structure for each type of compound and their main properties. Examples, applications/implications of chemical compounds in the biomedical field.

3. Disperse systems - Generalities, classification of disperse systems. Solutions - properties. Solubility of substances and the dissolution process. Expression of solution concentrations. Applications.

4. Chemical reactions - General classification of chemical reactions; basic notions of thermodynamics and kinetics. Protolytic, oxidation-reduction, complexation, gas formation and precipitation reactions. Examples of reactions applied in biomedical field.

5.1. Electrolytes - Definition, classification. Equilibria in electrolyte solutions. Degree and constant of dissociation /ionization. Strong electrolytes, weak electrolytes. pH of aqueous solutions. Applications/implications of pH in the biomedical field.

5.2. Allotropy / polymorphism - Definitions/examples: carbon - diamond, graphite; fullerenes, nanotubes, graphene - applications in the biomedical field. Medicinal substances

5.3. Isomerism – Definition, types and examples of biomolecules.

Practical activities:

1.1. Safety rules of working in the chemistry laboratory. Rules of fire prevention and firefighting. First aid measures in case of accidents in the laboratory.

1.2. Solutions - practical aspects of preparing, mixing, diluting solutions of biomedical importance. Calculation exercises.

2. Analytical methods (complexometric titration, instrumental analysis) for the quantitative assessment of calcium ions. Calculations.

References:

1. Alan Jones, Chemistry: An Introduction for Medical and Health Sciences, John Wiley & Sons, 2005

2. Martin S. Silberberg, Principles of general chemistry. 2nd edition, Ed. McGraw-Hill, New York, 2009.

3. P. Atkins, L. Jones, L. Laverman, Chemical Principles, 7th edition, W.H. Freeman, 2016.

4. G. Miessler, P. Fischer, D. Tarr, Inorganic Chemistry, 5th edition, Pearson, 2013

Evaluation:

- Theoretical 80%
- Practical 20%

MEDICAL BIOETHICS AND HISTORY OF MEDICINE

Field of Study	Health
Study program	Medicine
Course title	Bioethics and History of Medicine
Course coordinator	Prof. Cristian Bârsu, MD. PhD Lecturer Horațiu Crișan, MD PhD
Department	Medical Education
Discipline	Humanistic Sciences
Course code	MED1107EN

Semester	Course Type	Lectures			Practical activities			Individual study	TOTAL	Credit	Evaluation
		hours/week			hours/sem.						
		L	PA	CI	L	PA	CI				
I	Compulsory	1	0,5	-	14	7	-	29	50	2	Verification

L = lectures; PA = practical activities; CI= clinical internship

Pre-requisites: -

General objectives:

At the end of the course students will acquire the necessary skills for:

- knowing the most important achievements in the history of medicine and the personalities that marked its evolution.
- knowing the basic terminology of the History of Medicine.
- acquiring the skills to recognize a bioethical problem, to identify the different professions involved, and to expand medical competence in order to solve it.

Specific objectives:

At the end of the course the student is able to:

- create the notional basis needed to understand the different aspects of the current stage of medicine, based on its evolution of the past centuries.
- get the possibility for having the overall assessment of the evolution of medicine in the following decades.
- distinguish between the description and the evaluation of a concrete situation and the delimitation of ethical themes.
- problematize the presented situations.
- identify solutions or ways to solve these problems.

Course content:**History of Medicine**

1. The educational objectives of History of Medicine. Connections of medicine with different sciences and arts
2. Romanian Medicine – European Medicine. Particularities of the documentation in the history of medicine
3. Landmarks of the history of the Cluj School of Medicine
4. Important aspects from the history of anatomy since prehistoric times until Renaissance
5. The evolution of anatomy in the Renaissance, in the 17th century and in the 18th centuries
6. Brief presentation of the history of histology
7. Pages from the history of physiology

Bioethical lectures

1. Ethics and bioethics
2. Medical ethics
3. Autonomy and informed consent
4. Ethical issues related to the beginning of life
5. End-of-life ethical issues
6. Bioenhancement
7. Justice

Practical activities:

1. Ethical decision-making and dilemmas
2. Medical ethics
3. Autonomy and informed consent
4. Ethical issues related to the beginning of life
5. End-of-life ethical issues
6. Bioenhancement
7. Justice

References:**Principal bibliography for History of Medicine**

1. Bârsu C. Fighting for Anatomy. Overview regarding two prestigious Romanian anatomists of the 20th century: Victor Papilian and Grigore T. Popa, Rom. J. Morphol. Embryol., 2016, 57(1):331-337.
2. Jackson M. (editor). A global history of medicine, Oxford University Press, Oxford, 2018.

3. Vivian Nutton. Renaissance Medicine: A Short History of European Medicine in the Sixteenth Century, Routledge, 2022.

Optional bibliography for History of Medicine

Fielding Hudson Garrison. An Introduction to the History of Medicine: With Medical Chronology, Suggestions for Study and Bibliographic Data, Legare Street Press, 2022

Bibliography for Bioethics

1. Rosamond Rhodes, The Trusted Doctor, Medical Ethics and Professionalism, Oxford University Press, New York, 2020.
2. Beauchamp, Tom, James F. Childress, Principles of biomedical ethics, Oxford University Press, New York, 2019.

Optional bibliography for Bioethics

Schüklenk Udo (Editor), Singer Peter (Editor), Bioethics: An Anthology, 4th Edition, Wiley-Blackwell, 2021.

Evaluation:

- | | |
|--|------|
| ▪ Theoretical exam for Bioethics | 70% |
| ▪ Theoretical exam for History of Medicine | 100% |
| ▪ Practical exam for Bioethics | 30% |

BASES OF MEDICAL COMMUNICATION

Field of Study	Health
Study program	Medicine
Course title	Basic Medical Communication
Course coordinator	Assoc. Prof. Codruța Alina Popescu, MD PhD
Department	Medical Education
Discipline	Humanistic Sciences
Course code	MED1108EN

Semester	Courses type	Lectures	Practical activities			Lectures	Practical activities			Individual study	TOTAL	Credit	Evaluation
		hours/week			hours/sem.								
		L	PA	CI	L	PA	CI						
I	Compulsory	1	1	-	14	14	-		22	50	2	Written + practical Exam	

L = lectures; PA = practical activities; CI= clinical internship

Pre-requisites: -

General objectives:

At the end of the course, student will acquire the necessary skills for effective communication with patients and their relatives and will be able to put into practice the theoretical and applied notions from the materials presented in the course.

Specific objectives:

At the end of the course the student is able to:

- Describe the elements of communication
- Describes how nonverbal communication is used in medical practice
- Define and demonstrate empathy
- Communicate bad news
- Use open and closed questions correctly in the medical consultation
- Gather relevant information during the medical consultation
- Provides information at the patient's level of understanding
- Understands unproductive models of communication in medical practice (use of medical jargon, infantilization in communication with the elderly).
- Describe and practice the skills needed to handle difficult conversations

Course content:

1. The importance of communication in medicine. Theoretical models of communication
2. Non-verbal communication-part 1

3. Non-verbal communication - part 2
4. Verbal communication
5. Communication tools used in the clinical interview
6. The structure and functions of the medical consultation. history
7. Public communication about health
8. Models of health behaviors
9. Difficult communication situations: angry patients
10. Communicating bad news
11. Communication with children
12. Communication with the elderly
13. Communication with people with disabilities
14. End-of-life communication

Practical activities:

1. Presentation of students
2. Use of simple words
3. Communicating the bad news - role play
4. Communicating the bad news video part 1
5. Communicating the bad news video part 2
6. Oral presentation-analysis of a public health campaign aimed at destigmatizing mental illness (team activity)
7. Oral presentation-analysis of a public health campaign aimed at destigmatizing mental illness (team activity)
8. Oral presentation-analysis of a public health campaign aimed at destigmatizing mental illness (team activity)
9. Observation sheet: the personal and social history of the patient
10. Clinical interview (role play)
11. Clinical interview (role play)
12. Clinical interview (role play)
13. Management of angry patients
14. Feedback

References:

1. Lloyd, M, Bor, R, Noble, L. *Clinical communication skills in medicine*, Elsevier, 2019.

Supplementary references:

2. Van Servellen, Gwen. *Communication skills for the health care professional: Concepts, practice, and evidence*. Jones & Bartlett Publishers, 2020.
3. Cole SA, Bird J. *The medical interview: The three function approach*. Elsevier Health Sciences; 2014
4. Khan I, Neighbour R. *Focused Clinical Assessment in 10 Minutes for MRCGP: Featuring data-gathering, clinical management and communication skills*. CRC Press; 2021

Evaluation

- Theoretical exam 60%
- Practical exam 40%

ACADEMIC INTEGRITY AND ETHICS. MEDICAL PROFESSIONALISM

Field of study: Health
Study program: Medicine
Course title: Academic integrity and ethics. Medical professionalism
Course coordinator: Asocc. Prof. Ioana Bocsan, PhD
Department: Morfo-functional Sciences
Discipline: Pharmacology
Course code: MED1210EN

Semester	Courses Type	Lectures			Practical activities			Individual study	TOTAL	Credits	Evaluation
		hours/week			hours/sem.						
		L	PA	CI	L	PA	CI				
II	Compulsory	0.7	0.3	-	10	4	-	36	50	2	Verification

L = lectures; PA = practical activities; CI = clinical internship

Pre-requisites: -

General objectives:

Students' knowledge of the issue of ethics and academic integrity in the medical university academic environment and in medical scientific research.

Specific objectives:

- Acquiring a set of concepts and developing attitudes consistent with ethical, deontological and good medical practices
- Developing the ability to identify ethical issues and respond through active involvement in reporting and resolving them
- Creating the habit of identifying solutions and using or developing tools for solving ethical problems, both within the academic scientific and medical community

Course content:

1. Fundamental concepts. Regulations on ethics in the university. Moral and etiquette rules in the medical academic space. The structure of the university
2. Ethics in academia. Institutional tools for promoting academic ethics: Institutional culture and organizational standards, Codes of ethics, Ethics commissions, Forms of ethical and deontological misconduct
3. Research ethics: Principles of scientific research ethics, The approval and evaluation process of research projects

4. The ethics of science publication and communication: good practices in scientific publishing, peer review, open access policy, copyright plagiarism, falsification and fabrication of data, ghost writing, self-plagiarism, integrity whistleblowers, authorship of scientific articles,
5. Ethics in the medical academic environment. Moral principles, values and rules. Ethics and diversity
6. Medical professionalism

Practical activities

Ethical academic conduct:

- Ethical behavior on campus (amphitheatres, practical rooms, dormitories, library): About aggression, harassment, bullying, alcohol and drug use
- Ethical behavior during classes (courses and practical work): about disruptive behavior during classes, about the importance of punctuality
- Improper use of UMF facilities and services (theft, damage, online access rules from the UMF network)
- Ethical conduct in exams
- Ethical conduct in clinical internships

Ethical completion of assignments, papers or projects

Ethical conduct in carrying out a scientific work (type of sources, method of use, method of dissemination)

Developing an inclusive ethical climate:

- How to work in a team and collaborate with people with different visions or opinions
- About collaboration, complicity and integrity warning

References:

Regulamentele interne ale Universității de Medicină și Farmacie

Legea nr. 398/2006 pentru modificarea și completarea Legii nr. 206/2004 privind buna conduită în cercetarea științifică, dezvoltarea tehnologică și inovare

Evaluation: standardized exam

Evaluation during the semester 100%

DESCRIPTIVE BIOCHEMISTRY

Study domain:	Health
Study programme:	Medicine
Course:	Descriptive Biochemistry
Course entitled:	Associate Professor Silaghi Ciprian, MD, PhD
Department:	Molecular Sciences
Discipline:	Medical Biochemistry
Course code:	MED1211EN

Semester	Course type	Lectures			Practical activities			Individual study	TOTAL	Credits	Evaluation
		hours/week			hours/sem.						
		L	PA	CI	L	PA	CI				
II	Compulsory	2	2	-	28	28	-	69	125	5	Written+ practical Exam

L = lectures; PA = practical activities; CI = clinical internship

Pre-requisites: -

General objectives:

The accumulation of basic knowledge necessary for the understanding of the structure of the macromolecular compounds and biochemical processes in the living organisms

Specific objectives:

- The structure and function of amino acids and proteins important in the human body.
- Enzymes as catalysts of metabolic processes in living organisms and their medical implications.
- Vitamins and coenzymes: structure, role and deficiency.
- Nucleic acids: composition, types, role
- Transmission and expression of genetic information

Course content:

1. Amino acids: classification, structure, importance
2. Properties of the amino acids
3. Primary structure of proteins
4. Secondary, tertiary and quaternary structure of proteins
5. Types of proteins: myoglobin, hemoglobin
6. Types of proteins: immunoglobulins, collagen
7. Enzymes: nomenclature, classification, structure, active site, specificity

8. Enzymes: enzyme kinetics, types of enzyme inhibition, regulation of enzyme activity, isoenzymes
9. Vitamins and coenzymes - water soluble vitamins
10. Vitamins and coenzymes - fat soluble vitamins
11. Nucleic acids: composition, structure and types of DNA and RNA
12. DNA Replication
13. DNA Transcription
14. RNA Translation

Practical activities:

1. Technical norms of work safety in the biochemistry laboratory
2. Solutions: definition and different ways of expressing the concentration of a solution
3. Acids, bases, buffer solutions: definition, examples, pH calculation, medical importance
4. Acid-base titration: Titration of $\text{CH}_3 - \text{COOH}$
5. Titration of the aminoacids and determination of pH_i : Titration of glycine
6. Principle of colorimetry. Determination of total serum proteins (Gornall method). Medical importance
7. Protein electrophoresis
8. Gel filtration
9. Affinity chromatography
10. Thin-layer chromatography
11. Determination of the kinetic parameters (K_M , V_{MAX}) of the enzymes
12. Determination of the inhibition constant (K_i) in competitive and noncompetitive inhibition
13. Serum enzymes used in diagnose and their medical importance
14. Revision labs

Mandatory reference:

1. Cristina Drugan, Ciprian Silaghi. Introduction to descriptive biochemistry, Editura Medicală Universitară "Iuliu Hațieganu", Cluj-Napoca, 2023.
2. Nistor Tiberiu. Medical Biochemistry A Practical Approach Second Edition. Ed. Casa Cartii de Stiinta, Cluj-Napoca 2018, ISBN 978-606-17-1289-2

Evaluation:

- Theoretical exam 75%
- Practical exam 25%

PHYSIOLOGY

Field of Study	Health
Study program	Medicine
Course title	Physiology
Course coordinator	Prof. Șoimița Mihaela Suci, MD, PhD Assoc. Prof. Ioana Bâldea, MD, PhD
Department	Morfo-Functional Sciences
Discipline	Physiology
Course code	MED1212EN

Semester	Course type	Lectures			Practical activity			Individual study	TOTAL	Credits	Evaluation
		Hours/week			Hours/semester						
		L	PA	CI	L	PA	CI				
II	Compulsory	2	2	-	28	28	-	69	125	5	Written + practical exam

L = lectures; PA = practical activities; CI = clinical internship

Pre-requisites: -

General objectives:

- Learning and understanding of some biological mechanisms of high complexity and difficulty
- Functional exploration of body's systems
- Development of an observation sense and critical thinking, that are essential for the future's medical profession

Specific objectives:

- Acquiring of medical terms, of the necessary knowledge for integration of the functions from the molecular to general level, from the tissue to the organ, to understand the functionality of different organs, systems, and the interactions amongst them
- Training to properly use of the devices and laboratory materials, including the computerized methods, to investigate some physiological mechanisms and some physiological constants and parameters
- Acquiring of the capacity to synthesize the studied notions, and to search for the information in the reference's material
- Training to interpret the data found in the information/reference's sources

Course content:

1. Homeostasis of the internal environment. Fluid compartments of the human body.
2. Membrane transport mechanisms.
3. Physiology of excitable tissues
4. Neuron properties.
5. Smooth muscle fiber. Skeletal muscle fiber.
6. Physiology of the respiratory system: functional role of the upper respiratory airways.
7. Mechanics of pulmonary ventilation. Gaseous exchange through respiratory membrane.
8. Transport of respiratory gases in the blood. Nervous and humoral regulation of respiration.
9. Morpho-functional particularities of digestive system. Salivary secretion. Mastication. Deglutition.
10. Gastric digestion.
11. Intestinal digestion.
12. Pancreatic exocrine secretion. Bile secretion.
13. Colon
14. Absorption along the digestive tract. Motor function of alimentary tract.

Practical activities:

1. The influence of the osmotic pressure on the erythrocyte volume
2. Simulation exercises. Neuron: excitability; summation. Excitability threshold. Signal transmission velocity. Anaesthetic effects.
3. Simulation exercises. Muscle: Action potential. Resting potential. Twitch and tetanus.
4. Simulation exercises. Muscle: Neuromuscular junction. Muscle tiredness. Ergometry.
5. Electromyogram (BIOPAC).
6. Pneumogram (BIOPAC) Simulation exercises. Respiratory system. Surfactant. Pleural cavity.
7. Spirometry
8. Salivary amylase determination. Thermo-sensitivity of salivary amylase.
9. Influence of pH on saliva amylase activity. Microscopic examination of the saliva. Saliva reaction.
10. Salivary mucin identification. Salivary phosphates identification. KSCN identification in saliva.
11. Free and total gastric acidity measurement. Evaluation of the gastric pH.

12. Food ratio. Somatometry. Measurement of the BMI and the hip-waist ratio.
13. Recapitulation. Training for the practical exam. Analysis buletins.
14. Practical exam

References:

1. Guyton AC, Hall JE. Textbook of Medical Physiology, Elsevier, 2020
2. Ganong WF. Review of Medical Physiology, McGraw-Hill Education, 2019.
3. D R Mitrea, R Orasan, Elementary Human Physiology, Ed. Techno Medical 2009, ISBN: 978-606-8030-57-9
4. Erickson A & Parker J (eds). Essential MedNotes 2023. 39nd ed. Toronto Notes for Medical Students, Inc, Toronto, 2023
5. DR Mitrea, Human Physiology, Laboratory tests, 2006, ISBN (10) 973-7865-24-3, Ed Techno Media, 2006, Sibiu

Evaluation:

- Theoretical exam 70%
- Practical exam 30%

FIRST AID

Field of study: Health
Study program: Medicine
Course title: Medical First Aid
Course coordinator: Lecturer Vasian Horațiu, MD, PhD
Assoc. Prof. Cristina Petrișor, MD, PhD
Department: Surgery
Discipline: AIT I and AIT II
Course code: MED1213EN

Semester	Course Type	Lectures			Practical activities			Individual study	TOTAL	Credits	Evaluation
		hours/week			hours/sem.						
		L	PA	CI	L	PA	CI				
II	Compulsory	1	1	-	14	14	-	47	75	3	Verification

L = lectures; PA = practical activities; CI = clinical internship

Pre-requisites: -

General objectives:

At the end of the course, students will be able to apply general measures regarding the saviour's safety and to provide first aid in case of environmental emergencies, trauma and acute intoxications.

Specific objectives:

At the end of the study module, students will be able to:

1. Recognize the cardiorespiratory arrest, apply basic life support measures and work as part of a team during resuscitation protocol
2. Be familiar with the main principles of saviour's safety
3. Recognize the signs and symptoms of hypothermia, frostbite, insomnia, burns and apply first aid measures
4. Recognize and apply first-aid measures in particular situations: drowning, electrocution, hanging, motion sickness and altitude, avalanches, lightning
5. Recognize and apply first aid measures in the case of: bite of wild animals and viper, insect bites
6. Recognize and give first aid in case of acute drug intoxications, fungi, alcohol, carbon monoxide
7. Perform a primary assessment of the traumatized patient and provide first aid to this category of patients (immobilization and transport)
8. Perform simple haemostasis methods for bleeding
9. Use the first aid kit

Course content:

1. General concepts of first aid. The chain of survival, concepts of saviour's safety. First aid kit.
2. Cardiorespiratory arrest - recognition and manoeuvres of cardiopulmonary resuscitation. Applying basic life support measures (Part 1)
3. Cardiorespiratory arrest - recognition and manoeuvres of cardiopulmonary resuscitation. Applying basic life support measures (Part 2)
4. Trauma: assessment, immobilization, transport and haemostasis measures. Skeletal and soft tissues trauma burns, crushing.
5. Environmental emergencies: burns, caloric shock, hypothermia, frostbite, avalanche, drowning, electric shock, lightning, hanging, motion sickness and altitude
6. Environmental emergencies: wild animal bite, viper bite, insect and jellyfish sting
7. Acute poisoning (drugs, toxic plants, fungi, carbon monoxide, alcohol)

Practical activities:

1. Cardiorespiratory resuscitation, basal vital support.
 - Desobstruction of the airways (hyperextension of the head, subluxation of the mandible, deconstruction in the patient with mechanical asphyxia)
 - Safety side position
2. Cardiorespiratory resuscitation - basal vital support. Artificial ventilation mouth - mouth, mouth - nose
3. Cardiorespiratory resuscitation - basal vital support
 - External cardiac massage
 - Initiation in semi-automatic defibrillation
4. Practical demonstration - first aid kit, fracture immobilization, wound toilet, hemostasis
5. Technique of subcutaneous and intramuscular injection
6. First aid in case of caloric shock or hypothermia, insect bites
7. Revision. Team scenarios during resuscitation protocol

References:

1. ERC Guidelines for Resuscitation 2021. <https://cprguidelines.eu>
2. Erickson A & Parker J (eds). Essential MedNotes 2023. 39nd ed. Toronto Notes for Medical Students, Inc, Toronto, 2023 https://www.fireup.cc/up/toronto_2020.pdf
3. European Resuscitation Council Guidelines for Resuscitation 2015.
4. European Resuscitation Council COVID-19 Guidelines. Aprilie 2020. <https://www.erc.edu/covid>
5. Natalia Hagău , Constantin Bodolea, Dan Dîrzu, Cristina Pertisor, Sebastian Trancă. Medical First Aid. Course for 1st year Medicine and

Dental Students. Editura Medicală Universitară „Iuliu Hațieganu” Cluj-Napoca 2016

6. www.emedicine.com/emerg/index.shtml
7. The International Federation of Red Cross and Red Crescent Societies (IFRC). International first aid and resuscitation guidelines 2016 for National Society first aid programme managers, scientific advisory groups, first aid instructors and first responders. <https://www.firstaieducation.net/2016-ifrc-first-aid-and-resuscitation-guidelines>.

Evaluation:

- Written exam 50%
- Practical exam 50%

MEDICAL PSYCHOLOGY

Field of study:	Health
Study program:	Medicine
Course title:	Medical Psychology
Course coordinator:	Lecturer Bogdan Nemeş, PhD
Department:	Neuroscience
Discipline:	Medical psychology and psychiatry
Course code:	MED1214EN

Semester	Courses Type	Lectures			Practical activities			Individual study	TOTAL	Credits	Evaluation
		hours/week			hours/sem.						
		L	PA	CI	L	PA	CI				
II	Compulsory	1	1	-	14	14	-	47	75	3	Written + practical exam

L = lectures; PA = practical activities; CI = clinical internship

Pre-requisites: -

General objectives:

At the end of the lecture, the students will have acquired the knowledge, attitudes and skills required for the management of the psychological implications of medical practice.

Specific objectives:

At the end of the lecture, the student will be able to:

- Implement the appropriate model of the doctor – patient relationship;
- Assess reaction to illness;
- Facilitate the adoption of the sick role;
- Implement the psychological management of patients going through the process of diagnosis;
- Promote adherence to treatment;
- Facilitate the adoption of a healthy lifestyle;
- Apply the appropriate management of stress and crisis situations;
- Apply the psychological management of the patient with terminal illness.

Course content:

1. Introduction. Fundamental notions of psychopathology
2. Biopsychotypology

3. Normal – abnormal. Health - Illness
4. Doctor – patient relationship
5. Stress – health – illness
6. Crisis and crisis intervention
7. Suicide
8. Psychology of death and dying
9. Psychology of pain
10. Iatrogenic conditions
11. Compliance and adherence to treatment
12. Empathy
13. Health psychology
14. Basic notions of psychotherapy

Practical activities

1. Assessment of psychological functions
2. Interview for personality assessment
3. The role of the doctor in forming the correct and complete representation of illness
4. The bio-psycho-social model in medicine
5. Particularities of rapport with difficult patients: anxious, phobic
6. Particularities of rapport with difficult patients: obsessive, paranoid
7. Particularities of rapport with difficult patients: depressive, histrionic
8. Particularities of rapport with difficult patients: aggressive, detained/incarcerated
9. Stress assessment. Management of burnout
10. Intervention in crisis situation
11. Bereavement
12. Therapeutic iatrogenies
13. Assessment of therapeutic compliance
14. Empathetic rapport

Bibliography:

1. Pinel JPJ, Barnes SJ. Introduction to biopsychology, 9th edition. Boston: Pearson; 2014.
2. Coman H, Nemeş B. Medical Psychology Lecture Notes (CD). Cluj-Napoca: Presa Universitară Clujeană; 2014.
3. Nemeş B. Medical Psychology [Internet]; c2022. Available from: <http://behaviouralsciences.ro>

Evaluation: standardized exam

- Written exam 75%
- Practical exam 25%

PROBLEM BASED LEARNING

Field of Study	Health
Study program	Medicine
Course title	Problem based learning – 1st year
Course coordinator	Lecturer Traian Oniu, MD, PhD
Department	Medical Education
Discipline	Problem based learning
Course code	MED1215RO

Semester	Courses Type	Lectures			Practical activities			Individual study	TOTAL	Credits	Evaluation
		hours/week			hours/sem.						
		L	PA	CI	L	PA	CI				
II	Compulsory	-	2	-	-	28	-	47	75	3	Colloqui

L = lectures; PA = practical activities; CI= clinical internship

Pre-requisites: -

General objectives:

The development of cognitive and psychomotor skills necessary to identify relevant information, in order to integrate fundamental knowledge in a clinical context, to assure communication and collaboration in groups in order to solve specific clinical situations.

Specific objectives:

- The acquisition of fundamental knowledge in an integrated manner and in a clinically relevant context
- Early contact with clinical problems and the assimilation of cultural values for medical profession
- Clinical thinking skills' development
- Independent and efficient learning skills development
- The development of a strong internal motivation for learning and professional fulfillment
- The development of the ability to communicate effectively and work in team

Practical activities:

1. Introduction to PBL
2. Type 2 diabetes mellitus - part 1
3. Type 2 Diabetes - Part 2
4. Prostate Cancer - Part 1
5. Prostate Cancer - Part 2

6. Hepatitis B Virus Infection - Part 1
7. Hepatitis B virus infection - Part 2
8. Acute appendicitis - part 1
9. Acute appendicitis - part 2
10. Type 1 diabetes mellitus - part 1
11. Type 1 Diabetes Mellitus - Part 2
12. Asthma - Part 1
13. Asthma - Part 2
14. Feed-back assessments on cases, facilitator and students

Teaching – learning methods:

1. Conversation
2. Conversation with the involvement of all group members
3. Case Study
4. Fostering interaction between group members
5. Encourage the free expression of opinions and collaboration between individuals in order to solve tasks
6. Setting specific tasks to group members

References:

The bibliography required to solve the cases will be identified by the students; identifying it is one of the purposes of the PBL method. This must be recent and relevant and critically assessed from the perspective of EBM (Evidence Based Medicine)

Evaluation

- Colloquy for pass/fail 100%

ROMANIAN LANGUAGE

Field of study:	Health
Study program:	Medicine
Course title:	Romanian language
Course coordinator:	Assist. prof. Anca Hassoun Associated assist. prof. Elena Faur Associated assist. prof. Andreea Pantiloi Associated assist. prof. Olivia Țirlea
Department:	Medical Education
Discipline:	Modern Languages
Course code:	MED1217EN

Sem.	Course type	Lectures			Practical activities			Individual study	TOTAL	Credit	Evaluation
		hours/week			hours / semester						
		L	PA	CI	L	PA	CI				
I	Compulsory	-	3	-	-	42	-	8	50	2	colloquium
II		-	3	-	-	42	-	8	50		

L=lectures; PA=practical activities; CI=clinical internship

Pre-requisites: -

General objectives:

Development of competences in general Romanian

Specific objectives:

At the end of the seminar, the students will be able to:

- To introduce himself/ herself and to speak about himself/ herself
- To ask and to offer information in familiar contexts
- To describe a person or an object using adjectives
- To express preference, agreement and disagreement
- To speak about daily activities
- To name the parts of the human body
- To express pain
- To speak about his/ her family

Practical activities:

1. I am a UMF student! Phonetics: the alphabet, sounds and groups of sounds specific to Romanian language, stress and intonation.
2. I am a UMF student! Culture and civilization: Romanian geography and famous Romanian people.

3. Let's meet each other! Communication: being polite vs. being familiar; introducing yourself. Vocabulary: countries, capitals, nationalities, greetings.
4. Let's meet each other! Grammar: personal pronouns in the Nominative case, politeness pronouns, the verbs to be and to have, the numbers from 1 to 10. Writing: personal presentation
5. Student life. Communication: asking for and giving directions (taxi/ university/ train station/ airport), expressing time, speaking about the schedule.
6. Student life. Vocabulary: the date, the hour, the weather, daily/ weekly schedule.
7. Student life. Grammar: the cardinal numerals.
Writing: describing the weather back home.
8. I and my career. Communication: doctor-patient dialogue, expressing a wish.
9. I and my career. Vocabulary: professions and specific objects.
Grammar: the noun (gender and number), how much? /how many?
Writing: describing a person.
10. The rhythm of life. Communication: thanking, asking for permission, expressing agreement.
11. The rhythm of life. Vocabulary: relaxation, daily activities.
Grammar: the verb (1st and 4th conjugation), frequency adverbs.
Writing: filling up a form, weekly schedule.
12. Tastes and specificity. Communication: client-seller dialogue.
Vocabulary: fruits and vegetables, expressing quantity, the menu.
13. Tastes and specificity. Grammar: the definite and indefinite article, quantity adverbs (a lot, a little, all), collective numerals (both). Irregular verbs, the verb to like, frequency adverbs.
Writing: the shopping list.
14. 1st semester assessment.
15. Special moments, people and places. Communication: dialogue with the travel agent, orientation, reading a map, expressing opinion. Vocabulary: means of transport, holidays (activities and tourist attractions), important institutions and buildings.
Grammar: the verb (2nd and 3rd conjugation), prepositions and time adverbs.
Writing: the post card, the poster.
16. Clothes, style and attitude. Communication: shopping, making recommendations, expressing like/ dislike, payment options, describing a person (physical appearance, behaviour).
Grammar: the adjective (1-4 forms).
Writing: describing a person (physical appearance, behaviour).
17. Clothes, style and attitude. Vocabulary: outfits, types of fabric, colours, physical characteristics of a person, qualities, faults, emotions, idiomatic expressions with colours.

18. You are what you do. Vocabulary: tourist destinations, renting a house, daily schedule.

Grammar: types of places, types of rooms in a house, furniture items, appliances, daily schedule.

19. You are what you do. Writing: prepositions expressing spatial relations, verbs in the reflexive voice.

Communication: renting announcements, letter to the family.

20. „Fugit irreparable tempus.” Communication: speaking about a past experience, about the life and work of a famous person, about childhood memories, the holiday schedule.

21. „Fugit irreparable tempus.” Vocabulary: stages of life/ of a relationship, expressing time, domestic animals, activities associated with holidays.

22. „Fugit irreparable tempus.” Grammar: past tense simple, reflexive verbs, the verb to like, adverbs (then, afterwards, etc.).

Writing: life of a famous person, short story.

23. Mind, body and soul. Communication: at the doctor’s, doctor-patient dialogue, expressing opinion.

24. Mind, body and soul. Vocabulary: sports, physical exercises, the human body (external organs).

Grammar: to be hurt/ to be bothered by/ to be annoyed by.

Writing: message, short presentation.

25. „Medicine is science and consciousness” (Iuliu-Hațieganu)

Communication: at the doctor’s, doctor-patient dialogue, giving advice, forbidding, expressing a wish, speaking about what one knows/ doesn’t know to do.

26. „Medicine is science and consciousness” (Iuliu-Hațieganu). Vocabulary: medical professions, specific objects, professional responsibilities.

Grammar: verbs in the subjunctive mode.

Writing: writing a diary page.

27. Looking into the future. Communication: the society and the future, expressing conditioning.

Vocabulary: words expressing future, future plans.

Grammar: the literary future/ the popular future.

Writing: personal future plans, the contents of a magazine.

28. Summative assessment.

References:

1. Andreica A, Băgiag A, Tomoiagă A, Coiug A, Gogâță C, Ursa A, Limba română pentru debutanți. Nivel A1. Ediția a II-a (revizuită și adăugită), Cluj-Napoca, Editura Medicală Universitară „Iuliu Hațieganu”, 2019.
2. Andreica, A, Băgiag, A, Tomoiagă, A, Coiug, A, Gogâță, C. Bazele limbii române. Nivel A1.2, Cluj-Napoca, Editura Medicală Universitară “Iuliu Hațieganu” Cluj-Napoca, 2018.

3. Common European Framework of Reference for Languages, 2003. URL: http://www.coe.int/t/dg4/linguistic/source/framework_en.pdf.
4. Common European Framework of Reference for Languages: Learning, teaching, assessment. Companion Volume with new descriptors. Provisional edition, September 2017, URL: <https://rm.coe.int/common-european-framework-of-reference-for-languages-learning-teaching/168074a4e2>.
5. Gramatica de bază a limbii române (GBLR), București, Ed. Univers Enciclopedic, 2010.
6. Kohn, D., Puls. Limba română pentru străini. Iași, Ed. Polirom, 2009.
7. Platon, E., Sonea, I., Vîlcu, D. Manual de limba română ca limbă străină (RLS). A1-A2. Cluj-Napoca, Casa Cărții de Știință, 2012.
8. Platon, E.; Sonea, I.; Vasiu, L.; Vîlcu, D. Descrierea minimală a limbii române. A1, A2, B1, B2, Cluj-Napoca, Editura Casa Cărții de Știință, 2014.

Evaluation:

- Written test 33.34%
- Oral assessment 33.33%
- Ongoing evaluation 33.33%

SPORTS

Field of study: Health
Study program: Medicine
Course title: Physical Education
Course coordinator: Associate professor PhD, Mihai Ludovic Kiss
 Lecturer PhD Sergiu David
 Lecturer PhD, Ciprian Kollos
 Assistant prof. Muntean Ana

Department: Medical Education
Discipline: Physical Education

Sem.	Course type	Lectures			Practical activities			Individual study		TOTAL	Credit	Evaluation	
		hours/week			hours / semester								
		L	PA	CI	L	PA	CI						
I	Compulsory	-	1	-	-	14	-	-	14	1*	Colloquium		
II		-	1	-	-	14	-	-	14				

L=lectures; PA=practical activities; CI=clinical internship

* mandatory complementary discipline, with additional credits allocated

Pre-requisites: -

General objectives:

- Maintaining an optimal state of health by forming the habit of practicing physical exercise;
- It aims at assimilation, consolidation and improvement of knowledge and skills from several previously learned or newly learned sports disciplines.

Specific objectives:

At the end of the class the students will know:

- to understand and apply skills to practice health-freedom exercises in leisure time;
- the regulations of some sports and to demonstrate a technical element from a sport branch practiced during the course.

Practical activities:

1. Physical Education and sport:

- developing general strength, corrective physical activities and recuperation that requires low effort.

2. Individual and team sports (sections of ASUIH):

- basket, volley, football, society dance, aerobic, fitness, table tennis, martial arts, ski, tourism, chase, badminton

References:

1. Popovici Cornelia, Kiss Mihai, David Sergiu, Kollos Ciprian, Fotbal – caiet de lucrări practice 2020
2. Kiss Mihai, Kollos Ciprian, Popovici Cornelia, David Sergiu, Volei – Caiet de lucrari practice, 2019
3. Kollos C., Kiss M.L., Popovici C., David S., Baschet – Caiet de lucrări practice, 2017
4. Kiss Mihai Ludovic, Popovici Cornelia - Dans de societate – caiet de lucrări practice, 2017
5. M. Kiss, Caiet de lucrări practice: Culturism - Fitness, 2013
6. C. Suciu, Îndreptar de lucrări practico-metodice, 2013

Evaluation

- Colloquy 100%

2nd YEAR

TOPOGRAPHIC AND SECTIONAL APPLIED ANATOMY

Field of Study	Health
Study program	Medicine
Course title	Topographic and sectional applied anatomy
Course coordinator	Assoc. Prof. Carmen Crivii, MD, PhD Lecturer Carmen Micu, MD, PhD
Department	Morpho-functional Sciences
Discipline	Anatomy and Embryology
Course code	MED2101EN

Semester	Course type	Lectures			Practical activities			Individual studies	TOTAL	Credits	Evaluation
		hours / week			hours / semester						
		L	PA	CI	L	PA	CI				
I	Compulsory	2	2	-	28	28	-	94	150	6	Written + practical exam

L=lectures; PA=practical activities; CI=clinical internship

Pre-requisites: -

General objectives:

- Progressive knowledge of the human body anatomy by gradually studying of all the systems and organs
- The formation of a spatial, three-dimensional representation of the human body, as a whole and by segments.
- Acquiring equivalences between the contents of the large body cavities and the surface regions.
- The construction of ontogenetic representations in dynamics, useful for prenatal diagnosis
- Acquiring skills in anatomical dissections.

Specific objectives:

- Knowledge of some fundamental notions regarding the morphology of the central and peripheric nervous system and organ senses.
- Development of the ability of synthesis and observation and of the clinical application skills of the acquired anatomical notions

Course content:

1. Generalities about the anatomy of the central nervous system.

2. The spinal and cerebral meninges. The dural venous sinuses. The subarachnoidian cisterns. The cerebrospinal fluid. The external aspect, relations and blood supply of the spinal cord.
3. The spinal cord – microscopic structure. The spinal nerve and ganglion. The gray substance, white substance and reticular substance of the spinal cord.
4. The brainstem - 1.
5. The brainstem - 2.
6. The Cerebellum.
7. The Diencephalon - 1(thalamus, metathalamus, epithalamus)
8. The Diencephalon - 2 (subthalamic region, hypothalamus)
9. The telencephalon - 1.
10. The telencephalon - 2.
11. The ventricular system. Brain vascularization.
12. Development of the nervous system.
13. Synthesis of the main nervous pathways. Gustatory pathway.
14. The eyeball. The orbit. Visual pathway. The external, middle and internal ear. Acoustic and vestibular pathways.

Practical activities:

1. The spinal meninges. Subarachnoid space. The subarachnoidian cisterns.
2. The external aspect and the relations of the spinal cord. The structure and blood supply of the spinal cord. The spinal nerve and ganglion. Spinal cord: structure.
3. The sheaths and vessels of the encephalon. Dural venous sinuses. The subarachnoid cisterns. The vessels and the nerves at the skull base. The pituitary gland.
4. The external structure of the brain stem. The apparent origin of the cranial nerves. Cerebellar peduncles sectioning. The structure of the brain stem.
5. The structure of the brain stem – continued
6. Cerebellum: external aspect, relations, structure, cerebellar connections. The fourth ventricle.
7. Recapitulative seminar: Spinal cord. Brainstem. Cerebellum. The fourth ventricle.
8. Study of the prosencephalon. The external aspect of the cerebral hemispheres. Dissection of the corpus callosum and the lateral ventricles. The structure of the diencephalon. The third ventricle.
9. Study of the thalamus, metathalamus, epithalamus, hypothalamus.
10. Striate bodies – extrapyramidal system. Cerebral hemispheres – general presentation
11. Structure of the cerebral hemispheres. Cortical areas. Insula lobe. Commissural formations. Systematization of the cerebral cortex. Arhi-paleoneocortex.

12. Recapitulative seminar: Diencephalon. Cerebral hemispheres. Lateral ventricles. The third ventricle.
13. The orbit, the eyeball and the annexes of the eye. Optic pathway. The ear. Audio, vestibular pathways.
14. Multiple sections (transvers, frontal, sagittal) through the cerebral hemispheres. Revision

Bibliography:

1. Crivii C.: The anatomy of the central nervous system, Editura Medicala Universitara Iuliu-Hatieganu Cluj-Napoca, 2021 ISBN: 9789736939686
2. Moore K.L., Dalley A.F., Agur A.M.R.: Clinically Oriented Anatomy, 8th Edition 2018, Editura: Wolters Kluwer.
3. Kahle W., Frotscher M.: Color Atlas Of Human Anatomy, Vol.3: Nervous System And Sensory Organs, 7th Edition 2016, Editura: Thieme Verlag.
4. Netter, Frank H: Atlas of human anatomy, 8th Edition 2023

Evaluation - standardized exam:

- Written exam 50%
- Practical exam 50%

METABOLIC BIOCHEMISTRY

Field of study: Health
Study program: Medicine
Course title: Metabolic Biochemistry
Course coordinator: Prof. Crăciun Alexandra, MD, PhD
Department: Molecular Sciences
Discipline: Medical Biochemistry
Course code: MED2102EN

Semester	Course Type	Lectures			Practical activities			Individual study	TOTAL	Credit	Evaluation
		hours/week			hours/sem.						
		L	PA	CI	C	PA	CI				
I	Compulsory	3	3	-	42	42	-	91	175	7	Written+ practical exam

L=lectures; PA=practical activities; CI=clinical internship

Pre-requisites: Descriptive biochemistry

General objectives:

- Accumulating knowledge necessary for understanding nutrient metabolism
- Presenting the molecular basis of physiologic and pathologic processes

Specific goals:

- Carbohydrate structure and metabolism, metabolic anomalies
- Lipid structure and metabolism, metabolic anomalies
- Amino acid structure and metabolism, metabolic anomalies
- Nucleotide structure and metabolism, metabolic anomalies

Course content:

1. Introduction to metabolic biochemistry, general aspects, methods of studying metabolism, classification of metabolic anomalies
2. Carbohydrate metabolism: structure and classification of carbohydrates. The Krebs Cycle and the mitochondrial respiratory chain
3. Glycolysis. Pyruvic acid metabolism
4. Gluconeogenesis. Glycogen metabolism
5. The pentose-phosphate pathway. Glucuronic pathway. Metabolism of other monosaccharides. Glycoproteins, proteoglycans, glucosaminoglycans

6. General aspects of lipid metabolism, importance and classification of lipids. Fatty acids and their esters with alcohols. Simple and complex lipid structures (glycerophospholipids and sphingolipids)
7. Fatty acid biosynthesis and catabolism
8. Ketone body and triglyceride metabolism
9. Cholesterol and plasma lipoprotein metabolism
10. Complex lipid, steroid hormone and eicosanoid metabolism
11. Protein metabolism: general aspects. Ammonia metabolism. Ureogenesis
12. Amino acid general degradation pathways
13. Amino acid specific degradation pathways. Haeme and creatine metabolism
14. Nucleotide metabolism: general aspects. Purine and pyrimidine nucleotide biosynthesis and catabolism

Practical activities:

1. Collection and preservation of biological samples. Analysis of biological fluids
2. Serum glucose determination. Glucose tolerance test
3. Serum urea determination
4. Serum uric acid determination
5. Serum creatinine determination
6. Bilirubin production and metabolism. Bilirubin determination
7. Total serum lipid determination and medical importance
8. Serum cholesterol, triglycerides and phospholipids determination
9. Dysproteinemia tests. Total serum proteins determination
10. Haemoglobin absorption spectra. Haemoglobin determination
11. Serum cholinesterase, alpha amylase activity determination
12. Serum transaminases, phosphatases, gamma-glutamyl transferase activity determination
13. Biochemical analysis of urine. Normal urinary constituents
14. Pathological urinary constituents Urinary sediment compound identification

References:

1. Pamela Champe: Biochemistry. Lippincott's Illustrated Reviews Series, Fourth (4th) Edition, 2009.
2. Tiberiu Nistor. Basics in metabolic biochemistry. Casa Cărții de Știință, Thired edition, 2019
3. Tiberiu Nistor. Metabolic Biochemistry in questions, Casa Cărții de Știință, 2012.
4. Nistor Tiberiu. Medical Biochemistry A Practical Approach. Second Edition. Ed. Casa Cartii de Stiinta, Cluj-Napoca 2018

Evaluation - standardized exam

- Theoretical exam 75%
- Practical exam 25%

HISTOLOGY

Field of study:	Health
Study program:	Medicine
Course title:	Histology
Course coordinator:	Professor Maria Crișan, MD, PhD Assoc. Prof. Adina Bianca Boșca, MD, PhD Lecturer Anne Marie Constantin, MD, PhD
Department:	Morpho-functional Sciences
Discipline:	Histology
Course code:	MED21203EN

Semester	Courses Type	Lectures			Practical activities			Individual study	TOTAL	Credit	Evaluation
		hours/week			hours/sem.						
		L	PA	CI	L	PA	CI				
I	Compulsory	2	2	-	28	28	-	44	100	4	Write+ practical exam
II	Compulsory	2	2	-	28	28	-	44	100	4	Write+ practical exam

L = lectures; PA = practical activities; CI = clinical internship

Pre-requisites: -

General objectives:

Students will be able to use their theoretical knowledge in Histology in a clinical context, in order to acquire a proper integrated medical reasoning.

Specific objective:

Students will be able to:

- Use a light microscope.
- Analyze and interpret a histological section under the light microscope
- Identify and differentiate the histological staining procedures.
- Render accurate histological diagnoses for the human tissues and organs.
- Render accurate differential diagnoses for the human tissues and organs based on histological diagnoses.
- Integrate the histological information into the fundamental and clinical subjects.

Course content:

1ST SEMESTER

1. Introduction. General considerations: types of tissues, classification, histogenesis. Epithelial tissues: Origin, Functions, Characteristics. Classification. Surface (covering) Epithelia: Simple and stratified epithelia; particular epithelia. Structure: LM and EM. Polarity and cell surface specializations. Basement membrane

2. Glandular Epithelia. Origin, Structure, Classification; general structure of exocrine and endocrine glands (characteristics, classification). Clinical correlations.

Connective tissues. Origin, Function and Structure. Cellular components (fixed cells, transient connective tissue cells). Clinical correlations

3. Connective Tissues: Fibers. Ground substance. Structure: LM and EM. Classification of the connective tissues. Types of connective tissues: Embryonic connective tissues. Connective tissues proper. Clinical correlations.

4. Specialized Connective Tissues: Cartilage: Origin, Structure. Classification of Cartilage: Hyaline cartilage: cartilaginous cells, ground substance and fibers, Perichondrium, Nutrition, Changes of cartilage with age, Regeneration of cartilage, Cartilage growth. Elastic cartilage. Fibrocartilage. The intervertebral disk. Clinical Correlations.

5. Specialized Connective Tissues: Bone: Origin, Function, Structure: Bone matrix, Cells of bone. Classification of bone: compact bone, spongy Bone. Microscopic structure of bone. Histogenesis of Bone: Intramembranous bone formation, Endochondral bone formation, Bone growth. Clinical correlations.

6 Muscle: Origin, function and structure. Skeletal muscle: histological structure, histological characteristics of the skeletal muscle. Cardiac muscle: histological structure. Smooth muscle: histological structure LM nad EM. Clinical correlations.

7 Nervous tissue. General considerations. Neurons, Neuroglial cells, Classification, Histological structure, Histophysiology. Peripheral nervous system: peripheral nerve as an organ. Clinical correlations

8 Cardiovascular system. General structure of blood vessels. Classification, Histological structure, rteries. Capillaries. Veins. Lymphatic vessels. Histophysiology. Clinical correlations.

9. Immune system I: General considerations. Red blood cells. White blood cells: Neutrophils, Eosinophils, Basophils, Monocytes, Platelets and megacariocytes. Bone marrow. Clinical correlations

10 Immune system II: Hemopoiesis: Erythropoiesis, Granulocitopoiesis. Monocytopenesis, Platelet formation. Clinical correlations.

11 Immune system III: Lymphatic tissue. General considerations. Lymphocytes Lymphopoiesis Lymphoid organs: Thymus (Histological structure and Function, Vascularization). Clinical correlations

12 Immune system IV: Lymphoid organs: Lymph nodes. Histological structure and functions, Vascularization, Spleen Histological structure and function. Vascular supply of the spleen. Clinical correlations.

13. Revision

14 Nervous System Peripheral nervous system: spinal and vegetative ganglia. Central nervous system: spinal cord, cerebral cortex, cerebellar cortex. Clinical correlations.

2ND SEMESTER

1 Digestive System. Oral cavity: histological structure of the walls of the oral cavity and the oral mucosa, histological structure of the lips and tongue. The taste bud: histological structure and functions. Overview of the teeth. Salivary glands: histological structure and histophysiology. Clinical Correlations.

2 Digestive System. General structure of the esophago-gastro-intestinal tract. Esophagus and stomach: histological structure and functions. Clinical correlations

3. Digestive System: Small intestine. Large intestine. Appendix. Rectum and anal canal - histological structure, functions. Clinical correlations

4. Digestive System: Pancreas: histological structure and histophysiology. Liver: the hepatic lobule, the hepatocyte: histological structure and histophysiology. Clinical correlations

5. Respiratory System: The intra-pulmonary and extra-pulmonary airways histological structure. Olfactory mucosa histological structure and functions. Trachea histological structure. The lungs: histological structure and histophysiology. The air-blood barrier. Clinical correlations

6. Urinary System: Kidney histogenesis, overview, histological structure and histophysiology. vascularization. The urinary tract: the ureter, urinary bladder, urethra - histological structure and histophysiology. Clinical correlations

7. Endocrine System: Overview, cytology of the endocrine cells that secrete polypeptidic hormones and steroids. The diffuse Neuroendocrine System. The pituitary gland-histological structure and histophysiology. Pineal gland histological structure and histophysiology. Clinical correlations

8. Endocrine System: The thyroid gland - histological structure and histophysiology. The parathyroid glands - histological structure and histophysiology. The adrenal gland - histological structure and histophysiology. Clinical correlations

9. Male Reproductive System: Testis histological structure and histophysiology. The testis-blood barrier. Genital tract histological structure and histophysiology. Accessory genital glands: the seminal vesicles, the prostate gland, the bulbourethral glands histological structure and histophysiology. Clinical correlations

10. Female Reproductive System: Ovaries: the ovarian follicles and the corpus luteum histological structure and histophysiology. Cyclic morphological changes in ovary endocrine correlations between the ovary and the pituitary

gland. Oviducts histological structure and histophysiology. Uterus histological structure and histophysiology; cyclic morphological changes in endometrium. Cervix, Vagina. Clinical correlations

11. Female Reproductive System: The structure of the uterus during pregnancy histological structure and histophysiology. Fertilization and implantation. Placenta morphogenesis, histological structure and histophysiology. Mammary glands resting and lactating histological structure and histophysiology. Clinical correlations

12. Sense organs. Skin. Epidermis, Dermis, Hypodermis histological structure and histophysiology. Skin appendages: Sweat glands, Sebaceous gland, Hair, Nail histological structure and histophysiology. Skin vascularization, Skin innervations. Clinical correlations

13. Sense organs. Eye histological structure and histophysiology; Transparent Media of the Eyeball. Cornea; Retina histological structure and histophysiology; Optic nerve. Accessory organs of the Eyeball: the eyelid and the lachrymal gland. The Inner Ear and the Corti's organ histological structure and histophysiology. Clinical correlations

14. Revision lecture.

Practical activities:

1ST SEMESTER

1. Histological section. Steps in Tissue Preparations; fixation, dehydration and clearing, embedding, sectioning, mounting and staining; Interpretation of microscopic sections; Advanced visualization procedures: histochemistry, immunocytochemistry, immunofluorescence; Common histological stains; Special histological stains.

2. Epithelial Tissues I: *Surface epithelia*: Simple squamous epithelium; Simple columnar epithelium; stratified squamous epithelium; pseudostratified columnar epithelium; transitional epithelium. HE stain, special staining methods.

3. Epithelial Tissues II: *Glandular epithelia*: Exocrine glands simple: tubular gland, simple alveolar gland, acini (serous, mucous, mixt) Endocrine glands: follicle type (thyroid); cord type (adrenal gland).

4. Connective tissues I: Embryonic connective tissue: Mucous tissue. Loose Connective tissue. Dense Connective tissue; regular and irregular type; tendon, elastic tissue.

5. Connective tissues II: Reticular tissue. Adipose tissue: white and brown: HE stain, special staining methods.

6. Connective tissues III: Cartilage: Hyaline cartilage. Elastic cartilage. Fibrous cartilage. HE stain. special staining methods

7. Connective tissues IV: Bone. Decalcified Compact bone. Decalcified Spongy bone. Compact ground bone. Endochondral bone formation. HE stain, special staining methods.

8. Muscle tissue: Skeletal muscle. Cardiac muscle structure. Muscle as an organ. HE stain, special staining methods.
9. Nervous tissue: Neurofibrils: silver impregnation, Peripheral nerve fibers: osmic acid. Nerve as an organ
10. Cardiovascular System: Smooth muscle HE stain. Elastic arteries (Aorta). Muscular arteries. Veins. Capillaries. Lymphatic vessels. Vein-artery and nerve complex. HE stain and special staining methods.
11. Immune system I: Bone marrow. HE stain. Revision
12. Immune system II: Tymus. HE stain. Revision
13. Immune system III: Lymph node. Spleen. HE stain. Revision
14. Practical exam

2ND SEMESTER

1. Central Nervous System: the spinal cord, the cerebellum, the brain. The peripheral Nervous System: the spinal and the autonomic ganglion HE stain and special stainings.
2. Digestive system: Lips. Tongue. Taste buds. HE stain and special stains.
3. Digestive system. Esophagus. Stomach- cross and longitudinal sections. Salivary glands. HE stain and special stains.
- 4 Digestive system: Small intestine: duodenum, jejunum. Colon. Appendix. Histological sections. HE stain and special staining. Differential diagnosis between the segments of the gastro-intestinal tract.
5. Digestive system : Pancreas. Liver. Gall bladder – HE stain and special stains
6. Respiratory System: Trachea. Epiglottis. Lungs. Bronchial tree. Differential diagnosis bronchus-bronchiole. Histological sections. HE stain and special stains.
7. Urinary System: Kidney. Ureter. Urinary bladder. Histological sections. HE stain and special stains.
8. Endocrine system: Pituitary gland. Pineal gland. Histological sections. HE stain and special stains. Slide review.
9. Endocrine system: Thyroid. Parathyroid glands. Adrenal glands. Histological sections. HE stain and special stains.
10. Male reproductive system: Testes. Epididymis. Ductus deferens. Prostate. Histological sections. HE stain and special stains. Slide review.
11. Female Reproductive System: Ovary. Uterus. Oviducts. Histological sections. HE stain; trichrome stain.
12. Female Reproductive System: Placenta at 3 months. Placenta at term. Resting mammary gland. Lactating mammary gland. HE stain and special stains.
13. Sense organs; Skin. Skin appendages (sebaceous gland, hair, hair follicle, sweat gland). Cornea. Retina. HE stain and special stains. Revision
14. Practical exam

Mandatory bibliography:

1. Maria Crisan, Carmen Mihaela Mihiu, Carmen Melincovici, Bianca Bosca, Anne Marie Constantin, Andrei Coneac, Ioana Moldovan. *General Histology: Tissues*. Editura Medicala Universitara "Iuliu Hațieganu", Cluj-Napoca, 2013 ISBN 978-973-693-554-1
2. Maria Crisan, Carmen Mihaela Mihiu, Carmen Melincovici, Bianca Bosca, Anne Marie Constantin, Andrei Coneac, Ioana Moldovan, Hana Decean *General Histology: Organs..* Editura Medicala Universitara "Iuliu Hațieganu", Cluj-Napoca, 2015
3. Editors: Constantin Anne-Marie, Boșca Adina Bianca. Authors: Constantin Anne-Marie, Boșca Adina Bianca, Mihiu Carmen, Crișan Maria, Șuşman Sergiu, Șovrea Alina, Mărginean Mariana, Melincovici Carmen, Jianu Mihaela, Moldovan Ioana, Coneac Andrei. Contributors: Lavinia Mocan Rada Suflețel *General Histology. Evaluation exercises*. Editura Medicală Universitară "Iuliu Hațieganu" Cluj-Napoca 2018 ISBN 978-973-693-867-2
4. Editors: Boșca Adina Bianca, Constantin Anne-Marie. Authors: Boșca Adina Bianca, Constantin Anne-Marie, Mihiu Carmen, Crișan Maria, Șuşman Sergiu, Șovrea Alina, Mărginean Mariana, Melincovici Carmen, Jianu Mihaela, Moldovan Ioana, Coneac Andrei. Contributors: Lavinia Mocan Rada Suflețel *Special Histology. Evaluation exercises*. "Iuliu Hațieganu" Publishing House, Cluj-Napoca, 2018 ISBN 978-973-693-875-7
5. Ross MH, Kaye GJ, Pawlina W. *Histology a Text and Atlas with Correlated Cell and Molecular Biology*, 8th edition, Lipincott Williams & Wilkins. 2019

Optional bibliography:

1. Kierszenbaum AL, Tres L. *Histology and Cell Biology: An Introduction to Pathology*, 4th edition, Elsevier Saunders, Philadelphia, 2016
2. Gartner LP, Hiatt JL. *BRS Cell Biology and Histology*, 7th edition, Wolters Kluwer, Baltimore, 2014
3. Junqueira LC, Carneiro J. *Basic Histology. Text and Atlas*, 16th edition. Lange Medical Books;Mc. Graw-Hill Medical Publishing Division; 2021.

Evaluation - standardized exam:

- Written exam 60%
- Practical exam 40%

PHYSIOLOGY

Field of study: Health
Study program: Medicine
Course title: Physiology
Course coordinator: Associate prof Ioana Bâldea, MD, PhD
 Lecturer Daniela Mitrea, MD, PhD
Department: Morpho-functional Sciences
Discipline: Physiology
Course code: MED21204EN

Sem.	Course type	Lectures			Practical activities			Individual study	TOTAL	Credits	Evaluation
		Hours/week			Hours/semester						
		L	PA	CI	L	PA	CI				
I	Compulsory	3	3	-	42	42	-	73	157	6	Written+ practical exam
II	Compulsory	3	2	-	42	28	-	73	143	6	Written+ practical exam

L=Lectures; PA=practical activity; CI=clinical internship

Pre-requisites: -

General objectives:

- Learning and understanding of some biological mechanisms of high complexity and difficulty
- Functional exploration of body's systems
- Development of an observation sense and critical thinking, that are essential for the future's medical profession

Specific objectives:

- Acquiring of medical terms, of the necessary knowledge for integration of the functions from the molecular to general level, from the tissue to the organ, to understand the functionality of different organs, systems and the interactions among them
- Training for the devices and laboratory materials utilization, including the computerized methods, to investigate some physiological mechanisms and some physiological constant parameters
- Practicing the capacity to synthesize the studied notions, and the references material accumulation
- Training to interpret the data found in the read sources.

Course content:

1. Introduction in blood physiology. Blood functions. Hematocrit. Blood volume.
2. Blood properties. Acid-basis mechanisms. Plasma. Proteins.
3. Red blood cells – structure, number, variations, properties, blood types. Erythropoiesis. Iron metabolism.
4. White blood cells- structure, number, variations, roles, properties of granulocytes.
5. Immune function. Innate immunity. Local and general signs of inflammation. Complement.
6. Acquired immunity. Platelets- structure, morphology, functions. Hemostasis. Primary hemostasis.
7. Coagulation and fibrinolysis.
8. Heart physiology. Cardiac muscle- structure, properties.
9. Cardiac cycle. Cardiac activity phenomena- acoustic, mechanic, volumetric. Electrocardiogram
10. Regulation of the cardiac function.
11. Cardiac output. Coronary circulation. Hemodynamics. Physiological properties of the vascular system.
12. Blood pressure- measurement, factors, regulation. Arterial pulse.
13. Microcirculation. Transcapillary exchanges mechanisms. Autoregulation of the microcirculation.
14. Venous circulation. Lymphatic circulation. Regional circulation areas: pulmonary, cerebral, renal, skin.
15. Kidney structure, functions. Renal clearance. Renal blood flow regulation.
16. Mechanisms of urine formation. Glomerular filtration. Tubular reabsorption.
17. Water tubular reabsorption mechanism, water excretion, the roles of ADH and aldosterone. Urine concentration and dilution mechanisms. Tubular secretion. Kidney roles in regulation of the acid-basis homeostasis. Micturition.
18. Endocrine system- introduction, classification, hormones biochemistry, receptors, mechanism of action. Regulation of hormone secretion.
19. Hypophysis physiology.
20. Thyroid physiology.
21. Suprarenal glands physiology. Endocrine pancreas.
22. Parathyroid glands. Regulation of the calcium-phosphate homeostasis.
23. Sexual glands physiology. Reproduction.
24. Nervous system- introduction. Somesthesia- tactile receptors, afferent pathways, thalamus, cortical somesthesia projection.
25. Pain- receptors, afferent pathways, classification, physiological significance of pain, thermal sensibility.

26. Somatic motor system: spinal, spinal shock, suprasegmental control of the reflex medullary activity.
27. Cerebellum: architecture and organization, cerebellum cortex, roles. Cerebral control of the motility, pyramidal and extrapyramidal motor systems.
28. Sleep physiology. Vestibular system. Basal ganglia.

Practical activities:

1. Dosage of the sodium bicarbonate from plasma. ASTURP parameters. Determination of blood and plasma density.
2. The influence of the osmotic pressure on the erythrocyte volume. Determination of the globular resistance of the erythrocytes. Serum protein electrophoresis.
3. Erythrocyte sedimentation rate. Red blood cells counting. Reticulocytes counting.
4. Blood typing. Rh blood typing. Hemoglobin identification. Erythrocyte indices. Bleeding time. Coagulation time.
5. Leukocytes counting. Differentiation of the white blood cells.
6. Clinical cases, laboratory tests. Platelets counting.
7. Prothrombin time. Rumpel-Leede compression test. Blood recalcification time.
8. Electrocardiogram.
9. Measurement of the blood pressure.
10. Adjustment of the cardio-vascular system at physical effort. Reflexes which influence the activity of the heart. Vagal reflexes.
11. Ankle-brachial pressure index (ABPI).
12. Effort capacity in the healthy and sick man- cycle ergometer test. Laboratory tests.
13. Recapitulation. Training for the practical exam. Analysis bulletins.
14. Practical exam
15. Renal clearance.
16. Urinalysis.
17. Oral glucose tolerance test (OGTT)
18. Hypoglycemia. Hypocalcemic tetany. The effects of insulin and alloxan on blood glucose level in rat- computer simulation
19. Endocrine pregnancy diagnosis. The effects of thyroxin, propylthiouracil on basal metabolism in rat- computer simulation
20. Electroencephalogram
21. Electrooculogram. Visual exploration
22. Somesthesia

23. Osteotendinous and cutaneous reflexes.
24. Vestibular apparatus: Optokinetic nystagmus, spontaneous nystagmus.
25. Vestibular apparatus: general and segmental equilibrium, provoked maneuvers.
26. Hearing sense exploration.
27. Recapitulation. Training for the practical exam. Analysis buletins.
28. Practical exam

References:

1. Guyton AC, Hall JE. Textbook of Medical Physiology, Elsevier, 2020
2. Ganong WF. Review of Medical Physiology, McGraw-Hill Education, 2020.
3. D R Mitrea, R Orasan, Elementary Human Physiology, Ed. Techno Medical 2009, ISBN: 978-606-8030-57-9
4. Erickson A & Parker J (eds). Essential MedNotes 2023. 39nd ed. Toronto Notes for Medical Students, Inc, Toronto, 2023.
5. Boron WF, Boulpaep EL. Medical Physiology, Elsevier, 2017.
6. DR Mitrea, Human Physiology, Laboratory tests, 2006, ISBN (10) 973-7865-24-3, Ed Techno Media, 2006, Sibiu

Evaluation - standardized exam:

- Written exam 70%
- Practical exam 30%

GENERAL MICROBIOLOGY. CLINICAL MICROBIOLOGY

Field of study:	Health
Study programme:	Medicine
Course title:	Microbiology
Course coordinator:	Assoc Prof. Carmen Costache, MD, PhD
Department:	Molecular Sciences
Discipline:	Microbiology
Course code:	MED21205EN

Semester	Courses Type	Lectures			Practical activities			Individual study	TOTAL	Credit	Evaluation
		hours/week			hours/sem.						
		L	PA	CI	L	PA	CI				
I	Compulsory	2	2	-	28	28	-	44	100	4	Written+ practical exam
II	Compulsory	3	2	-	42	28	-	30	100	4	Written+ practical exam

L=Lectures; PA=practical activity; CI=clinical internship

Pre-requisites: -

General objectives:

- Acquiring the basics of general microbiology.
- Study of the microorganisms (bacteria, viruses, parasites, fungi).
- Knowledge and correct use of microbiology concepts related to contamination with infectious agents and their transmission to humans to initiate an infectious process.
- Properties of the different groups of microorganisms, relationship with humans and their environment.
- The importance of microorganisms as etiologic agents of various infectious clinical entities: respiratory tract infections, digestive infections, genitourinary tract infections, congenital infectious, skin and CNS infections (meningitis, encephalitis).
- Knowledge of the bacterial, viral, parasitic and fungal virulence factors to understand their role in human pathology

Specific objectives:

At the end of the course the student will be able to:

- Use and understand how the specific microbiological language is used;
- Knows the etiology, pathogenesis and stages of laboratory diagnosis of bacterial, viral, parasitic, fungal infections.

- Apply these notions in the basic fields of Medicine: classical and molecular diagnosis of infectious diseases, medical research, epidemiology of infections.
- Knowledge of laboratory methods and techniques used to detect and identify microorganisms.
- Perform minimum laboratory techniques required for a general practitioner: sampling of pathological products, performing a Gram stained smear and preparing for a Ziehl-Neelsen smear, inoculation of the pathological product on culture media, interpreting bacterial growth on culture media, performing and reading an antibiogram, performing rapid immunochromatographic tests and interpreting them.

Course content:

Sem. I

1. The microorganisms world. Definition. History. Classification. Taxonomy. Microorganism's particularities. Differences between the eukaryotic and the prokaryotic cells. Medical important phylogenetic groups.
2. Bacterial morphology. Shapes and sizes - bacteria morpho-tinctorial characters. Optic microscopy. The importance of bacteria identification.
3. Obligate structures: Nucleoid – genetic information. Cytoplasm – bacterial metabolism. The cytoplasm membrane – environmental bacteria exchanges. The bacterial cell wall (its bacterial functions both in the environment and in the human body).
4. Facultative structures: Capsule, glycocalix (bacterial adhesion, antiphagocytic factors). Fimbria and pilli (bacteria primitive sexuality). Cilia (bacterial motility, chemo-taxis). Bacterial spores, their structure and biologic role (bacterial cell differentiation).
5. Bacterial physiology - Bacterial metabolism: Environmental chemical and physical factors' influence on bacterial growth and division.
6. Bacterial multiplication - bacterial growth and division. The bacterial growth curve. Physiologic stages of the bacterial cell.
7. Bacterial genetics (Evolution and adaptation in the bacterial world). Bacterial DNA metabolism: Replication. Recombination. Repair. Restriction and modification. Bacterial replicons. Chromosomal and extra chromosomal heredity (plasmids, bacteriophages).
8. Operons/regulons (metabolic, resistance, virulence). Structure genes, signal sequences.
The mobile genetic elements: transposons, integrons, retrons.
9. Variability. Mutation. The genetic material transfer between bacteria: donor – recipient. Transformation and transfection. Conjugation and sexduction. Phages transduction and conversion. Spread of pathogenicity genes and antibiotic resistance in the bacterial world.

10. Bacterial pathogenicity: The Koch-Henle postulates. Contamination, infection, disease. Pathogenicity and virulence. Multifactorial pathogenicity (strategies), stadial pathogenesis
11. Bacterial pathogenicity factors. Bacterial toxins - exotoxins, "monofactorial" diseases. Endotoxins, systemic infections, infectious shock.
12. Non-specific and specific defense mechanism against microbial agents
13. Antibacterial chemotherapy. Generalities concerning AB. Definition, therapeutic triangle; pharmacodynamics (MIC, MBC, post-antibiotic effect, MPC). The bacteriostatic and the bactericidal effects.
14. The AB action spectrum. Antibiotic families, mechanisms of action, mechanisms of resistance.

Sem. II

Medical bacteriology

1. Genus *Staphylococcus*: representatives, pathogenicity factors, infections produced
2. Genus *Streptococcus*; Genus *Enterococcus*: representatives, pathogenicity factors, infections produced
3. Genus *Corynebacterium*; Genus *Mycobacterium*: representatives, pathogenicity factors, infections produced
4. Genus *Clostridium*; Genus *Bacillus*: representatives, pathogenicity factors, infections produced
- Genus *Haemophilus* and *Neisseria*: representatives, pathogenicity factors, infections produced
5. Important Enterobacteriaceae in human pathology. Genus *Pseudomonas*, *Helicobacter pylori*
6. Genus *Vibrio*, Spirochets (*Treponema*, *Leptospira*, *Borrellia*): representatives, pathogenicity factors, infections produced
7. *Rickettsia*, *Chlamydia*, *Mycoplasma*: representatives, pathogenicity factors, infections produced

Virology

8. Viruses – definition. Classification – LHT system; main families. Viral multiplication. Viral persistence. Prions. Viral genetics. Pathogenesis of acute and persistent infections- latent, chronic and slow infections.
9. Antiviral chemotherapy. Interferons. Viral oncogenesis
10. Orthomyxoviridae family; Paramyxoviridae family: general properties, infections produced
11. Picornaviridae family, Rhabdoviridae family: general properties, infections produced Herpetoviridae family, Adenoviridae family: general properties, infections produced
12. Hepadnaviridae family and other viruses that produce hepatitis
13. Retroviridae family: infection with HIV virus.
14. Human microbioma

15. Introduction to parasitology. Definitions: parasitism, intermediate host, definitive host, biological cycle, vectors. The general characteristics of the parasites. Classification. Transmission / human contamination. The action of parasites on the human body. The body's reaction to parasite action. Diagnostic methods used in parasitology: microscopy, determination of parasitic antigens, antiparasitic antibodies, molecular methods, cultivation, inoculation in mice.

16. Nematodes: *Ascaris lumbricoides*, *Trichuris trichiura*, *Enterobius vermicularis*, *Trichinella spiralis*, *Ancylostoma duodenalis*, *Strongyloides stercoralis* general characteristics and epidemiology; morphology; human contamination; biological cycle and pathogenesis; produced infections (clinical aspects); etiological diagnosis; treatment; prophylaxis .

17. Flatworms: *Fasciola hepatica*, *Hymenolepis nana*, *Diphyllobotrium latum*, *Taenia saginata*, *Taenia solium*, *Echinococcus granulosus*, *Echinococcus multilocularis* general characteristics and epidemiology; morphology; human contamination; biological cycle and pathogenesis; produced infections (clinical aspects); etiological diagnosis; treatment; prophylaxis .

18. Intestinal protozoa: *Giardia intestinalis*, *Entamoeba histolytica*, *Cryptosporidium*, *Isospora belli* - general characteristics and epidemiology; morphology; human contamination; biological cycle and pathogenesis; produced infections (clinical aspects); etiological diagnosis; treatment; prophylaxis .

19. Other protozoan diseases: *Toxoplasma gondii*, *Plasmodium* general characteristics and epidemiology; morphology; human contamination; biological cycle and pathogenesis; produced infections (clinical aspects); etiological diagnosis; treatment; prophylaxis .

20. Mycology: general characteristics, morphology, classification; epidemiology of fungal infections. Pathogenesis of fungal infections. Diagnostic methods in mycology Clinic aspects of fungal infections and antifungal therapy: *Candida*, *Cryptococcus*, *Pneumocystis jirovecii* .

21. Mycology: general characteristics, morphology. Clinic aspects of fungal infections and antifungal therapy: *Aspergillus*, *Mucormycosis*, *dermatophytes* .

Practical activities:

Semester 1

1. Protection rules in the Microbiology Laboratory. Laboratory tour. Asepsis, antisepsis. Sterilization and disinfection methods. Needed devices
2. Sample collection. Diagnostic scheme for infectious diseases
3. Microscopic mounts: wet mount, smears: techniques.
4. Identification of microorganisms in wet mounts, in simple stain, in the Gram stain.
The Gram staining principle. The importance of the microscopic mounts in the bacteria identification, based on the morpho-tinctorial bacteria properties.

5. Ziehl Nielsen stain: principle, working technique, microorganisms identification.
Special staining: for spores, for capsule (the Burri stain), the silver impregnation stain, the Giemsa stains.
6. Culture media: inoculation techniques, bacteria identification based on the culture properties
7. Biochemical tests, modern methods of identifying microorganisms
8. Serologic reactions. Application of the serological reactions in the diagnosis of the infectious disease (bacterial identification, bacterial antigens and specific antibodies detection).
9. Serologic reactions. The agglutination reaction, the precipitation reaction: principle, technique, interpretation.
The immune-fluorescence reaction, the ELISA method: principle, technique, interpretation.
10. Bacterial genetics: molecular biology techniques (PCR)
11. Bacteria sensitivity testing to antibiotics: the dilutions method: principle, technique, antibiogram interpretation.
12. Bacteria sensitivity testing to antibiotics: the disk diffusion method; E-Test: principle, technique, antibiogram interpretation.
13. Laboratory diagnosis in virology: techniques, principles, interpretation.
14. Laboratory diagnosis in parasitology: techniques, interpretation.

Semester 2

1. Laboratory diagnosis in the infections produced by Gram positive cocci (*Staphylococcus*, *Streptococcus*, *Enterococcus* genus).
2. Laboratory diagnosis in the infections produced by the representatives of *Haemophilus*, *Neisseria*, *Bordetella*, *Brucella* genus
3. Laboratory diagnosis in the infections produced by representatives of *Bacillus* genus (anthrax), and *Clostridium* genus (tetanus, botulism, gas gangrene, C.difficile infection).
4. Laboratory diagnosis in infections produced by representatives of the genus *Corynebacterium*. Laboratory diagnosis in tuberculosis and other infections produced by the representatives of *Mycobacterium* genus.
5. Laboratory diagnosis in the infections produced by pathogenic Enterobacteria (salmonellosis, bacillary dysentery). Laboratory diagnosis in the infections produced by commensal Enterobacteriaceae (*E. coli* and other Enterobacteriaceae).
6. Laboratory diagnosis in the infections produced by the representatives of: *Pseudomonas*, *Vibrio*, *Helicobacter*, *Campylobacter* genus. Laboratory diagnosis in the infections produced by the representatives of: *Treponema*, *Leptospira*, *Borrelia* genus
7. Laboratory diagnosis in the infections produced by the representatives of *Rickettsia*, *Chlamydia*, *Mycoplasma* genus. Evaluation of the students from bacteriology knowledge

8. Laboratory diagnosis in influenza, coronavirus infections *Paramyxoviridae*, Picornaviridae, Rhabdoviridae, Adenoviridae, Herpetoviridae infections
9. Laboratory diagnosis in hepatitis.
10. Laboratory diagnosis in HIV infection
11. Laboratory diagnosis in the infections produced by Nematodes
12. Laboratory diagnosis in the infections produced by Flatworms
13. Laboratory diagnosis in the infections produced by Protozoans
14. Laboratory diagnosis in fungal infections: *Candida*, Culturi: *Candida*, *Aspergillus*, Mucorale, dermatofiti

References:

1. Carmen Costache, Lia Monica Junie, Ioana Colosi. Medical bacteriology and medical virology. Editura Medicală Universitară "Iuliu Hațieganu", Cluj Napoca", ediția 3-a, Cluj Napoca, 2017 ISBN 978-973-693-760-6
2. Lia Monica Junie (Carmen Costache -Traducator). Basic Bacteriology and Virology. "Iuliu Hațieganu" Medical Universitatea Publishing House, Cluj-Napoca 2011
3. Electronic support of the lectures.
4. The Centers for Disease Control and Prevention (CDC), Atlanta, USA <http://www.cdc.gov/>
5. The European Centre for Disease Prevention and Control (ECDC) <http://www.ecdc.europa.eu/>
6. PubMed: <http://www.ncbi.nlm.nih.gov/pubmed>
7. Medscape <http://www.medscape.com/>
8. World Health Organisation <http://www.who.int/en/>
9. Erickson A & Parker J (eds). Essential MedNotes 2023. 39nd ed. Toronto Notes for Medical Students, Inc, Toronto, 2023.
10. Carmen Anca Costache, Ioana Alina Colosi, Mădălina Bordea. Laboratory Works for Microbiology Editura Medicală Universitară "Iuliu Hațieganu", Cluj Napoca, 2019, 134 pg, ISBN 978-973-693-932-7

Evaluation - standardized exam:

- Written exam 70%
- Practical exam 30%

MEDICAL GENETICS

Field of study: Health
Study program: Medicine
Course title: Medical Genetics
Course coordinator: Assoc. prof. Cătană Andreea, MD, PhD
 Lecturer Rodica Elena Cornean, MD, PhD
 Lecturer Dronca Eleonora, MD, PhD

Department: Molecular Sciences
Discipline: Medical Genetics
Course Code MED21206EN

Sem.	Course type	Lectures			Practical activities			Individual study	TOTAL	Credits	Evaluation
		hours / week			ore / sem.						
		L	PA	CI	L	PA	CI				
I	Compulsory	1	2	-	14	28	-	33	75	3	-
II		2	2	-	28	28	-	44	100	4	Written + practical exam

L=lectures; PA=practical activities; CI=clinical internship

Pre-requisit: -

General objectives:

Understanding the role of biological individuality:

1. the differences in response of each organism to the aggressions of the environment and thus the different vulnerability to disease;
2. the determinism of common disorders, through the interaction between the genotype (which determines a certain predisposition to the disease) and the aggressive factors in the environment;
3. variable phenotypes and different severity of the same disease in different patients;
4. the different response, in particular, to the same treatment applied to different patients suffering from the same disease.

Specific objectives:

1. Understanding the principles of normal and pathological heredity and variability.
2. Understand the general molecular basis of human pathology.
3. Understanding the impact of genetics in medicine.
4. Understanding the structures, mechanisms and basic laws of storage, transmission and expression of hereditary information for the formation, development and functioning of the human body.

5. Understanding the role for the conceptual basis of medicine because it offers a new perspective to modern medicine, dominated by molecular cell biology, genetics and immunology.
6. Understanding that genetic diseases have become a major public health problem.
7. Understanding the relationship between heredity and disease, respectively the role of mutations in the production of disease or predisposition to disease.
8. Acquiring basic notions about the diagnosis and care of patients with genetic diseases as well as their families.
9. Acquiring basic notions of genetic counseling, prenatal diagnosis, neonatal screening or pre-symptomatic diagnosis.

Course content:

1. Introduction to Medical genetics.
2. The human genome.
3. Gene structure. Variability of the genetic information. Mutations
4. Storage and transmission of genetic information
5. Polygenic and multifactorial heredity
6. Epigenetics
7. Population genetics
8. Chromosome anomalies and associated pathology
9. Mitochondrial pathology
10. Developmental genetics
11. Teratogenesis. Teratogens
12. Normal and pathologic sexual development
13. Immunogenetics and Immunopathology
14. Oncogenetics
15. Nutrigenetics
16. Pharmacogenetics
17. Genomic medicine and application in clinical medicine. From research to translational medicine
18. Principles of prophylaxis of genetic disorders
19. Treatment of genetic disorders
20. Medical genomics. Applications in human pathologies
21. Bioethics in medical genetics

Practical activities:

1. Human chromosome morphology
2. The analysis of human chromosomes. (1) Prenatal cytogenetic diagnosis
3. The analysis of human chromosomes. (2) Postnatal cytogenetic diagnosis
4. Molecular Cytogenetics FISH technique
5. CGH array
6. Applications in practical cytogenetics

7. Seminar
8. Molecular analysis techniques (DNA extraction and PCR)
9. Molecular analysis techniques. PCR-RFLP, ARMS-PCR, RT-PCR
10. Molecular analysis techniques DNA sequencing. Sanger technique
11. NGS. Next generation sequencing techniques
12. Molecular genetics in Forensic medicine
13. Applications of molecular DNA analysis in practical medicine
14. Semina.
15. Autosomal chromosome abnormalities related pathologies (1)
16. Autosomal chromosome abnormalities related pathologies (2)
17. Structural chromosome abnormalities related disorders
18. Heterosomal chromosome disorders (1)
19. Heterosomal chromosome disorders (2)
20. Seminar
21. Autosomal dominant disorders (1)
22. Autosomal dominant disorders (2)
23. Autosomal recessive disorders (1)
24. Autosomal recessive disorders (2)
25. X linked dominant disorders
26. X linked recessive disorders
27. Oncogenetics
28. Seminar

References:

1. Coordinator - Ioan Victor Pop. *Study guide for laboratory practice, second year students, general medicine, U.M.F. Iuliu Hațieganu Cluj-Napoca, 2015*
2. Coordinator: Pop Ioan Victor, *Medical Genetics for Second years General medicine students, UMF Cluj, 2015.*
3. www.orphanet.com
4. www.omim.com
5. www.pharmgkb.com
6. www.ensembl.org
7. Erickson A & Parker J (eds). *Essential MedNotes 2023. 39nd ed. Toronto Notes for Medical Students, Inc, Toronto, 2023.*

Evaluation:

- Written exam 66,67%
- Practical exam 33,33%

MEDICAL RESEARCH METHODOLOGY

Field of study: Health
Study program: Medicine
Course title: Medical Research Methodology
Course coordinator: Assoc. Prof. Horațiu Colosi, MD, PhD
Department: Medical Education
Discipline: Medical Informatics and Biostatistics
Course code: MED2207EN

Semester	Course Type	Lectures			Practical activities			Individual study	TOTAL	Credit	Evaluation
		hours/week			hours/semester						
		L	PA	CI	L	PA	CI				
II	Compulsory	1,5	1,5	-	21	21	-	33	75	3	Written+ practical exam

L = lectures; PA = practical activities; CI= clinical internship

Pre-requisites: Biostatistics and Medical Informatics

General objectives:

1. To develop skills for effective retrieval, use and critical evaluation of medical scientific literature.
2. To develop skills to choose proper research methods and types of clinical studies in medical research.
3. To develop skills to choose suitable methods for data analysis and to correctly interpret results from medical research.
4. Skills development and acquisition of knowledge about appropriate methods of presenting results of scientific research.
5. Skills development and acquisition of knowledge needed to practice evidence-based medicine.

Specific objectives:

The course provides students fundamental knowledge on:

1. Searching, recording and analyzing medical literature
2. Domains of medical research and clinical study types
3. Methods of medical research
4. Analysis and interpretation of results of medical studies
5. Principles for writing and correct presentation of research results
6. Principles of evidence-based medicine (EBM)
7. Ethical principles in medical research

Practical Activities have as objective the application of knowledge regarding:

1. Retrieving and accessing relevant medical information
2. Formulating proper research questions, defining the aim and objectives of research. The selection and proper formulation of research hypotheses. The identification of target populations in medical studies. Understanding sampling methods. Defining appropriate research variables. Writing a research protocol correctly.
3. Understanding and choosing correct methods of data collection
4. Understanding and choosing correct statistical methods for data analysis
5. Using computer tools to assist medical research
6. Understanding and using the correct principles of medical writing and oral presentation of medical research results
7. Evaluating the validity of studies
8. Critical reading of medical scientific literature

Course content:

1. Introduction: Variability in the living world, Types of variables, Bibliographic documentation
2. Basic methodology of medical research. Phases of a research. Data collection. Sample-sampling. Estimation and confidence intervals. The research protocol
3. Clinical studies. Prognostic studies
4. Clinical studies. Survival analysis
5. Clinical studies. Diagnostic studies
6. Clinical studies. Therapeutic studies (Randomized controlled trials)
7. Secondary research. Systematic Reviews and Meta-analyses
8. Regression analysis and modelling in medical research. Linear regression. Simple regression. Multiple regression. Logistic regression. The description of a health phenomenon
9. Choosing a statistical method. Data types. Comparing two groups. Independent and paired samples. Relation between two variables. Statistical methods for multiple variables
10. Study validity and bias in medical studies. Selection bias. Measurement and information bias. Confounding
11. Presenting data. Tables and graphics used to present categorical data. Tables and graphics used to present quantitative data. Graphics for two variables. Errors in presenting data
12. Medical writing and communication of research results. Objectives of scientific writing. Proper scientific language and style. Types of medical texts. Principles of medical writing of a research paper. Principles of oral communication of a research paper. The structure and content of a research paper

13. Evidence based medicine (EBM). Basic concepts. Steps for practicing EBM. Acquiring evidences by clinicians. Hierarchy of evidence . Searching for evidence. Building pertinent clinical questions (the PICO format). Evaluation of validity for different types of clinical studies. Evaluation of study relevance
14. Ethics of medical research. Ethical principles, Clinical ethics committees. Ethical rules regarding participation in research. Fraud in medical research

Practical activities:

1. Safety rules. Introduction. Bibliographic study - citing references for scientific materials found through bibliographic documentation, according to Vancouver style
2. Bibliographic study - bibliographic documentation, bibliographic record
3. Assessing prognostic factors 1. – Case-control study: research scenario (research protocol, data description, data analysis, presenting and interpreting the results).
4. Assessing prognostic factors 2. – Cohort study: research scenario (research protocol, data description, data analysis, presenting and interpreting the results).
5. Assessing the existence, level and direction of influence for prognostic factors – correlations and regressions: research scenario (research protocol, data description, data analysis, presenting and interpreting the results).
6. Assessing prognostic factors 3. – Survival analysis: research scenario (research protocol, data description, data analysis, presenting and interpreting the results).
7. Assessing a diagnostic test: research scenario (research protocol, data description, data analysis, presenting and interpreting the results).
8. Assessing a therapy – RCT: research scenario (research protocol, data description, data analysis, presenting and interpreting the results).
9. Meta-analysis – understanding and interpreting the results
10. Identifying bias in medical research. Choosing correct statistical methods.
11. Presenting medical research (oral communication of research results): Practical activity for acquiring skills in using proper scientific style for oral presentations with slides.
12. Presenting medical research (written communication of research results): Case study (critical appraisal of a published original research).
13. Evaluation of study validity. Interpreting the results of medical studies. Practice of Evidence Based Medicine (EBM).
14. Recapitulative research scenarios.

References:

1. Drugan T, Berghe AS, Bolboaca SD, Bondor C, Calinici C, Colosi H, Cutas A, Iancu M, Istrate D, Leucuta DC, Valeanu M. Metodologia Cercetării Științifice Medicale. Cluj-Napoca: Editura Medicală Universitară „Iuliu

- Hațieganu”, 2017.
2. Hulley SB, Cummings SR, Browner WS, Grady DG, Newman TB. Designing Clinical Research. 4th ed. Philadelphia, PA: Lippincott Williams & Wilkins; 2013.
 3. Course presentations for students of the faculty of medicine [online] 2002-2022. Available from URL: <http://www.info.umfcluj.ro/>
 4. Practical activities of medical research methodology for students of the faculty of medicine [online] 2002-2022. Available from URL: [http://www.info.umfcluj.com /](http://www.info.umfcluj.com/)

Evaluation:

- Written exam 70%
- Practical exam 30%

FUNDAMENTAL EPIDEMIOLOGY AND PRIMARY HEALTHCARE

Field of study: Health
Study program: Medicine
Course title: Primary Health Care
Course coordinator: Lecturer Radu-Tudor Coman, MD, PhD
Department: Community Medicine
Discipline: Epidemiology
Course code: MED2208EN

Sem.	Course type	Lectures			Practical activities			Individual study	TOTAL	Credits	Evaluate
		hours / week			hours / semester						
		L	PA	CI	C	LP	St				
II	Compulsory	1	1	-	14	7	-	29	50	2	Verification

L = lectures; PA= practical activities; CI=clinical internships

Pre-requisites: Biostatistics and Medical Informatics

General objectives:

At the end of the course, students will have the skills to apply the epidemiological method in order to promote health and prevent disease.

Specific objectives:

At the end of the course students will possess the skills required to:

- to explain the quantitative expression of health events and the cause-effect relationship, highly relevant for disease prevention and control;
- to integrate the importance of disease surveillance on the local, national and international levels;
- to identify the methods applied in primary prevention completed by secondary and tertiary prevention;
- to identify the differences between the clinical and epidemiological method;
- to integrate the opportunity of epidemiological investigation as an important epidemiological tool with scientific and practical contribution in disease prevention and control;
- to interpret the contribution of clinical epidemiology within the concept of evidence-based medicine;
- to identify the fundamentals in the epidemiology of infectious diseases;
- to understand the components and principles of Primary Health Care as a fundamental concept for health promotion all over the world.

Course content:

1. Epidemiology - definition, fields of application; Introducing the concept of community-oriented medicine, individual, population health and the characterization of health determinants. The components of the epidemiological rationale with applicability in the study of health events within populations. The main types of indicators used in epidemiology;
2. The basic epidemiological methods used in the practical activity: epidemiological surveillance, epidemiological analysis, epidemiological investigation, epidemiological evaluation; Epidemiological surveillance – Definition; the purposes of supervision; Stages of supervision; Evaluation of surveillance systems; Types of surveillance systems used in practice;
3. Epidemiological analysis – principles and planning epidemiological studies. Chance of errors in epidemiological research and limiting their intervention.
4. Epidemiological investigation – the purpose of investigation. Epidemiological strategies of investigating a population health problem; Criteria for justifying the investigation; The steps of the epidemiological investigation in response to the need to solve a health problem with community impact;
5. Epidemiological evaluation - Definition of terms; The role of epidemiological evaluation in the planning process of health programs; Characteristics of the assessment and conditions for carrying out the epidemiological assessment; Meta-analysis and evaluation of public health programs as a tool for better healthcare.
6. Epidemiological study of disease causation: Causality models in the epidemiology of infectious and chronic diseases. The validity of epidemiological studies, the correlation between the quality of evidence and the strength of recommendations in medical practice.
7. Clinical epidemiology: Health events studied: delimitation of normal and abnormal, natural history of diseases, diagnosis, prognosis and treatment; Epidemiological methods for evaluating the effectiveness and efficiency of therapeutic interventions; Clinical decision analysis method.
8. Disease prevention: levels of prophylaxis; Primary prophylaxis with the population and individualized strategy; Secondary prophylaxis and justification of detection actions; Tertiary prophylaxis; Quaternary prophylaxis. The effectiveness and efficiency of therapeutic interventions.
9. Basic notions used for the epidemiological characterization of infectious diseases; Epidemiological characterization of infectious agents with the significance of differentiated prophylactic and therapeutic intervention. Epidemiological factors conditioning the population manifestation of a disease; Classification of the infectious diseases according to the modes of transmission in relation with disease prevention and control.

10. Primary Health Care (PHC) – a fundamental concept in population health promotion and sustainment. Definition and integration of PHC in the primary care of all communities with the direct participation of their members. The components and principles of PHC. Its history and the perspectives in XXI century, the Millenium Development Goals

Practical activities:

1. Definition and analysis of the most used epidemiological frequency indicators for measuring the distribution of infections at the population level - Incidence; Prevalence; Mortality. Definition of crude and specific rates of morbidity and mortality.
2. Basic principles and standardization methods for optimizing comparisons in epidemiological studies
3. Analytical observational epidemiological studies: principles, stages, evaluation of advantages and disadvantages
4. Measuring the risks of disease - Relative risks; Attributable risks; use in disease prevention programs
5. Mass screening test in secondary prophylaxis. The principles of application of a screening program dependent on the validity and precision of the applied test. Population application of screening tests and prediction of the condition of interest dependent on prevalence.
6. Definition of screening strategies within population programs, benefits, and limits. The role and ranking of the studies needed to evaluate the performance of detection programs

References:

Epidemiology and Primary Health Care - electronic support of the courses for the use of the students in Medicine
Erickson A & Parker J (eds). Essential MedNotes 2023. 39nd ed. Toronto Notes for Medical Students, Inc, Toronto, 2023.

Available online:

1. R Bonita, R Beaglehole, T Kjellström. Basic epidemiology. 2nd edition World Health Organization 2006. whqlibdoc.who.int/publications/2006/9241547073_eng.pdf.
2. David L. Katz, Joann G. Elmore, Dorothea M.G. Wild, and Sean C. Lucan. Jekel's Epidemiology, Biostatistics, Preventive Medicine, and Public Health. 4th ed. 2014, <https://studentconsult.inkling.com/>
3. Gordis L. Epidemiology. 5th ed. 2014 <https://studentconsult.inkling.com/>
4. Centers for Disease Control and Prevention (CDC) - Principles of Epidemiology in Public Health Practice. Third Edition An Introduction to

Applied Epidemiology and Biostatistics. 2012.
<https://www.cdc.gov/csels/dsepd/ss1978/SS1978.pdf>

Other references

5. Katz DL, Elmore JG, Wild D, Lucan SC. Jekel's epidemiology, biostatistics, preventive medicine and public health. 2014. ISBN-10: 1455706582.
6. Friis RH, Sellers TA. Epidemiology for public health practice. 5th ed. 2014. ISBN 1449651585, 9781449651589.
7. Aschengrau A, Seage G. Essentials of Epidemiology in Public Health. 3rd Ed. Jones & Bartlett Learning. 2014. ISBN 9781284028911.
8. Merrill R. Introduction to Epidemiology 6th Ed. Jones & Bartlett Learning. 2013. ISBN 9781449665487.
9. Hebel JR, McCarter R. Study guide to Epidemiology and Biostatistics 7th Ed. Jones & Bartlett Learning. 2012. ISBN9781449604752.
10. Centrul Național de Supraveghere și Control al Bolilor Transmisibile (CNSCBT). <https://www.cnscbt.ro/>.
11. European Centre for Disease Control and Prevention (ECDC). Available from: <https://ecdc.europa.eu/en/surveillance-and-disease-data>.
12. ECDC – COVID-19 pandemic. <https://www.ecdc.europa.eu/en/covid-19-pandemic>.
13. WHO - Coronavirus disease (COVID-19) pandemic. <https://www.who.int/emergencies/diseases/novel-coronavirus-2019>.

Evaluation:

- Written exam 80 %
- Practical exam 20 %

ROMANIAN LANGUAGE

Study field: Health
Study program: Medicine
Course title: Romanian language
Course coordinator: Lecturer Alina Andreica
 Assist. prof. Ștefana Duncea
 Assist. prof. Anda Lăscuș
 Assist. prof. Ana Așkar
Department: Medical Education
Discipline: Modern Languages
Course code: MED21209EN

Sem.	Course type	Lectures	Practical activities			Lectures	Practical activities			Individual study	TOTAL	Credit	Evaluation	
		hours/week			hours / semester									
		L	PA	CI	L	PA	CI							
I	Compulsory	-	3	-	-	42	-	8	50	2	Colloquy			
II		3	-	-	42	-	8	50						

L=lectures; PA=practical activities; CI=clinical internship

Pre-requisites: -

General objectives:

Development of competences in general and medical Romanian

Specific objectives:

At the end of the seminar, the students will be able to:

- acquire information efficiently, using written and audio materials specific to the A2+ level
- write various types of texts: emails, formal requests, CVs, letters of intention, according to their language level
- produce an oral discourse (monologue or dialogue) in both formal and informal contexts, specific to the A2+ level

Practical activity:

1. Welcome back! Revision. Basic vocabulary: clothes, weather, means of transport, holidays.
2. 'How I spent my summer vacation. What I learned during the summer internship program.' Past tense simple – verbs in the active voice.
3. My family – revision. Nouns in the genitive case. Describing a room/a person.
4. The human body – revision. The internal organs. Common medical terms.

5. The genitive case and the number in nouns.
6. The structure of a hospital. Basic notions about hospitals and medical specialists.
7. Verbs in the imperative. Specific medical terms. Presenting a recipe.
8. Health insurance. The Romanian health insurance system.
9. 'The health insurance system in my country.'
10. The consultation. Doctor-patient dialogues.
11. Items in the hospital. Demonstrative pronouns and adjectives for closeness and distance.
12. The history taking (1) – structure.
13. Verbs in the imperative.
14. 1st semester assessment
15. The history taking (2).
16. The doctor-patient dialogue.
17. At the pharmacy. 'What we buy from a pharmacy.'
18. Verbs in the conditional. The pharmacist – patient dialogue.
19. Children at the doctor's. Vaccines and vaccination.
20. Demonstrative pronouns and adjectives for similarity and difference. Diminutives. Expressing an opinion.
21. Spring fatigue. Common symptoms.
22. Ordinal and adverbial numerals. The definite article – revision.
23. The common cold and the flu. Common illnesses.
24. Verbs accompanied by pronouns. Negative pronouns. Comparing two medical conditions.
25. Food poisoning. The human body systems. Specific medical terms – the digestive system.
26. Possessive adjectives, nouns in the genitive case.
27. Diarrhoea and constipation. Common illnesses. The adverb and the adjective – degrees of comparison. Taking a history – revision.
28. Summative assessment.

References:

1. Coiug, A, Andreica, A, Băgiag, A, Tomoiagă, A, Gogâță, C. Limba română. Comunicare de bază în mediul spitalicesc. Cluj-Napoca, Editura Medicală Universitară « Iuliu Hațieganu », 2018.
2. Common European Framework of Reference for Languages: Learning, teaching, assessment. Companion Volume with new descriptors. Provisional edition, September 2017, URL: <https://rm.coe.int/common-european-framework-of-reference-for-languages-learning-teaching/168074a4e2>
3. Kohn, D., Puls. Limba română pentru străini. Iași, Ed. Polirom, 2009.

4. Gogâță, C, Tomoiagă, A, Coiug, A, Andreica, A, Băgiag, A, Ursa, A. Limba română. Elemente de limbaj medical. Nivel A2. Cluj-Napoca, Editura Medicală Universitară « Iuliu Hațieganu », 2018.
5. Gramatica de bază a limbii române (GBLR), București, Ed. Univers Enciclopedic, 2010.
6. Platon, E., Sonea, I., Vîlcu, D. Manual de limba română ca limbă străină (RLS). A1-A2. Cluj-Napoca, Casa Cărții de Știință, 2012.
7. Platon, E.; Sonea, I.; VasIU, L.; Vîlcu, D. Descrierea minimală a limbii române. A1, A2, B1, B2, Cluj-Napoca, Editura Casa Cărții de Știință, 2014.
8. Platon, E., Sonea, I., Vîlcu, D. Manual de limba română ca limbă străină (RLS). A1-A2. Cluj-Napoca, Casa Cărții de Știință, 2012

Evaluation:

- | | |
|--|--------|
| ▪ Written Exam | 33,34% |
| ▪ Oral Exam | 33.33% |
| ▪ Verification throughout the semester | 33.33% |

SPORTS

Field of study: Health
Study program: Medicine
Course title: Physical Education and Sport
Course coordinator: Associate professor Mihai Ludovic Kiss, PhD
 Lecturer Cornelia Popovici, PhD
 Lecturer, Ciprian Kollos PhD
 Assistant prof. Muntean Ana
Department: Medical Education
Discipline: Physical Education
Course code: MED21210EN

Sem.	Course type	Lectures			Practical activities			Individual study	TOTAL	Credit	Evaluation
		hours/week			hours / semester						
		L	PA	CI	L	PA	CI				
I	Compulsory	-	1	-	-	14	-	-	14	1*	Verification
II		-	1	-	-	14	-	-	14		

L=lectures; PA=practical activities; CI=clinical internship

* mandatory complementary discipline, with additional credits allocated

Pre-requisites: -

General objectives:

- Maintaining an optimal state of health by forming the habit of practicing physical exercise;
- It aims at assimilation, consolidation and improvement of knowledge and skills from several previously learned or newly learned sports disciplines.

Specific objectives:

At the end of the class the students will know:

- to understand and apply skills to practice health-freedom exercises in leisure time;
- the regulations of some sports and to demonstrate a technical element from a sport branch practiced during the course.

Practical activities:

1. Physical Education and sport:
 - developing general strength, corrective physical activities and recuperation that requires low effort.
2. Individual and team sports (sections of ASUIH):

- basket, volley, football, society dance, aerobic, fitness, table tennis, martial arts, ski, tourism, chase, badminton

3. Medical Gymnastics

References:

1. Popovici Cornelia, Kiss Mihai, David Sergiu, Kollos Ciprian, Fotbal – caiet de lucrări practice 2020
2. Kiss Mihai, Kollos Ciprian, Popovici Cornelia, David Sergiu, Volei – Caiet de lucrari practice, 2019
3. Kollos C., Kiss M.L., Popovici C., David S., Baschet – Caiet de lucrări practice, 2017
4. Kiss Mihai Ludovic, Popovici Cornelia - Dans de societate – caiet de lucrări practice, 2017
5. M. Kiss, Caiet de lucrări practice: Culturism - Fitness, 2013
6. C. Suci, Îndreptar de lucrări practico-metodice, 2013

Evaluation :

- Verification 100%

3rd YEAR

MEDICAL SEMIOLOGY

Field of study: Health
Study program: Medicine
Course title: Semiology and Internal Medicine
Course coordinator: Lecturer Ștefan Popa, MD, PhD
Lecturer Valentin Militaru, MD, PhD
Department: Internal Medicine
Discipline: Medical Clinic II, Medical Clinic V
Course code: MED31201EN

Sem.	Course type	Lectures			Practical activities			Individual study	TOTAL	Credits	Evaluation
		hours / week			Hours / semester						
		L	PA	CI	L	PA	CI				
I	Compulsory	3	-	5	42	-	70	38	150	5	Written and practical exam
II		3	-	6	42	-	84	24	150	7	

L = lectures; PA = practical activities; CI = clinical internship

Pre-requisites: -

General objectives:

Preparing the student to correctly perform the anamnesis and clinical examination and to integrate the obtained data into a clinical (stage) diagnosis

Specific objectives:

- the fulfillment of the cognitive and psychomotor objectives provided in the educational objectives of the discipline
- developing the necessary skills to communicate with the patient and, if necessary, with the family
- learning the correct methodology to perform the clinical exam
- interpretation of paraclinical data necessary for the studied pathology
- structuring the information obtained during the anamnesis and the objective examination in a clinical, staged diagnosis

Course content:

1. Getting started. Principles of clinical examination. Approach to the patient. Anamnesis (history taking)

2. Principles of physical exam. General physical exam (I):Facies, eyes nose. Thyroid
3. General physical exam (II):Skin (pimary and secondary lesions, dryness, colour) and mucosa
4. General physical exam (III): Subcutaneous tissue: edema, collateral circulation
5. General physical exam (IV): Position / attitude of the patient. Neurological exam. Psychological status
6. General physical exam (v): Musculoskeletal semiology
7. General physical exam (VI):Lymph nodes. Nutrition status. Fever
- 8 Respiratory system: Anamnesis. The main respiratory symptoms. Physical examination of the respiratory system
9. Respiratory system: Tracheal and bronchitis syndromes
10. Respiratory system: Consolidation syndrome
11. Respiratory system: Hyperinflation and cavitary syndromes
12. Respiratory system: Pleural, mediastinal and respiratory failure syndromes
13. Renal system: Anamnesis, physical exam, main symptoms. Nephritic and nephrotic syndromes
14. Renal system: Interstitial and vascular nephropathies. Acute and chronic renal failure
15. Cardiovascular system: Anamnesis. Symptoms. Heart auscultation
16. Cardiovascular system: Arrhythmias
17. Cardiovascular system: Endocardial, myocardial, and pericardial syndromes
18. Cardiovascular system: ECG
19. Cardiovascular system: Radiology, echocardiography, and cardiovascular invasive techniques
20. Cardiovascular system: Coronary syndromes. Heart failure
21. Cardiovascular system: Arterial and venous diseases. Aortic dissection
22. Digestive system: Esophageal syndrome. Peptic ulcer. Abdominal pain
23. Digestive system: Abdominal pain (I). Pancreatic disorders
24. Digestive system: Diarrhoea and constipation. Acute abdomen. Digestive bleeding. Porphyria
25. Digestive system: Hepatic syndromes (I)
26. Digestive system: Hepatic syndromes (II)
27. Hematologic disorders: Splenomegaly, anemia and polyglobulia syndromes
28. Hematologic disorders: Leukemias, lymphomas and hemorrhagic syndromes

Practical activities:

1. History taking. Principles of medical communication.
2. Activity with patients
3. History taking: cases
4. Activity with patients

5. Hair, nail: pathological changes
6. Activity with patients
7. Nutrition status. Lymph nodes
8. Activity with patients
9. Constitutional type, somatic development
10. Activity with patients
11. Dynamic changes. Gait.
12. Activity with patients
13. Clinical scenarios
14. Activity with patients
15. TEST
16. Respiratory system inspection, palpation, percussion, auscultation.
17. Activity with patients
18. Complementary examinations in pulmonary diseases (i):x-ray, computer scan, scintigraphy
19. Activity with patients
- 20.Complementary examinations in pulmonary diseases (ii): thoracentesis, spirometry, oximetry, sputum exam.
21. Activity with patients
22. Cases, quizzes
23. Activity with patients
- 24.Prezentari cazuri, scenarii
25. Test – respiratory system
- 26.Examenul obiectiv aparat urinar
27. Complementary examinations in renal diseases.
28. Activity with patients
29. Complementary examinations in cardiovascular diseases
30. Activity with patients
31. Cases, quizzes
32. Activity with patients
33. Cases, quizzes
34. Activity with patients
- 35.ECG
36. Activity with patients
- 37.ECG
38. Activity with patients
39. Arterial and venous system examination
40. Activity with patients
41. ECG
42. Activity with patients
- 43.Test cardiovascular system
44. Activity with patients
45. Clinical cases

46. Activity with patients
47. Clinical cases
48. Activity with patients
49. Main complementary examinations in digestive pathology I
50. Activity with patients
51. Main complementary examinations in digestive pathology II
52. Activity with patients
53. Test digestive system
54. Activity with patients
55. Medulogram
56. Activity with patients

References:

1. Fodor D, Crisan D, Chira A, Popa S. Medical semiology part I, Editura Medicală Universitară Iuliu Hațieganu 2023
2. Barbara Bates : Guide de l'Examen Clinique (13-ème Édition), Arnette, 2022, ISBN 978-2-7184-1643-4

Evaluation - standardized exam:

- Written exam 40%
- Practical exam 50%
- Verification throughout the semester 10%

SURGICAL SEMIOLOGY

Field of study: Health
Study program: Medicine
Course title: Surgical semiology
Course coordinator: Assoc. Prof. Ioan Şimon, MD, PhD
Department: Surgery
Discipline: Surgery IV
Course code: MED3102EN

Semester	Course Type	Lectures	Practical activities			Lectures	Practical activities			Individual study	TOTAL	Credit	Evaluation
		hours/week			hours/sem.								
		L	PA	CI	L	PA	CI						
I	Compulsory	3	-	4	42	-	56	42	140	7	Written+practical exam		

L = lectures; PA = practical activities; CI = clinical internship

Pre-requisites: Anatomy, Pathology, Pathophysiology

General objectives:

Application and practice of basic knowledge and basic practical skills in the most important situations in which surgical treatment is indicated: trauma, surgical infections, disorders of hydro-relectolytic and acid-base balance, coagulopathies, shock, abdominal wall disorders, peripheral vascular, of the endocrine glands, organ and tissue transplantation

Specific objectives:

At the end of the course the student will be able to:

- to perform the anamnesis and the correct and complete objective examination of the patients with surgical pathology
- to formulate in the first stage the clinical diagnosis (clinical interpretation) or the most probable clinical diagnoses
- formulate an appropriate exploration plan to confirm / refute each diagnosis suspected
- to integrate the clinical data with those of the complementary explorations for the formulation of the positive diagnosis (positive diagnoses)
- to formulate possible differential diagnoses and to exclude / confirm with the help of clinical / laboratory elements these diagnoses
- to specify the evolutionary possibilities and the prognosis of the diagnosed disease

- formulate a treatment plan, specifying the principles and means of treatment, in accordance with current guidelines and adapted to the patient's particularities
- specify the criteria for monitoring the effectiveness of the treatment, as well as any causes of failure and / or complications
- correctly assess the conditions that reflect the patient's ability to work and, to the extent necessary, formulate a recovery plan

Course content:

1. Introduction to general surgery. Wound healing. Principles of wound treatment.
2. Goiter / Thyroid nodule. Thyroid cancer. Hyperparathyroidism
3. Scrotal and groin swellings. Abdominal hernias. Incisional hernias.
4. Soft tissue infections. Hand infections. Nosocomial surgical infections.
5. fever in the postoperative period. SIRS and septic shock.
6. Recapitulation and evaluation I
7. Injuries to the skin and soft tissues. Polytraumas. Bleeding and hypovolemia. Transfusion.
8. Shock
9. Acute and chronic peripheral ischemia. Amputations of limbs.
10. Diseases of the veins and lymphatics. Venous thrombosis and thromboembolic disease.
11. Ulcers and necrosis of the foot. Congestion and foot pain. Diabetic foot
12. Recapitulation and evaluation II
13. Hydroelectrolytic and acid-base balance in the surgical patient. Surgical patient nutrition
14. Perioperative analgesia. Local and driving anesthesia. Postoperative complications

Practical activities:

1. Surgery department. Surgical instruments.
2. Thyroid and parathyroid. Anamnesis and objective examination for the thyroid.
3. Clinical examination in hernias and abdominal eventrations. The minor patient. Informed consent.
4. Asepsis and antisepsis. Clinical examination of the surgical patient - emergency clinical examination.
5. Clinical examination in surgical infections. Principles of surgical treatment in hand infections.
6. Incision and drainage for soft tissue infections. Recording patient data.
7. Investigation plan. Paraclinical examinations. Inform the patient about therapeutic options.

8. Clinical examination in polytraumas. The patient with disturbances of consciousness.
9. Clinical examination of the limbs. Preoperative preparation in the surgical patient.
10. Malpractice. Anesthesia-surgical risk assessment. Bad news communication. Confidentiality
11. Surgical instruments. Laparoscopic instruments. Electrosurgery, radio frequency, cryosurgery.
12. FNAC TruCut / ClearCut Biopsy. Incisional and excisional biopsy.
13. Clinical examination / recapitulation. Clinical cases
14. Clinical examination / recapitulation. Clinical cases

References:

1. Lawrence PF. Chirurgie generală și specialități chirurgicale. Crețu O, Jinga V, scripcariu V – coordonatorii ediției în limba română, Ed. A 6-a, Ed. Hipocrate, București, 2021;
2. Essentials of General Surgery. Peter F Lawrence Ed., Wolters Kluwer Health/ Lippincott Williams and Wilkins, Fifth Edition, Baltimore, 2013;
3. Surgical Recall. Lorne H Blackbourne Ed., Wolters Kluwer Health/ Lippincott Williams and Wilkins, Sixth Edition, Baltimore, 2012;
4. Sabiston Textbook of Surgery: The Biological Basis of Modern Surgical Practice / Edition 20 [Courtney M. Townsend Jr. JR., MD](#), [R. Daniel Beauchamp MD](#), [B. Mark Evers MD](#);
5. Examenul clinic obiectiv structurat. **OSCE cazuri clinice de chirurgie**. Editura Colorama, Cluj-Napoca, 2018
6. www.websurg.com ;
7. www.vesalius.com

Compendia:

1. Erickson A & Parker J (eds). Essential MedNotes 2023. 39nd ed. Toronto Notes for Medical Students, Inc, Toronto, 2023
2. Guidelines of the specialty societies and associations (national/international), national guidelines

Evaluation:

- Written exam 50%
- Practical exam 50%

PATHOPHYSIOLOGY

Field of study: Health
Study program: Medicine
Course title: General Pathophysiology
Course coordinator: Prof. Alina Elena Pârvu, MD, PhD,
Department: Morpho-Functional Sciences
Discipline: Pathophysiology
Course code: MED31203EN

Semester	Course type	Lectures			Practical activities			Individual study	TOTAL	Credit	Evaluation
		hours/week			hours/sem.						
		L	PA	CI	L	PA	CI				
I	Compulsory	2	2	-	28	28	-	44	100	4	Written + practical exam
II		2	2	-	28	28	-	44	100	4	Written + practical exam

L = lectures; PA = practical activities; CI = clinical internship

Preliminary conditions: Physiology I and II

General objectives:

- To understand the basic pathophysiological mechanisms of the main diseases in clinical cases;
- To understand particular pathophysiological mechanisms of some diseases in clinical cases;
- To use pathophysiological diagnose algorithms

Specific objectives:

- To find the etiopathogenetic diagnosis
- To find the pathophysiological and pathogenetic diagnosis
- To make differential pathophysiological diagnosis
- To analyze the pathophysiological diagnose algorithms tests

Course content:

1. Introduction, disease, cell pathophysiology.
2. Inflammatory response pathophysiology. Thermoregulation pathophysiology
3. Carbohydrate metabolism disorders pathophysiology
4. Lipid metabolism disorders pathophysiology
5. Protein metabolism disorders pathophysiology
6. Haemostatic disorders pathophysiology – bleeding syndromes

7. Haemostatic disorders pathophysiology – thrombotic syndromes
8. Red blood cells disorders pathophysiology - anemias
9. Red blood cells disorders pathophysiology - polycytemias
10. Pathophysiology of selected central nervous system diseases
11. Pathophysiology of selected peripheral nervous system diseases
12. Pathophysiology of pain
13. Respiratory diseases pathophysiology I
14. Respiratory diseases pathophysiology II
15. Pathophysiology of fluid and electrolyte disorders.
16. Pathophysiology of acid-base disorders
17. Pathophysiology of selected renal diseases I
18. Pathophysiology of selected renal diseases II
19. Pathophysiology of heart failure
20. Pathophysiology of iaschemic heart disease
21. Pathophysiology of high blood pressure
22. Pathophysiology of the shock
23. Pathophysiology of esophageal and gastric diseases
24. Pathophysiology of selected liver diseases
25. Pathophysiology of selected pancreas, gallbladder and bile ducts diseases, intestinal diseases
26. Pathophysiology of selected hiopotalamic and pituitary diseases
27. Pathophysiology of selected thyroid and parathyroid diseases
28. Pathophysiology of selected adrenal and genital diseases

Practical activities:

1. The effect of chemical etiological factors.
2. The effect of physical etiological factors.
3. Inflammatory diseases diagnosis. Experimental fever
4. Carbohydrate metabolism disorders diagnosis algorithm
5. Lipid metabolism disorders diagnosis algorithm
6. Proteins metabolism disorders diagnosis algorithm
7. Haemostatic disorders diagnosis I
8. Haemostatic disorders diagnosis II
9. Red blood cells disorders diagnosis I
10. Red blood cells disorders diagnosis II
11. Nervous system disorders diagnosis algorithm I – CNS dysfunctions
12. Nervous system disorders diagnosis algorithm II – Peripheral nervous system dysfunctions
13. Respiratory disorders diagnosis algorithm I – respiratory dysfunctions
14. Respiratory disorders diagnosis algorithm II – respiratory failure
15. Fluid-electrolyte disorders diagnosis algorithm
16. Acid-base disorders diagnosis algorithm
17. Renal disorders diagnosis algorithm I – acute renal dysfunctions

18. Renal disorders diagnosis algorithm II –chronic renal dysfunctions
19. Cardiovascular disorders diagnosis algorithm I –hypertrophies, blocks and arithmias
20. Cardiovascular disorders diagnosis algorithm II - ischemic heart disease
21. Cardiovascular disorders diagnosis algorithm III – heart failure
22. Cardiovascular disorders diagnosis algorithm IV– blood pressure dysfunctions
23. Digestive tract diagnosis algorithm I – esogastric dysfunctions
24. Digestive tract diagnosis algorithm II – hepatic dysfunctions
25. Digestive tract diagnosis algorithm III – biliary and pancreatic, intestinal dysfunctions
26. Endocrine disorders diagnosis algorithm I –pituitary dysfunctions
27. Endocrine disorders diagnosis algorithm II –thyroid dysfunctions
28. Endocrine disorders diagnosis algorithm III – adrenal and genital dysfunctions

References:

Obligatory references:

1. Parvu Alina Elena, Bulboacă Adriana Elena, Cătoi Florinela Adriana, Blidaru Mihai, Mîrza Manuela Camelia, Jurcău Ramona Niculina, Orăsan Meda Sandra, Pathophysiology Lectures handouts, 2022
2. William Ellet, The Case Study Handbook, Revised Edition: A Student's Guide, Hbr Pres, 2018
3. Felipe Fregni, Ben M.W. Illigens, Critical Thinking In Clinical Research: Applied Theory And Practice Using Case Studies 1st Edition, 2018, Oxford University Press
4. Maxine Papadakis, Stephen Mcphee, Michael Rabow Current Medical Diagnosis And Treatment, 59th Ed., Mcgraw Hill Lange, 2020

Optional references:

1. Silbernagl Stefan, Lang Florian, Fiziopatologie. Atlas Color, A 2-A Ed., Callisto, 2016
2. Hammer Gary D., Mcphee Stephen J., Pathophysiology Of Disease: An Introduction To Clinical Medicine, 8th Ed. Mcgraw-Hill Education - Europe, 2018.
3. Bunn Howard Franklin, Aster Jon C., Pathophysiology Of Blood Disorders, Lange Medical Books, Mcgraw-Hill Medical, 2nd Ed., 2016.
4. Hoffbrand Victor, Moss Paul, Essential Haematology, Wiley-Blackwell; 8th Ed., 2019
5. Juzar Ali, Warren Summer And Michael Levitzky, Pulmonary Pathophysiology: A Clinical Approach, 8th Ed., Lange Medical Book, Mcgraw-Hill Medical, 2019.

6. West John B., Pulmonary Pathophysiology: The Essentials Lippincott Williams & Wilkins; 10th Ed., 2017
7. Renke Helmut, Helmut G., Denker Bradley M., Renal Pathophysiology: The Essentials , 5th Ed., Williams & Wilkins, 2019
8. Leonard S. Lilly, Pathophysiology Of Heart Disease: An Introduction To Cardiovascular Medicine, Williams & Wilkins, 2020
9. Mark Feldman, Lawrence S. Friedman, Lawrence J. Brandt, Sleisenger And Fordtran's Gastrointestinal And Liver Disease - 2 Volume Set: Pathophysiology, Diagnosis, Management 11th Ed., 2020
10. Eric I. Felner, Guillermo E. Umpierrez, Endocrine Pathophysiology, Williams & Wilkins 2013
11. Tommie L Norris, Rupa Lalchandani, Porth's Pathophysiology: Concepts Of Altered Health States 10e, Wolters Kluwer, 2018
12. Joseph Loscalzo, Anthony S. Fauci, Et Al., Harrison's Principles Of Internal Medicine, 21th Edition, Mc Graw Hill, 2022.
13. Hammer G, Mac Phee S, Pathophysiology Of Disease: An Introduction To Clinical Medicine 8e, 2018

Evaluation - Standardized Exam:

- Written exam 60%
- Practical exam 40%

PATHOLOGICAL ANATOMY

Field of study: Health
Study program: Medicine
Course title: Pathological Anatomy
Course coordinator: Assoc. Prof. Doinița Crișan, MD, PhD
 Assoc. Prof. Dan Gheban, MD, PhD
Department: Morpho-functional Sciences
Discipline: Pathological Anatomy
Course code: MED31204EN

Semester	Course Type	Lectures			Practical activities			Individual study	TOTAL	Credits	Evaluation
		hours/week			hours/sem.						
		L	PA	CI	L	PA	CI				
I	Compulsory	2	2	-	28	28	-	44	100	4	Theoretical + practical exam
II		3	3	-	42	42	-	41	125	5	Theoretical + practical exam

L = lectures; PA = practical activities; CI = clinical internship

Pre-requisites: -

General objectives:

At the end of the course students will be able to understand the role of pathological anatomy in the diagnosis and therapeutic management of patients.

Specific objectives:

At the end of the semester, students must be able to:

- use correctly specific terms of pathology
- recognize macroscopic lesions: on pictures, surgical specimens, autopsic cases
- recognize microscopic lesions: on pictures, at the microscope
- establish correlations between the clinical features and the pathologic modifications of the diseases
- interpret a histopathological report: to recognize a specific pathologic entity and to formulate the main differential diagnoses.
- integrate the knowledge of pathology into clinical activity

Course content:

1st semester

1. Fluid & hemodynamic disorders. Hyperemia. Hemorrhage. Ischemia.

2. Fluid & hemodynamic disorders. Thrombosis. Embolism. Infarction.
3. Fluid & hemodynamic disorders. Disseminated intravascular coagulation. Shock. Edema. Disorders of the lymphatic fluid.
4. Disorders of metabolism. Adaptative processes: hypertrophy, hyperplasia, atrophy, metaplasia.
5. Disorders of metabolism. Cellular injury and cell death: hydropic change, steatosis, cellular death – apoptosis, necrosis
6. Disorders of metabolism. Pathology of the extracellular matrix: proteoglycans, elastic fibers, collagen, amyloid, hyaline. Intracellular accumulations: lipids, proteins, glycogen, mucopolysaccharides, pigments – melanin, hemosiderin.
7. Disorders of metabolism. Intracellular accumulations: copper, bilirubin. Pathologic calcification. Lithiasis. Keratin disorders.
8. Inflammation and healing. Inflammation: general features. Acute inflammation: serous, fibrinous, purulent.
9. Inflammation and healing. Acute inflammation: hemorrhagic, necrotizing. Viral inflammation.
10. Inflammation and healing. Chronic inflammation: bacterial.
11. Inflammation and healing. Chronic inflammation: fungal, parasitic. Healing: regeneration, repair.
12. Neoplasia. Etiopathogenesis. Tumor biology. General features of benign and malignant tumors. Tumor invasion and metastasis. Benign epithelial tumors: papilloma, adenoma.
13. Neoplasia. Malignant epithelial tumors carcinoma. Benign and malignant tumors of the soft tissue.
14. Neoplasia. Benign and malignant tumors of the soft tissue. Benign and malignant melanocytic tumors.

2nd semester

1. Pathology of the respiratory tract. Upper airways: congenital anomalies, inflammations, lethal midfacial granuloma, tumor-like lesions, benign and malignant tumors. Lung: congenital anomalies, vascular diseases, acute respiratory distress syndrome, atelectasis, emphysema, chronic bronchitis, bronchiectasis, pulmonary infections, granulomatous lesions, pulmonary eosinophilia, hypersensitivity pneumonitis, bronchial asthma.
- 2 pathology of the respiratory tract. Pneumoconiosis, pulmonary fibrosis. Tumors. Pleural effusions. Pleural tumors.
3. Pathology of the cardiovascular system. Heart: congenital anomalies, rheumatic fever, endocarditis (infective, noninfective), other valvulopathies, complications of artificial valves, myocarditis, ischemic heart disease, cardiosclerosis, cardiomyopathies, tumors. Pericardial effusions.
4. Pathology of the cardiovascular system. Blood vessels: congenital anomalies, vasculitis, atherosclerosis, aneurysms, varices.

5. Pathology of the digestive system. Esophagus: congenital anomalies, lesions associated with motor dysfunction, esophageal varices, esophagitis, benign tumors, malignant tumors. Stomach: congenital anomalies, gastritis (acute, chronic), erosions and ulcerations, peptic ulcer, benign tumors, malignant tumors. Small bowel: congenital anomalies, ischemic bowel disease, infectious enterocolitis, malabsorption syndromes, tumors. Inflammatory bowel disease (Crohn's disease, ulcerative colitis)
6. Pathology of the digestive system. Large bowel: congenital anomalies, megacolon, necrotizing enterocolitis, pseudomembranous colitis, polyps and polyposis syndromes, carcinomas, carcinoid, lymphomas of the gastrointestinal tract, gastrointestinal stromal tumors, ileus. Appendicitis. Liver: congenital anomalies, vascular diseases, hepatitis (acute, chronic), cirrhosis.
7. Pathology of the digestive system. Liver: tumor-like lesions, tumors (primary - benign, malignant; liver metastases). Gallbladder: congenital anomalies, cholecystitis, tumors. Pancreas: congenital anomalies, cystic fibrosis, pancreatitis (acute, chronic), benign and malignant tumors of the exocrine and endocrine pancreas, diabetes mellitus.
8. Pathology of the urinary system. *Kidney*: congenital anomalies, cystic diseases, genetic nephropathies, glomerulopathies, tubulopathies, interstitial nephropathies, vascular diseases, benign tumors, malignant tumors.
9. Pathology of the urinary system. *Urinary tract and urinary bladder*: congenital anomalies, cystitis, tumors of the urinary bladder. Pathology of the male genital system. Penis: congenital anomalies, traumatic and vascular disorders, inflammations, preneoplastic lesions, carcinoma. Testis and epididymis: congenital anomalies, orchitis and epididymitis, infertility, testicular tumors. Prostate: prostatitis, benign hyperplasia, carcinoma.
10. Pathology of the female genital system. Congenital anomalies, intersexuality. Vulva, vagina: inflammations, tumors. Uterine cervix: cervicitis, cervical polyp, tumors. Uterine body: adenomyosis, endometriosis, endometrial hyperplasia, tumors. Pelvic inflammatory disease. Ovarian tumors.
11. Pathology of the female genital system. Gestational trophoblastic disease. Breast: congenital anomalies, mastitis, fibrocystic change, tumors.
12. Pathology of bones and joints. Bone: congenital anomalies, developmental and acquired abnormalities in bone cells, matrix and structure, osteonecrosis, osteomyelitis, tumor-like lesions, bone-forming tumors, cartilage-forming tumors. Joints: osteoarthritis, rheumatoid arthritis, gouty arthritis, infectious arthritis.
13. Pathology of white cells and lymph nodes. Lymphadenitis, reactive proliferations, non-Hodgkin lymphomas, Hodgkin lymphoma, multiple myeloma/plasma cell myeloma, Waldenström macroglobulinemia, Langerhans cell histiocytosis.

14. Pathology of the endocrine system. Thyroid: thyroiditis, goiters, tumors. Adrenal glands: pathology of the cortex and of the medulla, tumors. Pathology of the central nervous system. Congenital anomalies, meningitis and encephalitis, primary tumors, brain metastases.

Practical activities:

Sem I

1. Fluid and hemodynamic disorders. Macroscopy: Active hyperemia. Acute congestion. Chronic congestion. Hemorrhage (external, internal, externalized). Effects of ischemia. Recent thrombosis. Old thrombosis. Embolism (forms of embolism, types of emboli). The recent infarct. The old infarct. The white infarct. The red infarct. Disseminated intravascular coagulation. The shock. Edema (forms of edema, acute pulmonary edema. Disorders of lymphatic fluid.

2. Fluid and hemodynamic disorders. Microscopy: Active hyperemia. Acute congestion. Chronic congestion. Hemorrhage (external, internal, externalized). Effects of ischemia. Recent thrombosis. Old thrombosis. Embolism (forms of embolism, types of emboli). The recent infarct. The old infarct. The white infarct. The red infarct. Disseminated intravascular coagulation. The shock. Edema (forms of edema, acute pulmonary edema. Disorders of lymphatic fluid.

3. Disorders of metabolism. Macroscopy: Hipertrophy. Hiperplasia. Atrophy. Metaplasia. Hydropic change. Steatosisa. Cell death: apoptosis, necrosis (types of necrosis).

4. Disorders of metabolism. Microscopy: Hipertrophy. Hiperplasia. Atrophy. Metaplasia. Hydropic change. Steatosisa. Cell death: apoptosis, necrosis (types of necrosis).

5. Disorders of metabolism. Macroscopy: Myxoid degeneration. Elastopatias. Slerosis/fibrosis. Amyiloidosis. Hyalinosis. Storage diseases. Hypomelanoses. Hypermelanoses. Iron metabolism. Wilson's disease. Jaundice. Dystrophic and metastatic calcification. Lithiasis. Disorders of keratin.

6. Disorders of metabolism. Microscopy: Myxoid degeneration. Elastopatias. Slerosis/fibrosis. Amyiloidosis. Hyalinosis. Storage diseases. Hypomelanoses. Hypermelanoses. Iron metabolism. Wilson's disease. Jaundice. Dystrophic and metastatic calcification. Lithiasis. Disorders of keratin.

7. Inflammation and healing. Macroscopy: Acute inflammation: serous, fibrinous, purulent, hemorrhagis, necrotizing.

8. Inflammation and healing. Microscopy: Acute inflammation: serous, fibrinous, purulent, hemorrhagis, necrotizing.

9. Inflammation and healing. Macroscopy: Bacterial chronic inflammmation (tuberculous granuloma, gummatous syphilis, rhinoscleroma, actinomycosis).

Fungal inflammation (candidiasis, aspergilloma). Parasite inflammation (toxoplasmosis). Viral inflammation. Healing: regeneration, repair.

10. Inflammation and healing. Microscopy: Bacterial chronic inflammation (tuberculous granuloma, gummatous syphilis, rhinoscleroma, actinomycosis). Fungal inflammation (candidiasis, aspergilloma). Parasite inflammation (toxoplasmosis). Viral inflammation. Healing: regeneration, repair.

11. Neoplasia. Macroscopy: General features of benign and malignant tumors. Benign epithelial tumors: papilloma, adenoma. Malignant epithelial tumors: squamous cell carcinoma, basal cell carcinoma, adenocarcinoma.

12. Neoplasia. Microscopy: General features of benign and malignant tumors. Benign epithelial tumors: papilloma, adenoma. Malignant epithelial tumors: squamous cell carcinoma, basal cell carcinoma, adenocarcinoma.

13. Neoplasia. Macroscopy, Microscopy: Keloid. Hypertrophic scar.

Fibromatoses. Nodular fasciitis. Lipoma. Dermatofibroma. Leiomyoma.

Rhabdomyoma. Hemangiomas. Lymphangioma. Schwannoma. Neurofibroma and neurofibromatosis. Malignant mesenchymal tumors: fibrosarcoma, liposarcoma, dermatofibrosarcoma protuberans, rhabdomyosarcoma, leiomyosarcoma, MPNST, synovial sarcoma. Melanocytic nevi. Melanoma.

14. Practical exam

Sem II

1. Pathology of respiratory system. Macroscopy: Upper airways: malformations, nasal papilloma, vocal nodule, laryngeal carcinoma. Lung: malformations, diffuse alveolar damage and acute distress syndrome, atelectasis, emphysema and hyperinflation, chronic bronchitis, bronchial asthma. Pulmonary infections: lobar pneumonia, bronchopneumonia, interstitial pneumonia. Fibrosing diseases of the lung. Pneumoconioses. Lung cancer. Pleural effusions. Pleural mesothelioma.

2. Pathology of respiratory system. Microscopy: Upper airways: malformations, nasal papilloma, vocal nodule, laryngeal carcinoma. Lung: malformations, diffuse alveolar damage and acute distress syndrome, atelectasis, emphysema and hyperinflation, chronic bronchitis, bronchial asthma. Pulmonary infections: lobar pneumonia, bronchopneumonia, interstitial pneumonia. Fibrosing diseases of the lung. Pneumoconioses. Lung cancer. Pleural effusions. Pleural mesothelioma.

3. Pathology of cardiovascular system. Macroscopy: Malformations. Rheumatic nodule. Rheumatic endocarditis. Infective endocarditis. Degenerative valvulopathies. Myocarditis. Ischemic heart disease. Cardiomyopathies. Tumors of the heart. Pericardial effusions. Vasculitides. Atherosclerosis. Aneurysms. Varices.

4. Pathology of cardiovascular system. Microscopy: Malformations. Rheumatic nodule. Rheumatic endocarditis. Infective endocarditis. Degenerative valvulopathies. Myocarditis. Ischemic heart disease. Cardiomyopathies.

Tumors of the heart. Pericardial effusions. Vasculitides. Atherosclerosis. Aneurysms. Varices.

5. Pathology of digestive tract. Macroscopy: Malformations of the esophagus. Esophageal varices. Esophagites. Barrett's esophagus. Esophageal carcinoma. Gastric malformations. Pyloric stenosis. Malformații gastrice. Stenoza pilorică. Gastritis: acute, chroic. Peptic ulcer. Gastric polyps. Gastric adenocarcinoma. GIST. Meckel diverticulum. Enterocolitis. Necrotizing enterocolitis. Pseudomembranous colitis. Celiac disease. Congenital megacolon. Inflammatory bowel disease (ulcerative colitis, Chron's disease). Polyps and polyposes of the intestines. Adenocarcinoma of the intestines. Neuroendocrine tumors of the gastrointestinal tract. Lymphomas of the gastrointestinal tract. Appendicitis.

6. Pathology of digestive tract. Microscopy: Malformations of the esophagus. Esophageal varices. Esophagites. Barrett's esophagus. Esophageal carcinoma. Gastric malformations. Pyloric stenosis. Malformații gastrice. Stenoza pilorică. Gastritis: acute, chroic. Peptic ulcer. Gastric polyps. Gastric adenocarcinoma. GIST. Meckel diverticulum. Enterocolitis. Necrotizing enterocolitis. Pseudomembranous colitis. Celiac disease. Congenital megacolon. Inflammatory bowel disease (ulcerative colitis, Chron's disease). Polyps and polyposes of the intestines. Adenocarcinoma of the intestines. Neuroendocrine tumors of the gastrointestinal tract. Lymphomas of the gastrointestinal tract. Appendicitis.

7. Hepatobiliary and pancreatic pathology. Macroscopy, Microscopy: Liver: malformations, vascular diseases. Hepatitis. Liver cirrhosis. Benign nodules and tumors. Malignant tumors (hepatocellular carcinoma, cholangiocarcinoma). Liver metastases. Gallbladder: malformations, cholecystitis, carcinoma. Pancreas: malformations, cystic fibrosis, pancreatitis (acute, chronic), adenocarcinoma, endocrine tumors, diabetes mellitus.

8. Pathology of urinary system. Macroscopy: Malformations. Cystic diseases of the kidney. Glomerulonephritis. Tubulopathies. Pyelonephritis. Nephrosclerosis. Hydronephrosis. Renal carcinoma. Wilms tumor. Cystitis. Urothelial tumors of the urinary bladder. Pathology of male genital system. Macroscopy: Malformations of the penis. Squamous cell carcinoma of the penis. Cryptorchidism. Testicular teratomas. Seminoma. Benign hyperplasia of the prostate. Adenocarcinoma of the prostate.

9. Pathology of urinary system. Microscopy: Malformations. Cystic diseases of the kidney. Glomerulonephritis. Tubulopathies. Pyelonephritis. Nephrosclerosis. Hydronephrosis. Renal carcinoma. Wilms tumor. Cystitis. Urothelial tumors of the urinary bladder. Pathology of male genital system. Microscopy: Malformations of the penis. Squamous cell carcinoma of the penis. Cryptorchidism. Testicular teratomas. Seminoma. Benign hyperplasia of the prostate. Adenocarcinoma of the prostate.

10. Pathology of female genital system. Macroscopy: Cervical polyp. Carcinoma of the cervix: squamous cell carcinoma, adenocarcinoma. Endometrium: endometrial hyperplasia, endometrial polyp, endometrioid adenocarcinoma. Adenomyosis and endometriosis. Uterine leiomyoma. Ovarian tumors: tumors of the surface epithelium, granulosa tumor, teratomas. Gestational trophoblastic disease (hirsutiform mole, choriocarcinoma). Mammary gland: malformations, mastitis, fibrocystic transformation, ductal hyperplasia, ductal papillomas. Benign tumors: fibroadenoma. Breast carcinoma. Phyllodes tumor.

11. Pathology of female genital system. Microscopy: Cervical polyp. Carcinoma of the cervix: squamous cell carcinoma, adenocarcinoma. Endometrium: endometrial hyperplasia, endometrial polyp, endometrioid adenocarcinoma. Adenomyosis and endometriosis. Uterine leiomyoma. Ovarian tumors: tumors of the surface epithelium, granulosa tumor, teratomas. Gestational trophoblastic disease (hirsutiform mole, choriocarcinoma). Mammary gland: malformations, mastitis, fibrocystic transformation, ductal hyperplasia, ductal papillomas. Benign tumors: fibroadenoma. Breast carcinoma. Phyllodes tumor.

12. Bone and joints pathology. Macroscopy: Osteonecrosis. Acute osteomyelitis. Chronic osteomyelitis (non-specific, tuberculous). Fibrous dysplasia of bone. Benign tumors: osteoma, osteoid osteoma, osteoblastoma, chondroma. Giant cell tumor of bone. Malignant tumors: osteosarcoma, chondrosarcoma, Ewing's sarcoma. Infectious arthritis. Rheumatoid arthritis. Osteoarthritis. Gout. Pathology of white cells and of lymph nodes. Macroscopy: Acute lymphadenitis. Reactive changes of lymph nodes (follicular hyperplasia, sinus histiocytosis). Non-Hodgkin lymphoma. Multiple myeloma, plasmacytoma. Hodgkin's lymphoma. Langerhans cell histiocytosis. Pathology of endocrine system. Macroscopy: Thyroid: Hashimoto's thyroiditis, goiters (diffuse, nodular, Graves-Basedow disease), tumors (adenoma, papillary carcinoma, follicular carcinoma, medullary carcinoma). Adrenal gland: adrenal cortex (hyperplasia/adenoma, carcinoma), adrenal medullary (phaeochromocytoma, neuroblastoma). Pathology of central nervous system. Macroscopy: Malformations. Meningitis. Brain abscess. Primary tumors: astrocytomas, glioblastoma, oligodendroglioma, medulloblastoma, meningioma. Brain metastases.

12. Bone and joints pathology. Microscopy: Osteonecrosis. Acute osteomyelitis. Chronic osteomyelitis (non-specific, tuberculous). Fibrous dysplasia of bone. Benign tumors: osteoma, osteoid osteoma, osteoblastoma, chondroma. Giant cell tumor of bone. Malignant tumors: osteosarcoma, chondrosarcoma, Ewing's sarcoma. Infectious arthritis. Rheumatoid arthritis. Osteoarthritis. Gout. Pathology of white cells and of lymph nodes. Microscopy: Acute lymphadenitis. Reactive changes of lymph nodes (follicular hyperplasia, sinus histiocytosis). Non-Hodgkin lymphoma. Multiple myeloma, plasmacytoma. Hodgkin's lymphoma.

Langerhans cell histiocytosis. Pathology of endocrine system. Microscopy: Thyroid: Hashimoto's thyroiditis, goiters (diffuse, nodular, Graves-Basedow disease), tumors (adenoma, papillary carcinoma, follicular carcinoma, medullary carcinoma). Adrenal gland: adrenal cortex (hyperplasia/adenoma, carcinoma), adrenal medullary (phaeochromocytoma, neuroblastoma). Pathology of central nervous system. Microscopy: Malformations. Meningitis. Brain abscess. Primary tumors: astrocytomas, glioblastoma, oligodendroglioma, medulloblastoma, meningioma. Brain metastases.

14. Practical exam

References:

1. The handout of the course
2. The handout of the practical activities
3. Kumar V, Fausto N, Abbas A, Robbins & Cotran *Pathologic Basis of Disease*, 9th ed, 2014
4. David S, Rubin E, *Rubin's pathology: clinicopathologic foundations of medicine*, 7th ed, 2015
5. <http://library.med.utah.edu/WebPath/webpath.html>
6. <http://alf3.urz.unibas.ch/pathopic/intro.htm>
7. <http://www.pathologyoutlines.com/>
8. www.medscape.org/
9. <https://www.cap.org/>
10. Erickson A & Parker J (eds). *Essential MedNotes 2023*. 39nd ed. Toronto Notes for Medical Students, Inc, Toronto, 2023.

Evaluation - standardized exam:

- Written theory exam 70%
- Practical exam 20%
- Verification throughout the semester 10%

PHARMACOLOGY

Field of study:	Health
Study program:	Medicine
Course title:	Pharmacology
Course coordinator:	Assoc. Prof. Ioana Corina Bocsan, MD, PhD
Department:	Morpho-functional Sciences
Discipline:	Pharmacology, Toxicology and Clinical Pharmacology
Course code:	MED31205EN

Sem.	Course type	Lectures			Practical activities			Individual study	TOTAL	Credits	Evaluation
		Hours / week.			hours / sem.						
		L	PA	CI	L	PA	CI				
I	Compulsory	2	1	-	28	14	-	58	100	4	Written + practical exam
II		1	1	-	14	14	-	72	100	4	Written + practical exam

L=lecture; PA=practical activities; CI=clinical internship

Pre-requisites: Physiology (for Pharmacology sem 1) Microbiology (for Pharmacology sem 2)

General objectives:

At the end of the course, students achieve an informational core on: drugs related principles, national and international regulations about drugs, general pharmacokinetics, pharmacodynamics, pharmaco-economics and pharmacoepidemiology; drugs that regulate the basic functions of the body; chemotherapy

Specific objectives:

At the end of the course students will be able to:

- Know the importance of establishing major drug efficacy criteria and benefit/risk ratios.
- Know the pharmacokinetic-pharmacodynamic model
- Establish the criteria for selecting drugs according to the therapeutic objective
- Know the principles of therapeutic strategy in the treatment with antibiotics, antivirals and other specific drugs

Course content:**1st Semester**

1. General pharmacology. General pharmacokinetic
2. General pharmacology. General pharmacokinetic
3. General pharmacology. General pharmacokinetic
4. General pharmacodynamic.
5. General pharmacodynamic. Pharmacoepidemiology. Pharmacovigilance
6. Cholinergic nervous system. Cholinergic agonists
7. Cholinergic nervous system. Cholinergic antagonists.
8. Adrenergic nervous system. Adrenergic agonists
9. Adrenergic nervous system. Adrenergic antagonists
10. Serotonin. Antiserotoninic agents. Histamine. Antihistamines
11. Steroid hormones. Estrogens and antiestrogens. Progestatives and antiprogestatives. Androgenic hormones and antiandrogens
12. Steroid hormones. Corticosteroids
13. Hypothalamic and pituitary hormones. Thyroid hormones
14. Diabets mellitus treatment. Insulin. Oral antidiabetic drugs

2nd Semester

1. Chemotherapeutic agents used in infectious diseases. Betalactams. Fosfomycin. Glycopeptides and glycopospholipides
2. Aminoglycosides and aminocyclitols. Macrolides, linsosamides, streptogramins (MLS_B).
3. Chloramphenicol. Tetracyclines. Ansamicines. Polypeptidic antibiotics. Quinolones
4. Antituberculostatic agents. Antileprae. Antifungal agents. Antiprotozoa agents. Antivirals.
5. Analgesic medication. Nonsteroidal antiinflammatory drugs (NSAIDs).
6. Opioids
7. Local anesthetics. General anesthetics.

Practical activities:**1st Semester**

1. General information about drugs. Source of information about drugs. Drugs ATC classification. Original and generic drugs
2. Dosage forms. Classification of dosage forma.
3. Pharmacokinetic. Pharmacokinetic parameters and their role. Mathematic formula to calculate pharmacokinetic parameters. Practical applications for the calculation of the main pharmacokinetic parameters.
4. Doses and posology
5. Medical prescription. Prescribing exercises. Anamnesis of medication
6. Medical prescription. Prescribing exercises. Anamnesis of medication

7. Patients information about treatment. Treatment compliance (information and compliance exercises using insulin and glucocorticoid administration scenarios).

2nd Semester

1. Farmacovigilance
2. Antiinfectious therapy (1)
3. Antiinfectious therapy (2)
4. Antiinfectious therapy (3)
5. Pain treatment. Nonsteroidal antiinflammatory drugs. Opioids. Local and general anesthetics. (1)
6. Pain treatment. Nonsteroidal antiinflammatory drugs. Opioids. Local and general anesthetics. (2)
7. Pain treatment. Nonsteroidal antiinflammatory drugs. Opioids. Local and general anesthetics. (3)

References:

1. Anca Dana Buzoianu – Farmacologie, vol I, Ed. Medicală Universitară „Iuliu Hațieganu” Cluj-Napoca, 2017
2. Buzoianu Anca Dana – Farmacologie, vol II, Ed. Medicală Universitară „Iuliu Hațieganu” Cluj-Napoca, 2006
3. Karen Whalen PharmD – Lippincott Illustrated Reviews: Pharmacology- Seventh, North American Edition, 2018
4. Katzung BG. – Basic and Clinical Pharmacology (14th ed) Mc Graw Hill 2017
5. Rang HP, Dale MM et al. Pharmacology 8th ed., Elsevier Churchill Livingstone, 2015
6. Goodman and Gilman’s Manual of Pharmacology and Therapeutics, 13 th ed, Mc Graw Hill Publishing, 2017
7. Feather A, Randall D, Waterhouse M – Kumar și Clark Medicină clinică. Azamfirei L, Buzoianu AD, Gheonea ID- coordonatorii ediției în limba română, Ed. A 10-a, Ed.Hipocrate, București 2021
8. Erickson A & Parker J (eds). Essential MedNotes 2023. 39nd ed. Toronto Notes for Medical Students, Inc, Toronto, 2023.
9. VI Șandor. Farmacografie. Reglementări, noțiuni practice. Editura UMF Cluj Napoca, 2014
10. <https://www.anm.ro> Nomenclatorul Medicamentelor
11. Memomed 2020/ Agenda Medicală 2020

Evaluation - standardized exam:

- Written exam 70%
- Practical exam 30%

HYGIENE

Field of study: Health
Study program: Medicine
Course title: Hygiene
Course coordinator: Professor Monica Popa, MD, PhD
Department: Community Medicine
Discipline: Hygiene
Course code: MED31206EN

Semester	Course Type	Lectures			Practical activities			Individual study	TOTAL	Credit	Evaluation
		hours/week			hours/sem.						
		L	PA	CI	C	PA	CI				
I	Compulsory	1	1	-	14	14	-	22	50	2	Verification
II		2	2	-	28	28	-	69	125	5	Written + practical exam

L = lectures; PA = practical activities; CI = clinical internship

Pre-requisites: -

General objectives:

At the end of the courses the students will be capable to design, use and justify in a correct manner measures for health promotion and disease prevention at individual and community level

Specific objectives:

At the end of the courses the students will be capable to:

- To explain the complex relationship between environmental pollution and population health
- To identify correctly health dangers from the environment and medical institutions and to categorise them (physical, chemical, biological, irradiation dangers)
- To use the principles of food and nutrition hygiene (diet, food products, relationship with health)
- To propose and justify recommendations for prevention and control at individual and population level in order to minimise the risk on human health

Course content:

1st semester

1. The objective and role of Food Hygiene – component of preventive medicine. Daily energy expenditure in different population groups.

2. Macronutrients in human nutrition: roles, food sources, recommended daily intake, health effects of unbalanced intake
3. Micronutrients in human nutrition: roles, food sources, recommended daily intake, health effects of unbalanced intake
4. Animal foods: nutritional value, advantages and disadvantages, risks for human health
5. Nutritional value of vegetal foods, sugars, fats, oils and beverages (alcoholic and non-alcoholic); advantages and disadvantages, risks for human health
6. Risks of food contamination and food-borne diseases. Principles and methods of food preservation in relation to human health.
7. Evaluation of the nutritional status. Malnutrition – health effects and vulnerable subgroups. Diet peculiarities (vegetarianism, veganism, macrobiotism, crudivorism- raw veganism) and the associated risks upon human health.

2nd semestre

1. The role of environmental hygiene – component of preventive medicine. Prophylaxis and its levels. The nature of environmental hazards affecting the human health.
2. Chemical hazards – the air pollution: sources of pollution, nature of pollutants, autopurification.
3. The risk evaluation: notions, steps. The direct effects of air pollution upon health: population groups at risk, the dynamic of pollutants at respiratory level.
4. The direct / indirect effects of air pollution upon health. Preventive measures.
5. Indoor pollution: exposure and health effects, prevention and control.
6. The water needs for individuals and communities: ensuring modalities, sources. Modalities of water pollution and autopurification.
7. The chemical hazards due to water consumption – elements of non-infectious water-related pathology: fluorine and iodine, water intoxication with nitrates, heavy metals.
8. Biological hazards due to water consumption - elements of infectious water-related pathology (I)
9. Biological hazards due to water consumption - elements of infectious water-related pathology (II)
10. Physical hazards – non-ionizing radiations (ultraviolets, light, infrared)
11. Physical hazards – ionizing radiations
12. Growth and physical development in children and youngsters: general characteristics, the laws of growth, influencing factors. The organization of scholastic and out-of-school activities.
13. Preventive measures against health risk behaviours in children, adolescents and young.

14. Personalized counseling of for children, adolescents and youngsters aiming the prevention of health risk behaviours

Practical activities:

1st semester

1. Hygienic requirements in food facilities. Identification of critical control points.
2. Estimation of individual energy expenditure and interpretation of nutritional risk. Case-study
3. Milk and dairy products in human nourishment: nutritional and hygienic aspects, health risks, case reports.
4. Meat, fish and eggs in human nourishment: nutritional and hygienic aspects, health risks, case reports.
5. Grains, fats and oils, canned foods in human nourishment: nutritional and hygienic aspects, health risks, case reports.
6. Evaluation methods of food consumption in medical practice
7. Notions of practical nutrition in different population groups

2nd semestre

1. Hazard analysis critical control points (HACCP) in healthcare facilities. The waters utilized in healthcare facilities.
2. Surveillance and control of bacterial contamination of air and surfaces in healthcare facilities.
3. Antiseptics and disinfectants used in health care facilities.
4. The wastes from medical activities
5. Hygiene of the medical staff (I)
6. Hygiene of the medical staff (II)
7. Hygiene of the medical staff (III)
8. Indoor pollution: Sick Building Syndrome
9. Fundamental conditions of the indoor habitat
10. Exposure history
11. Chemical indicators of water potability and associated health risks.
12. Assessment of growth and development in children and adolescents. Interpretation of physical development data.
13. Prevention of health risk behaviors in youngsters
14. Health education in school facilities

References:

Mandatory bibliography

1. Popa Monica «Food Hygiene - Textbook for Medical Students», Editura Medicală Universitară „Iuliu Hațieganu” Cluj-Napoca, 2016, ISBN 978-973-693-672-2

2. Popa Monica «Environmental Hygiene - Textbook for Medical Students», Editura Medicală Universitară „Iuliu Hațieganu” Cluj-Napoca, 2016, ISBN 978-973-693-671-5

3. Lecture scripts (electronic format)

Optional bibliography:

1. Deshpande S.S. - „Handbook of Food Toxicology” – Marcel Dekker, Inc, USA, 2012.
2. Bender, D.A. - „Introduction to Nutrition and Metabolism” 4th ed.,CRC Press, 2008
3. M.E. Conti - “Biological Monitoring – Theory and Applications”, WIT Press, 2008
4. W.Ott, A.Steinemann, L. Wallace - „ Exposure analysis”, CRC Press, 2006
5. Yassi A., Kjellstrom T., de Kok T., Guidotti T.L. - "Basic Environmental Health", Oxford Univ. Press, 2001.

Evaluation:

- | | |
|------------------|------|
| ▪ Written exam | 60 % |
| ▪ Practical exam | 40 % |

BASIC PRACTICAL SKILLS. INTERPROFESSIONAL EDUCATION

Field of study:	Health
Study program:	Medicine
Course title:	Basic practical skills
Course coordinator:	Prof. Gherman Claudia, MD, PhD
Department:	Surgery
Discipline:	Practical Skills
Course code:	MED3107EN

Semester	Course type	Lectures	Practical activities			Lectures	Practical activities			Individual study	TOTAL	Credits	Evaluation
		hours/week			hours/sem.								
		L	PA	CI	L	PA	CI						
I	Compulsory	0,5	1,5	-	7	21	-		22	50	2	Verification	

L=lectures; PA=practical activities; CI=clinical internships

Pre-requisite: Medical first aid

General objectives:

Learning and practicing the basic clinical maneuvers of the medical profession.

Specific objectives:

- Learning and practicing the essential maneuvers to practice the medical profession (emergency medicine, surgery and ATI) on mannequins and simulators.
- Learning by practicing the basic principles of prevention of nosocomial diseases.
- Learning the basic principles and providing first aid in the most important medical-surgical emergencies, in simulated situations.

Course contents / Practical activities:

EMERGENCY MEDICINE

1. Air path suction by devices and non-devices
2. Giving oxygen: simple mask, nose cannula, mask with reservoir, Venturi
3. BLS: ventilation – mouth to mouth (with the savor handkerchief), mouth to mask, with balloon and mask. BLS: CT (adult, pregnant woman); Defibrillation (paddles/patch)
4. Intraosseous access
5. Immobilizing the fractures
6. The control of the external hemorrhages

SURGERY I

1. Introducing the sterilization, control, keeping the sterility

2. Standard and additional precautions against the infections
3. Bandages
4. Introducing the nose-gastric tube

SURGERY II

1. Incision and draining the superficial injuries
2. Preventive and curative drainage
3. Surgical suture
4. The technique of a simple bandage
5. Caring for wound and stomas

SURGERY III

1. Subcutaneous, intradermal, intramuscular, intravenous injections
2. Rectal touch
3. Assembling urinary probe

ATI

1. Venous puncture
2. Assembling an i.v. perfusion
3. Arterial puncture
4. Administering oxygen
5. Monitoring EKG, SpO₂, TA, AV, temperature

References:

1. Gherman Claudia, Ghid de manopere medico-chirurgicale, Editura Casa Cărții de Știință, Cluj-Napoca, 2017
2. Gherman Claudia, Ghid de tehnici medico-chirurgicale, Editura Casa Cărții de Știință, Cluj-Napoca, 2017
3. Katrina F. Hurley, OSCE and Clinical Skills Handbook, Elsevier Science Health Science Division, 2005
4. OSCEs for Medical Students. Adam Feather, John Stuart Penton Lumley, Ramanathan Visvanathan, PasTest Ltd, 2004
5. OSCE Stations for Medical Finals. Adam Feather, Ashling Lillis, Tony Joy, John S P. Lumle, Pastest, 2012
6. OSCE Cases with Mark Schemes. Tamara North, Dr., Jeremy F. Lynch, Aneasha Verma, Anshan Publishers, 2012
7. Surgery, OSCE and Data Interpretation. Nadeem Nadeem, Holly Holly, Nadeem Hasan, Holly Sitsapesan Taylor & Francis Group, 29 mar. 2013
8. Boet S, Granry JC, Savoldelli G. La simulation en santé - De la théorie à la pratique. Ed. Springer-Verlag Paris, 2013
9. Levine A.I, DeMaria S Jr., Schwartz A.D., Sim A.J. The Comprehensive Textbook of Healthcare Simulation, Ed. Springer-Verlag New York, 2013

Evaluation:

- Exam 80%
- Verification throughout the semester 20%

IMMUNOLOGY

Field of study:	Health
Study program:	Medicine
Course title:	Immunology
Course coordinator:	Associate Prof. Ioana Adriana Muntean, MD, PhD
Department:	Morpho-Functional Sciences
Discipline:	Immunology and Allergology
Course code:	MED3209EN

Semester	Course Type	Lectures			Practical activities			Individual study	TOTAL	Credit	Evaluation
		hours/week			hours/sem.						
		L	PA	CI	L	PA	CI				
II	Compulsory	1	1	-	14	14	-	22	50	2	Verification

L = lectures; PA = practical activities; CI = clinical internship

Pre-requisites: Biochemistry, Cellular and molecular biology, Physiology

General objectives:

At the end of the course students will be able to achieve the correct approach, diagnostic and therapeutic, of the patient with immunological pathology.

Specific objectives:

At the end of the course the student will be able to:

- to perform the anamnesis and the correct and complete objective examination of the patients with immune pathology;
- to formulate in the first stage the clinical diagnosis (clinical interpretation) or the most probable clinical diagnoses;
- to formulate an adequate exploration plan for the confirmation / refutation of each diagnosis that he suspected;
- to interpret the results of the investigative explorations
- to integrate the clinical data with those of the complementary explorations for the formulation of the positive diagnosis (positive diagnoses);
- to formulate the eventual differential diagnoses and to exclude / confirm, with the help of the clinical / laboratory elements these diagnoses;
- to specify the evolutionary possibilities and the prognosis of the digestive disease, spontaneously and under treatment;

- to formulate a therapeutic plan, specifying the principles and means of treatment, in accordance with current guidelines and adapted to the patient's particularities;
- to specify the criteria for monitoring the effectiveness of the treatment, as well as the possible causes of failure and / or adverse drug effects;
- to correctly assess the conditions that reflect the patient's work capacity and, insofar as this is necessary, to formulate a recovery plan;
- to establish, for chronic diseases, a dispensary plan.
- to evaluate different principles of prophylaxis (isolation, avoidance, vaccination, prophylactic therapy, etc.)

Course content:

1. Organs and cells involved in the immune response. Defence mechanisms – nonspecific and specific
2. Antigens, antibodies. Monoclonal antibodies The Complement system
3. Cytokines, cell adhesion molecules, chemokines, receptors, apoptosis
4. Hitocompatibility antigens. Tumors. Tumor markers. Transplant.
5. Primary and secondary immunodeficiencies, diagnosis, investigations, therapies, examples.
6. Hypersensitivity reactions. Autoimmunity – mechanisms, examples. Immunosuppressive treatment.
7. Immunomodulation – principles of immune system modulation: immunostimulation, immunosuppression. Immunomodulatory treatments.

Practical activities:

1. Allergens, Immunoglobulins, specific and nonspecific immune response (demonstrations)
2. Clinical evaluation (lymph nodes and spleen), hematological investigations, immunograms, for inflammatory process
3. Immunological exploration (laboratory immunological techniques, allergological skin tests). Visit to the clinical laboratory.
4. Presentations of clinical cases of autoimmune diseases
5. Presentations of clinical cases of immunodeficiencies.
6. Tumor case presentations, transplant
7. Visit to the clinical department, anamnesis, objective examination, paraclinical explorations in diseases with an immunological component

References:

1. D. Deleanu, C. Burz, C. Dobrican, A. Muntean, N. Onitiu, Il. Pinte. Invata Imunologia prin teste. Ed. Medicală Universitară „Iuliu Hațieganu”, Cluj-Napoca, 2021.
2. Deleanu D (coordonator) ABC în imunologie. Curs pentru studentii Facultatii de Medicină. Editura Medicală Universitară "Iuliu Hațieganu", 2021

Supplementary references:

1. Murphy K, Weaver C. Janeway's Immunobiology, 9th, Kenneth Murphy, 2018

Evaluation:

- Written exam 70%
- Practical exam 30%

ROMANIAN LANGUAGE

Study field: Health
Study program: Medicine
Course title: Romanian language
Course coordinator: Lecturer Nora Neamț
 Assist. prof. Anca Hassoun
 Associated assist. prof. Larisa Prodan
 Associated assist. prof. Cosmin Divile
Department: Medical Education
Discipline: Modern Languages

sem.	Course type	Lectures	Practical activities			Lectures	Practical activities			Individual study	TOTAL	Credit	Evaluation	
		hours/week			hours / semester									
		L	PA	CI	C	PA	CI							
I	Compulsory	-	3	-	-	42	-	8	50	-	Colloquium			
II		-	3	-	-	42	-	8	50					

L=lectures; PA=practical activities; CI=clinical internship

Pre-requisites: -

General objectives:

Development of competences in general and medical Romanian

Specific objectives:

At the end of the seminar, the students will be able to:

- acquire information efficiently, using written and audio materials specific to the B1 level
- write various types of texts: emails, formal requests, CVs, letters of intention, according to their language level
- produce an oral discourse (monologue or dialogue) in both formal and informal contexts, specific to the B1 level

Practical activity:

1. Conditions, wounds, type of pain. Pronouns in the accusative and in the dative case. Verbs with reflexive pronouns in the dative case.
2. Conditions, wounds, type of pain. Doctor-patient dialogues.
3. The e-mail. The doctor-patient written communication.
4. At the hospital, spaces and people. Prepositions in the genitive case. The imperfect tense of the verb.
5. At the hospital. Monologue - description and comparison.

6. At the hospital. The application.
7. History taking. The interrogative and the relative pronouns.
8. History tanking. The medical interview. Notes on the anamnesis.
9. Clinical examination. The imperative verb.
10. Clinical examination. The explanatory monologue. Clinical observation sheet.
11. Paraclinical investigations and diagnosis. Derived adjectives.
12. Paraclinical investigations and diagnosis. Prepositions. Explanations and hypotheses.
13. Paraclinical investigations and diagnosis. Ultrasound bulletin.
14. 1st semester assessment
15. Internal Medicine: Cardiology. Genitive article and possessive pronoun. Obligation and prohibition.
16. Internal Medicine: Pulmonology. The medical letter.
17. Internal Medicine: Gastroenterology. Demonstrations. Association and opposition.
18. Internal Medicine: Nephrology. Doctor-doctor dialogue. The advice. The debate. Informal letter with medical advice. The medical report.
19. Internal Medicine: Rheumatology. The Supine. Conditional verbs.
20. Internal Medicine: Orthopedics. Teacher-student dialogue. Argumentation.
21. Ophthalmology. Gerund verbs. Adverbial phrases.
22. ENT. Case presentation. Permission. The medical blog.
23. Dermatology. The negative pronoun. Temporal relationships.
24. Allergology. Reparatory acts. Case report.
25. Neurology. The Passive voice.
26. Psychiatry. Information about a mental act/ability. Synthetic medical record.
27. The Romanian patient: intercultural aspects. Doctor-patient interaction at UPU. Monologue: combating labels and clichés. Writing on some pictures.
28. Summative assessment.

References:

1. Anca Ursa, Nora Mărcean, *Limba română medicală. Româna pentru obiective specifice*, Cluj-Napoca, Editura Limes & Risoprint, 2018.
2. Byram, M., Barrett M., Lázár I., Mompoint-Gaillard P., Philippou S., *Developing intercultural competence through education*, Council of Europe Pestalozzi Series, No. 3, Council of Europe Publishing, 2014. URL: <http://www.coe.int/t/dg4/education/pestalozzi/Source/Documentation/Pestalozzi3.pdf>
3. Biriş, G., *Limba medicală. Anatomie. Curs pentru studenții străini din anul pregătitor*. București, Editura Universității din București, 2015.
4. Castelotti, V., Moore, D., *Representations sociales des langues et enseignements, Guide linguistique pour l'élaborations des politiques*

linguistiques éducatives en Europe - De la diversité linguistique à l'éducation plurilingue. Etude de référence, Conseil de l'Europe, Strasbourg, 2002.

5. *Common European Framework of Reference for Languages*, 2003. URL: http://www.coe.int/t/dg4/linguistic/source/framework_en.pdf.
6. Common european framework of reference for languages: Learning, teaching, assessment. Companion Volume with new descriptors. Provisional edition, September 2017, URL: <https://rm.coe.int/common-european-framework-of-reference-for-languages-learning-teaching/168074a4e2>
7. *Caiet de abilități practice pentru studenții Facultății de Medicină UMF „Iuliu Hațieganu” Cluj-Napoca*. Coordonator Valentin Muntean. Cluj-Napoca, Editura Medicală Universitară „Iuliu Hațieganu”, 2012.
8. *Gramatica de bază a limbii române* (GBLR), Academia Română - Institutul de lingvistică Iorgu Iordan. București, Editura Univers Enciclopedic, 2008.
9. Kurtz S.M., Silverman J.D., Benson J. and Draper J., *Marrying Content and Process in Clinical Method Teaching*, in [Academic Medicine](#) 78(8):802-9, September 2003.
10. *Larousse Dicționar de Medicină*. București, Editura Univers Enciclopedic, 1998.
11. McCarter, S., *Oxford English for Careers. Medicine*, 1 and 2. Oxford University Press, 2009, 2010.
12. Mandelbrojt-Sweeney, M., *Limba română pentru medici și asistente*. Iași, Ed. Polirom, 2006.
13. Pavel, E., *English for Medical Students*. Cluj-Napoca, Casa Cărții de știință, 2016.
14. Platon, E.; Sonea, I.; Vasiliu, L.; Vîlcu, D. Descrierea minimală a limbii române. A1, A2, B1, B2, Cluj-Napoca, Editura Casa Cărții de Știință, 2014. (<http://video.elearning.ubbcluj.ro/wp-content/uploads/2016/09/Descrierea-minimala-a-limbii-romane-12-IULIE-2016.pdf>).

Evaluation:

- Evaluation of oral and written communication skills 50 %
- Ongoing assessment 50 %

4th YEAR

INTERNAL MEDICINE I. GASTROENTEROLOGY – 9 CREDITS

Field of study:	Health
Study program:	Medicine
Course title:	Internal Medicine
Course coordinator:	Assoc. Prof. Bogdan Procopet, MD, PhD Prof. Zeno Sparchez, MD, PhD
Department:	Internal Medicine
Discipline:	Medical Clinic III
Course code:	MED4101EN

Semester	Courses type	Lectures			Practical activities			Individual study	TOTAL	Credit	Evaluation
		hours/week			hours/semester						
		L	PA	CI	L	PA	CI				
I	Compulsory	6	-	15	49	-	105	71	225	9	Written+ practical exam

L = lectures; PA = practical activities; CI= clinical internship

Pre-requisites: Biochemistry, Physiology, Pathophysiology, Pathological anatomy, Semiology

General objectives:

At the end of the course students will be able to provide the correct diagnostic and therapeutic approach for the digestive pathology patient

Specific objectives:

At the end of the course the student will be able to:

- perform a correct and complete history and objective examination of patients with digestive pathology
- formulate in the first stage the clinical diagnosis (clinical interpretation) or the most probable clinical diagnoses
- to formulate an appropriate exploration plan for the confirmation/negation of each suspected diagnosis
- to integrate clinical data with complementary investigations in order to formulate the positive diagnosis(es)
- to formulate possible differential diagnoses and exclude/confirm these diagnoses with the help of clinical/laboratory elements
- to specify the evolutionary possibilities and prognosis of the digestive disease, spontaneously and under treatment

- to formulate a therapeutic plan, specifying the principles and means of treatment, in accordance with current guidelines and adapted to the patient's specificities
- to specify the criteria for monitoring the effectiveness of the treatment, as well as possible causes of failure and/or adverse drug effects
- to correctly assess the conditions reflecting the patient's working capacity and, if necessary, to formulate a recovery plan
- establish, for chronic digestive conditions, a simple plan for dispensation

Course content:

1. Dyspeptic syndromes.
2. Functional dyspepsia.
3. Esophageal motor disorders
4. Gastroesophageal reflux disease.
5. Esophageal cancer
6. Gastritis.Gastric and duodenal ulcers
7. Nonvariceal upper gastrointestinal haemorrhage
8. Gastric cancer.
9. Stomach surgery symptoms
10. Diarrheal syndrome.
11. Malabsorption syndrome.
12. Gluten enteropathy.
13. Disaccharidase deficiency.
14. Whipple's disease
15. Irritable bowel.
16. Constipation.
17. Diverticulosis of the colon
18. Inflammatory bowel diseases
19. Intestinal polyps.
20. Rectosigmoid syndrome.
21. Colorectal cancer
22. Icteric syndrome.
23. Chronic hepatitis
24. Autoimmune hepatitis.
25. Wilson's disease.
26. Haemochromatosis
27. Primary biliary cholangitis
28. Toxic and drug-induced hepatitis
29. Liver and alcohol
30. Non-alcoholic fat liver
31. Portal hypertension.

32. Variceal upper gastrointestinal bleeding.
33. Liver cirrhosis and its complications
34. Hepatocellular carcinoma
35. Bile duct pathology.
36. Sclerosing cholangitis
37. Chronic pancreatitis.
38. Pancreatic cancer

Practical activities:

1. During the clinical internships, students will approach (perform anamnesis, eg objective and data synthesis) and discuss under the guidance of group assistants the following types of clinical cases, having the obligation to record the observations in their internship books:

- Pathology of the esophagus
- Acute or chronic gastritis
- Gastric or duodenal ulcer
- Malabsorption syndromes. Enteropathy.
- Inflammatory bowel disease. Hemorrhagic rectocolitis. Crohn's disease
- Functional gastrointestinal pathology (functional dyspepsia, constipation, irritable bowel syndrome).
- Gastric tumors. Benign and malignant tumors of the colon
- Syndromes of hepatobiliary pathology: jaundice, cholestasis, encephalopathy, ascites, variceal HDS
- Diseases of the biliary tree and / or the gallbladder
- Chronic hepatitis
- Liver cirrhosis
- Liver tumors
- Acute or chronic pancreatitis
- Pancreatic tumors

2. During the clinical internship, in addition to the activities carried out in the patient rooms and in the paraclinical examination cabinets, the students will participate in other activities such as:

- diagnostic / therapeutic news - one weekly meeting (Tuesdays)
- practical demonstrations of diagnostic exams - one weekly meeting (Wednesday)
- clinical observation of the week - presentation of a special clinical case, followed by discussion of the case - one weekly meeting (Thursday)
- news from the drug sphere - one weekly meeting (Friday)
- interactive group exercises to understand the clinical reasoning and therapeutic prescription exercises - one meeting per week (Friday)

3. During the clinical internship, in addition to the activities carried out in the patient rooms and in the paraclinical examination rooms, the students will participate on Friday in the exploration courses:

4. Possibilities of exploration of the esophagus
5. Diagnostic and therapeutic superior digestive endoscopy
6. Exploration of the small intestine. Videocapsula. Spiral enteroscopy
7. Diagnostic and therapeutic inferior digestive endoscopy
8. Diagnostic and interventional abdominal ultrasound
9. Diagnostic and therapeutic echoendoscopy
10. ERCP - diagnostic and therapeutic cholangiopancreatography.

References:

1. Tantau M, Sparchez Z, Seicean A. Gastroenterologie. Hepatologie. Manual pentru studenti. Ed. Medicală Universitară "Iuliu Hatieganu" Cluj-Napoca, 2017
2. Pascu O, Grigorescu M, Acalovschi M, Andreica V. Gastroenterologie. Hepatologie. Bazele practicii clinice. Ed. Medicală Universitară "Iuliu Hatieganu" Cluj-Napoca, 2012.
3. Erickson A & Parker J (eds). Essential MedNotes 2023. 39nd ed. Toronto Notes for Medical Students, Inc, Toronto, 2023

Evaluation:

- Written exam 50%
- Practical exam 50%

CLINICAL PHARMACOLOGY

Field of study:	Health
Study program:	Medicine
Course title:	Clinical Pharmacology
Course coordinator:	Assoc. Prof. Ioana Corina Bocşan, MD, PhD
Department:	Morpho-Functional Sciences
Discipline:	Pharmacology, Toxicology and Clinical Pharmacology
Course code:	MED4102EN

Semester	Courses type	Lectures			Practical activities			Individual study		TOTAL	Credits	Evaluation		
		hours/week			hours/sem.			L	PA				CI	SI
		L	PA	CI	L	PA	CI							
I	Compulsory	3	2	-	21	14	-	40	75	3	Written + practical exam			

L = lectures; PA = practical activities; CI = clinical internship

Pre-requisites: Pharmacology 3rd year, Physiology, Pathophysiology, Methodology of scientific research

General objectives:

At the end of the course, students achieve an informational core on drugs that are used to treat different diseases, so as to have competencies on the drugs learned for the correct therapeutic management of the patient.

Specific objectives:

At the end of the course students will be able to:

- list the classes of drugs used in digestive, metabolic and blood diseases; to know representatives of these classes
- to explain the mechanisms of action of drugs used in digestive, metabolic, hematological and renal diseases
- mention the side effects of the medication and manage the adverse reactions of drugs used in digestive, metabolic, renal or blood diseases
- to efficiently manage the patient, based on his/her characteristics
- to monitor drug therapy in digestive, metabolic and blood diseases
- to use methods to prevent prescription errors
- to explain the importance of gender, age and pharmacogenetic aspects in the variability of patients' individual response
- students will be familiar with the principles of treatment of acute intoxications

Course content:

1. Introduction in clinical pharmacology. Clinical trials
2. Drugs used in peptic ulcer. Antisecretory drugs. Protective agents. Antacids. Terapy of *Helicobacter pylori* infection.
3. Prokinetic agents. Antinausea and antivomitive agents. Antispasmodic drugs. Stimulants of gastric secretion. Pancreatic enzymes. Biliary acids.
4. Antidiarrheal and laxatives. Intestinal antiinflammatory drugs.
5. Drugs used in hepatic diseases. Antivirals used in chronic hepatitis
6. Diuretics
7. Drugs used in obesity treatment. Lipid lowering agents.
8. Drugs used in anemia treatment. Stimulants of hematopoetic functions
9. Anticoagulants
10. Antiplatelet and hemostatic agents. Fibrinolytic agents

Practical activities:

1. Stages of correct prescribing. Therapy of peptic ulcer
2. Therapy of peptic ulcer. Therapy of H. Pylori infection
3. Antinausea and antivomitive treatment in different clinical situation. Antidiarrheal treatment Therapy of chronic constipation
4. Therapy of inflammatory bowel diseases. Therapy of chronic hepatitis
5. Therapy of dyslipidemia. Therapy of obesity.
6. Diuretic medication. Therapy of coagulation disorders
7. Therapy of anemia

References:

1. Anca Dana Buzoianu – Farmacologie. Curs pentru studenții anului IV, Ed. Medicală Universitară „Iuliu Hațieganu” Cluj-Napoca, 2015
2. Karen Whalen PharmD – Lippincott Illustrated Reviews: Pharmacology- Seventh, North American Edition, 2018
3. Katzung BG. – Basic and Clinical Pharmacology (14th ed) Mc Graw Hill 2017
4. Rang HP, Dale MM et al. Pharmacology 8th ed., Elsevier Churchill Livingstone, 2015
5. Goodman and Gilman’s Manual of Pharmacology and Therapeutics, 13 th ed, Mc Graw Hill Publishing, 2017
6. Feather A, Randall D, Waterhouse M – Kumar și Clark Medicină clinică. Azamfirei L, Buzoianu AD, Gheonea ID- coordonatorii ediției în limba română, Ed. A 10-a, Ed. Hipocrate, București 2021
7. Erickson A & Parker J (eds). Essential MedNotes 2023. 39nd ed. Toronto Notes for Medical Students, Inc, Toronto, 2023
8. Dictionnaire VIDAL 2019- VIDAL France
9. <https://www.anm.ro> Nomenclatorul Medicamentelor
10. Memomed 2020/ Agenda Medicală 2020

Evaluation:

- Written exam 70%
- Practical exam 30%

NEPHROLOGY

Field of study: Health
Study program: Medicine
Course title: Nephrology
Course coordinator: Prof. Ina Maria Kacso, MD, PhD
 Assoc. Prof. Diana Tania Moldovan, MD, PhD
Department : Internal Medicine
Discipline : Nephrology
Course code : MED4103EN

Semester	Type of the course	Lectures			Practical activities			Individual study	TOTAL	Credit	Evaluation
		hours/week			hours/week						
		L	PA	CI	L	PA	CI				
I	Compulsory	3	-	3	21	-	21	33	75	3	Written + practical exam

L=lectures; PA=practical activities; CI=clinical internship

Pre-requisites: Physiology, Physiopatology

General objectives:

Diagnostic and therapeutic approach of renal pathologies.

Specific objectives:

At the end of the theoretical and practical study of nephrology, the student should be able to:

- Do anamnesis and clinical exam in patients with kidney diseases
- Formulate the clinical diagnosis
- Formulate a plan of lab and imagistic evaluation in order to confirm the clinical suspicions
- Integrate clinical, lab and imagistic exams to propose the final diagnosis
- Make a diferential diagnosis
- Formulate prognosis and posible evolution
- Prepare a therapeutical algorithm, according to the theoretical recommendatios and adapted to the patient's particularities
- Follow-up the patient regarding treatment efficacy and safety

Course content:

1. Glomerulopathies
 - Glomerular syndroms
 - Primary glomerulopathies

2. Secondary glomerulopathies
3. Acute kidney injury
4. Chronic kidney disease
5. Tubulointerstitial nephropathies, urinary tract infections
6. Vascular nephropathies, diabetic nephropathy, kidney and the pregnancy, genetic nephropathies
7. Fluid, electrolyte and acid-base disturbances

Practical activities content:

1. Glomerulopathies: the nephrotic syndrome
2. Glomerulopathies - nephritic syndrome
3. Acute kidney injury
4. Chronic kidney disease
5. Tubulointerstitial nephropathies, urinary tract infections
6. Vascular nephropathies, diabetic nephropathy, kidney and the pregnancy, genetic nephropathies
7. Fluid, electrolytes and acid-base balance

References:

1. Moldovan, Diana Tania Luminita, Nephrology: a student's guide; Editura Medicala Universitara "Iuliu Hatieganu", 2018, ISBN 978-973-693-845-0
2. Erickson A & Parker J (eds). Essential MedNotes 2023. 39nd ed. Toronto Notes for Medical Students, Inc, Toronto, 2023

Evaluation:

- Written exam 60 %
- Practical exam 40 %

HAEMATOLOGY

Field of study: Health
Study program: Medicine
Course title: Haematology
Course coordinator: Lecturer Tunde Torok, MD, PhD
 Lecturer Ciprian Tomuleasa, MD, PhD
Department: Oncology
Discipline: Haematology
Course code: MED4104EN

Semester	Courses Type	Lectures			Practical activities			Individual study	TOTAL	Credit	Evaluation
		hours/week			hours/sem.						
		L	PA	CI	L	PA	CI				
I	Compulsory	3	-	3	21	21	-	33	75	3	Written + practical exam

L = lectures; PA = practical activities; CI = clinical internship

Pre-requisites: Biochemistry, Physiology, Pathophysiology, Pathological anatomy, Semiology

General objectives:

The understanding of primary hematologic diseases, as well as hematologic changes in the course of other pathologies. The need and appropriateness of a hematology specialist referral.

Specific objectives:

At the end of the module, the student should be familiarized with:

- Taking the history tailored on hematologic diseases
- Understanding the physiologic and pathogenetic mechanisms of hematologic alterations and diseases
- Principles of management in hematologic malignancies and benign hemopathies. Therapeutic modalities
- Hematologic emergencies and their management
- Hematologic occurrences during the course/treatment of non-hematologic diseases

Course content:

1. Introduction to hematologic disease. FBC interpretation
- 2 Principles of therapy in hematologic malignancies, including BMT. Acute leukemia.

- 3 Anemia. Thrombocytopenia.
- 4 Chronic lymphoproliferative disorders. Supportive therapy, including transfusion.
- 5 Lymphoma. Myeloma. Myelodysplastic syndrome.
- 6 Aplastic anemia. Abnormalities of coagulation. Hematologic emergencies
- 7 Chronic myeloproliferative disorders (neoplasms). Review.

Practical activities:

1. Patient- and record- based discussions. Hematology specific maneuvers.

References:

1. Erickson A & Parker J (eds). Essential MedNotes 2023. 39nd ed. Toronto Notes for Medical Students, Inc, Toronto, 2023.
2. Drew Provan. Oxford Handbook of Clinical Haematology 4th edition, Oxford Medical Handbooks 2015.
3. Adam Feather, David Randall, Mona Waterhouse. Kumar and Clark's Clinical Medicine 10th Edition, Elsevier, 2020.

Evaluation:

- Written exam 50%
- Practical exam 50%

CLINICAL BIOCHEMISTRY

Field of study: Health
Study program: Medicine
Course title: Clinical biochemistry
Course coordinator: Prof. Alexandra Crăciun, MD, PhD
Departament: Molecular Sciences
Discipline: Medical Biochemistry
Course code: MED4105EN

Sem.	Course type	Lectures			Practical activities			Individual study	TOTAL	Credits	Evaluation
		hours / week			hours / semester						
		L	PA	CI	L	PA	CI				
I	Compulsory	2	1	-	14	7	-	29	50	2	Written+ practical exam

L = lectures; PA = Practical Activities; CI = clinical internship

Pre-requisites: Metabolic Biochemistry 2nd year, Physiology, Pathophysiology, Scientific Research Methodology

General objectives:

At the end of the course the student will be able to: critically analyze and correctly manage the management of laboratory investigations (appropriate indication of tests and correct interpretation of laboratory analysis results)

Specific objectives:

At the end of the course the student will be able to:

- To select the most appropriate tests for diagnosis, prognosis, monitoring the evolution and effectiveness of the treatment, in correlation with the clinical context of the patient
- To interpret the results of laboratory tests in correlation with the clinical context
- To know what are the factors that influence the test laboratory results

Course content:

1. Plasma proteins: types of dysproteinemias, deficits of some plasma proteins. Diagnostic significance of tumor markers
2. Significance and diagnostic utility of serum enzyme changes
3. Laboratory studies in the pathology of the liver and gastrointestinal tract

4. Laboratory investigations of acid base and hydroelectrolyte balance. Biomarkers for the exploration of renal pathology.
5. Lipids and Lipoproteins: Lipid Transport, Laboratory Explorations in Lipid Metabolism
6. Laboratory diagnosis of primary and secondary dyslipidemias. Laboratory explorations in abnormalities of carbohydrate and uric acid metabolism
7. Disorders of calcium, phosphorus and magnesium metabolism. Laboratory studies in osteo-articular diseases Iron and hemoglobin metabolism. Laboratory explorations in iron and copper deficiency and overload
8. Plasma proteins: types of dysproteinemias, deficits of some plasma proteins. Diagnostic significance of tumor markers

Practical activities:

1. The clinical laboratory: organization, stages of the test cycle
2. Factors influencing laboratory test results; types of errors and their prevention
3. The importance and correct indication of laboratory tests according to the clinical context (test panels in different pathologies)
4. Exploring the acid-base balance
5. Exploring hemostasis
6. Interpretation of analysis reports, discussion of clinical cases with examples from:
7. cardiovascular, digestive, renal pathology, metabolic syndrome and diabetes, and osteo-articular, imbalances of calcium, magnesium, iron, phosphorus metabolism.

References:

1. www.labtestsonline.org
2. Dobreanu M. (sub red.) *Biochimie clinică. Implicații practice* (ed.III). Editura University Press Tîrgu Mureș; 2015
3. Bishop ML, Fody EP, Schoeff LE. *Clinical Chemistry. Techniques, Principles, Correlations*. 6th Edition 2010, Wolters Kluwer, Lippincot Williams &Wilkins www.labtestsonline.org
4. Brudașcă Ioana C., Cătană Cristina S., Crăciun Alexandra M., Duțu Alina G., Gheorghe Simona R., Ilyes Tamas, Silaghi Ciprian N. *Clinical Biochemistry. Guidelines for practical works*. Editura Medicală Universitară Iuliu Hațieganu Cluj Napoca 2022

Evaluation:

- Written exam 70%
- Practical exam 30%

OPHTHALMOLOGY

Field of study:	Health
Study Program:	Medicine
Course title:	Ophthalmology
Course coordinator:	Lecturer Dan Călugăru, MD, PhD
Department:	Surgical specialties
Discipline:	Ophthalmology
Course code	MED4106 EN

Sem.	Course type	Lectures			Practical activities			Individual study	TOTAL	Credit	Evaluation
		hours / week			Hours/sem						
		L	PA	CI	L	PA	CI				
I	Compulsory	2	4	-	14	28	-	33	75	3	Written + practical exam

L = lectures; PA = Practical Activities; CI = clinical internship

Pre-requisites: Anatomy, Physiology, Pathological anatomy

General objectives:

At the end of the ophthalmology module, students will be able to realize the management of various ophthalmic conditions and integrate ophthalmological knowledge into systemic pathology

Specific objectives:

The student:

- Knows the refractive errors and their consequences;
- Discusses the causes of amblyopia and argues the importance of its early diagnosis;
- Identifies the therapeutical principles in strabismus patients;
- Identifies the therapeutical principles in patients with red eye;
- Identifies the therapeutical principles in patients with conjunctivitis;
- Identifies the main causes of progressive visual loss;
- Identifies the main causes of sudden visual loss;
- Knows the importance and methods for the early diagnosis of glaucoma;
- Knows the causes of leucocoria in children and the importance of its urgency;
- Knows the attitude in sudden onset diplopia;
- Knows the attitude in ocular burns and in eye perforation

Course Content:

1. The object and importance of ophthalmology. Visual function. Ocular refraction
2. Diseases of the motor apparatus of the eye and disorders of binocular vision
3. Protective appendages of the eyeball (orbit, eyelids, lacrimal apparatus, conjunctiva)
4. Inflammations of the outer and middle tunic of the eyeball (Keratitis. Uveitis)
5. Cataract. Glaucoma
6. Retina
7. Optic nerve. Pupil. Trauma

Practical activities:

1. Functional anatomy of the eye and protective appendages and motility
Anamnesis. Reasons for an ophthalmological consultation. Heredo-collateral and personal pathological antecedents in the ophthalmological patient. Clinical case presentations
2. Objective examination of the protective appendages of the eyeball and of the anterior segment of the eyeball (in daylight, slit lamp). Clinical case presentations
3. Eye function examination: light perception, visual acuity, visual field, color sense. Clinical case presentations
4. Examination of ocular refraction. Clinical case presentations
5. Examination of binocular vision. Examination of the patient with paralytic and non-paralytic strabismus. Clinical case presentations
6. Examination of the retina and optic nerve. Clinical case presentations
7. Ocular tonometry. Optical coherence tomography, ultrasound in ophthalmology. Clinical case presentations

References:

1. Cristina Nicula, Ophthalmology, Ed. Medicală Universitară „Iuliu Hațieganu”, ISBN 978-973-693-595-4, 2014
2. Olver J, Cassidy L, Jutley G, Crawley L, Ophthalmology at a glance, ISBN 978-1-405-18473-1, Blackwell Publishing Ltd, Oxford, 2014
3. Root T, OphthoBook – the free ophthalmology textbook for new students, <https://timroot.com/opthobook>
4. Gaudric A, Robert PY (sub red), Ophthalmologie, ISBN 978-2-294-72432-9, Elsevier Massin, Issy-les-Moulineaux, 2013

Evaluation:

- | | |
|------------------|-----|
| ▪ Written exam | 70% |
| ▪ Practical exam | 30% |

UROLOGY

Field of study: Health
Study program: Medicine
Course title: Urology
Course coordinator: Prof. Nicolae Crișan, MD, PhD
 Assoc. Prof. Bogdan Petruț, MD, PhD
 Assoc. Prof. Dan Vasile Stanca, MD, PhD
 Assoc. Prof. Florin Elec, MD, PhD
Department: Surgical Specialties
Discipline: Urology
Course code: MED4107EN

Semester	Course type	Lectures			Practical activities			Individual study	TOTAL	Credits	Evaluation
		hours/week			hours/sem.						
		L	PA	CI	L	PA	CI				
I	Compulsory	2	-	4	14	-	28	33	75	3	Written + practical exam

L = lectures; PA = practical activities; CI = clinical internship

Pre-requisites: Anatomy, Physiology, Pathophysiology, Surgical Semiology

General objectives:

Knowledge and acquisition of notions concerning diagnosis, treatment and caring for the surgical and urological patient

Specific objectives:

At the end of the course, the student must be able to:

- Obtain the case history and perform a correct and complete clinical examination of patients with urological pathology
- Formulate a clinical diagnosis (clinical interpretation) or the most likely clinical diagnoses
- Formulate a plan of investigations meant to confirm/ refute each suspected diagnosis
- Correlate clinical and complementary data for the formulation of the positive diagnosis/ diagnoses
- Formulate potential differential diagnoses and exclude/ confirm them using clinical/ laboratory elements
- Specify evolution possibilities and the prognosis of the diagnosed condition

- Formulate a therapy plan, mentioning the principles and means of treatment, in accordance with current guides and adapted to the patient's particularities
- Mention criteria of determining treatment effectiveness, as well as potential causes of failure and/or complications
- Correctly assess the conditions reflecting the patient's working capability and, if necessary, formulate a recovery plan
- Establish a follow-up plan

Course content:

1. Introduction to Urology, Urological semiology, Urological emergencies. Urological trauma. Chronic kidney disease
2. Prostate adenoma. Prostate cancer
3. Urothelial tumors
4. Urinary lithiasis. Penile tumors
5. Renal parenchyma tumors. Testicular tumors
6. Uropediatrics. Urinary incontinence. Neurological bladder
7. Urinary tract infections. Adrenal tumors. Benign pathology of external genital organs

Practical activities:

1. Particularities of case history and clinical examination in urology
2. Particularities of imaging and endoscopy in urology. Urinary catheterisation technique
3. Particularities of urological surgical interventions
4. Preoperative preparation in urology
5. Post-surgical monitoring after urological surgery
6. Emergency therapeutic manoeuvres
7. Monitoring and caring for emergency urological patients.

References:

1. <https://curs-urologie.ro/wp/>
2. Ghid de îngrijiri și recuperare în patologia urologică- sub redacția Liviu Ghervan, Editura Medicală Universitară „Iuliu Hațieganu” Cluj Napoca, 2020
3. Lawrence PF. Chirurgie generală și specialități chirurgicale. Crețu O, Jinga V, scripcariu V – coordonatorii ediției în limba română, Ed. A 6-a, Ed. Hipocrate, București, 2021
4. Erickson A & Parker J (eds). Essential MedNotes 2023. 39nd ed. Toronto Notes for Medical Students, Inc, Toronto, 2023
5. Vasile Dan Stanca *Urologie. Manual pentru lucrări practice*, Ed. Med. Universitară “Iuliu Hațieganu” Cluj-Napoca 2014

Evaluation:

- Written exam 50%
- Practical exam 50%

ENDOCRINOLOGY. DIABETES AND NUTRITION RELATED DISEASES – 4 CREDITS

A. ENDOCRINOLOGY

Field of study:	Health
Study program:	Medicine
Course title:	Endocrinology
Course coordinator:	Prof. Carmen Emanuela GEORGESCU, MD, PhD
Department:	Medical Specialties
Discipline:	Endocrinology
Course code:	MED4108EN

Sem.	Course type	Lectures			Practical activities			Individual study	TOTAL	Credits	Evaluation
		hours / week			hours / semester						
		L	PA	CI	L	PA	CI				
I	Compulsory	2	3	-	14	-	21	15	50	2	Written + practical exam

L = lectures; PA = Practical Activities; CI = clinical internship

Pre-requisites: Medical Semiology, Physiology, Pathophysiology

General objectives:

At the end of the course students will be able to correctly perform therapeutic management of patients with endocrine diseases

Specific objectives:

At the end of the course students will be able to:

- carry out a correct and complete history and objective examination of patients with endocrine pathology
- formulate in the first stage the clinical diagnosis of endocrine disease or the most probable clinical diagnosis
- establish the plan of paraclinical investigations, targeted on the endocrine disease in question, to confirm/confirm the suspected diagnosis
- integrate clinical data with complementary investigations to formulate a positive diagnosis
- formulate possible differential diagnoses and to exclude/confirm these diagnoses using clinical/laboratory evidence
- specify the possible course and prognosis of the diagnosed condition
- develop an effective therapeutic plan for patients with endocrine disorders, specifying the principles and means of treatment, in accordance

with current guidelines and adapted to the patient's particular circumstances

- identify side effects of medication and manage adverse reactions to drugs used in endocrine diseases
- specify the criteria for monitoring the effectiveness of treatment, possible causes of failure and/or complications
- correctly assess the conditions reflecting the patient's work capacity, formulate a recovery plan
- establish, where appropriate, a discharge plan

Course content:

1. Classification of hormones. Feedback control of the endocrine systems
2. The hypothalamus: Functions of the endocrine hypothalamus. Physiologic puberty/Precocious puberty/Delayed puberty. Diabetes insipidus.
3. The pituitary gland: The pituitary tumoral syndrome. Acromegaly. Hyperprolactinemia and prolactinomas. Pituitary insufficiency in adults and children
4. The thyroid gland: Thyroid investigations. The nontoxic diffuse goiter and the nodular thyroid disease. Thyroid nodule and thyroid cancer. Hyperthyroidism. Hypothyroidism. Thyroiditis
5. The parathyroid glands: Hormones involved in the calcium regulation. Hyperparathyroidism{primary, secondary, tertiary}. Hypoparathyroidism. Pseudohypoparathyroidism. Osteoporosis
6. The adrenal glands: Chronic and acute adrenocortical insufficiency. Cushing's syndrome. Congenital adrenal hyperplasia:21-OH deficiency. Primary hyperaldosteronism and mineralocorticoid excess. Pheocromocytomas and paragangliomas
7. Reproductive endocrinology: Reproductive physiology-the ovary and testes. Ovarian insufficiency. Menopause. Polycystic ovary syndrome. Turner syndrome. Male hypogonadism. Klinefelter syndrome

Practical activities:

1. Endocrinology observation sheet (anamnesis, objective examination). Paraclinical diagnostic methods in endocrinology (hormonal, biochemical dosing, stimulation and inhibition tests, imaging explorations)
2. Pituitary tumor syndrome: imaging and ophthalmological exploration. Pituitary insufficiency: hormonal dosages (stimulation tests and their interpretation)
3. Gigantism / Acromegaly: hormonal dosages, imaging explorations. Clinical examination of the thyroid. Thyroid gland and nodule
4. Paraclinical examination of the thyroid (hormonal dosing, ultrasound, scintigraphy, aspiration cytological puncture). Hypothyroidism. Hyperthyroidism

5. Hypoparathyroidism and hyperparathyroidism. Osteoporosis (hormonal dosing, bone radiographs, DXA)
6. Paraclinical exploration of the cortico-adrenal (inhibition and stimulation tests, imaging). Adrenal cortical insufficiency. Cushing's syndrome
7. Morphological and functional exploration of the gonads (clinical examination, small basin ultrasound, hormonal dosing, spermogram, Barr corpus, karyotype).

References:

1. Ilie Ioana Rada. Introduction to Endocrinology. Springer Nature Switzerland AG, 2020 <https://www.springer.com/in/book/9783030273811>
2. Erickson A & Parker J (eds). Essential MedNotes 2023. 39nd ed. Toronto Notes for Medical Students, Inc, Toronto, 2023
3. Georgescu CE. *Principles of Clinical Endocrinology – A Manual for English Students*. Editura Medicala Universitara 2012
4. Georgescu CE. *Îndreptar practic de endocrinologie*. Editura Medicală Universitară "Iuliu Hațieganu", Cluj-Napoca 2013, ISBN 978-973-693-521-3
5. John Wass & Katharine Owen, *Oxford Handbook of Endocrinology and Diabetes*, 3rd Edition, Oxford University Press, 2014

Evaluation: Common exam with discipline Diabetes, nutrition and metabolic diseases

- Written exam 60%
- Practical exam 40%

B. DIABETES, NUTRITION AND METABOLIC DISEASES

Field of study:	Health
Study program:	Medicine
Course title:	Diabetes, Nutrition, Metabolic diseases
Course coordinator:	Prof. Gabriela Roman, MD, PhD
Department:	Medical specialties
Discipline:	Diabetes and Metabolic diseases
Course code:	MED4108EN

Semester	Course type	Lectures			Practical activities			Individual study	TOTAL	Credit	Evaluation
		hours/week			hours/sem.						
		L	PA	CI	L	PA	CI				
I	Compulsory	1	1	-	14	14	-	22	50	2	Theoretical + practical exam

L = lectures; PA = practical activities; CI = clinical internship

Pre-requisites: Physiology, Pathophysiology, Semiology 3rd year

General objectives:

At the end of the course, students will be able to establish the correct diagnostic and therapeutic approach to the patient with diabetes and nutritional diseases.

Specific objectives:

At the end of the course the student will be able:

- to carry out the correct and complete anamnesis and physical examination of patients with diabetes and nutritional diseases;
- to formulate in the first step the clinical diagnosis (clinical interpretation) or the most probable clinical diagnoses;
- to formulate an appropriate exploration plan for confirming / disproving each suspected diagnosis;
- to integrate the clinical data with those of the complementary explorations for formulating the positive diagnosis (positive diagnoses);
- formulate possible differential diagnoses and exclude /confirm, based on clinical / laboratory elements, these diagnoses;
- to specify what are the evolution possibilities and the prognosis of the condition spontaneously and under treatment;
- to formulate a therapeutic plan, specifying the principles and means of treatment, in accordance with the current guidelines and adapted to the particularities of the patient;

- specify the criteria for tracking the effectiveness of the treatment, as well as the possible causes of failure and/or adverse effects;
- to establish a follow up plan.

Course content:

1. Non-communicable chronic diseases: prevalence, health risk
Metabolic diseases: epidemiology, medical, social, economic impact
Diabetes mellitus: definition, classification, clinical managements
2. Diabetes : pathogenesis, clinical aspects, complication, clinical management
3. Diabetes : clinical management, co-morbidities, non-diabetic hypoglycemia
4. Obesity : definition, classification, risk factors, pathogenesis, clinical aspects, complications, clinical management
5. Dyslipidemia: definition, classification, risk factors, pathogenesis, clinical aspects, complications, clinical management
6. Metabolic syndrome and cardiovascular risk: definition, assessment, clinical management
Evidence based medicine in metabolic diseases
Hyperuricemia: definition, clinical and biochemical assessment, clinical management
7. Healthy lifestyle: optimal nutrition, physical activity, sleep
Healthy nutrition and medical nutrition therapy: definition, principles.

Practical activities:

1. Diabetes: diagnosis, clinical aspects, types of diabetes
2. Diabetes : acute and chronic complications
3. Insulin treatment in diabetes and self-glucose monitoring
4. Diabetic foot
5. Cardiovascular risk
6. Obesity and dyslipidemia
7. Nutrition.

Bibliography:

1. Erickson A & Parker J (eds). Essential MedNotes 2023. 39nd ed. Toronto Notes for Medical Students, Inc, Toronto, 2023
2. Mirali S, Seneviratne A (ed). Toronto Notes 2020. 36th Edition. Toronto Notes for Medical Students, Inc
3. Colectivul Disciplinei Diabet și Boli de Nutriție – Ghid de lucrări practice – Diabet zaharat, Nutriție, Boli Metabolice, Editura Medicală Universitară "Iuliu Hațieganu", 2018
4. Catedra de DNBM. Diabet, Nutriție, Boli metabolice-Curs pentru studenți, Editura Medicală Universitară „Iuliu Hațieganu”, Cluj-Napoca, 2020

Optional supplementary bibliography:

1. American Diabetes Association. Standards of Medical Care in Diabetes—2020. Diabetes Care 2020; 43 (Supplement 1). https://care.diabetesjournals.org/content/43/Supplement_1
2. CVD Prevention in Clinical Practice (European Guidelines on). 2016 European Guidelines on cardiovascular disease prevention in clinical practice: The Sixth Joint Task Force of the European Society of Cardiology and Other Societies on Cardiovascular Disease Prevention in Clinical Practice (constituted by representatives of 10 societies and by invited experts). Eur Heart J (2016) 37 (29): 2315-2381
3. 2019 ESC/EAS Guidelines for the management of dyslipidaemias: lipid modification to reduce cardiovascular risk. European Heart Journal (2019) 00, 1-78.
4. European Guidelines for Obesity Management in Adults. Obes Facts 2015;8:402-424
5. Kumar and Clark's Clinical Medicine (Adam Feather, David Randall, Mona Waterhouse), 10th edition , Chapter 23 – R. Holt

Evaluation: Common exam with discipline Endocrinology

- Written exam 60%
- Practical exam 40%

RADIOLOGY AND MEDICAL IMAGING – 5 CREDITS

- RADIOLOGY. MUSCULOSKELETAL AND GENITOURINARY SYSTEMS AND EMERGENCIES.
- MEDICAL IMAGING

A. RADIOLOGY. MUSCULOSKELETAL SYSTEM, EXCRETORY SYSTEM AND EMERGENCIES

Field of study: Health
Study program: Medicine
Course title: Radiology. Musculoskeletal and genitourinary systems; emergencies
Course coordinator: Assoc. Prof. Diana Feier, MD, PhD,
 Assoc. Prof. Andrei Lebovici, MD, PhD
Department: Surgical Specialties
Discipline: Radiology
Course code: MED4209EN

Semester	Courses type	Lectures			Practical activities			Individual study	TOTAL	Credits	Evaluation
		hours/week			hours/sem.						
		L	PA	CI	L	PA	CI				
II	Compulsory	3	-	3	21	-	21	33	75	5*	Written + oral exam

L = lectures; PA = practical activities; CI = clinical internship

**with discipline Medical Imaging*

Pre-requisites: -

General objectives:

Acquiring the notions of physics of conventional radiological and imaging equipment (physics of X-rays, ultrasound, computed tomography and magnetic resonance), of the biological effects of radiation and the principles of occupational and population radiation protection. Acquiring the notions of semiology characteristic of each type of examination, with the explanation of the basic notions in obtaining the radio-imaging image. Acquiring the indications and contraindications of radio-imaging methods, as well as the examination algorithms in order to reduce exposure to radiation, the correlation of common and individualized pathological aspects in the pathology of the musculoskeletal system, excretory system, retroperitoneal and internal genital organs, as well as in medical-surgical emergencies

Specific objectives:

At the end of the course students will be able to:

- list and indicate correctly, depending on the clinical and biological changes, the radio-imaging methods used in the exploration of the pathology of the musculoskeletal system, excretory system, retroperitoneal organs and internal genital organs
- list and describe the ways of radiation protection
- to know the absolute and relative contraindications of the administration of contrast substances used in radio-imaging explorations
- to know the incidents and accidents of the administration of contrast substances used in radio-imaging explorations and their treatment principles
- to recognize and correctly describe the radio-imaging changes in musculoskeletal system conditions
- recognize and correctly describe the radio-imaging changes in diseases of the excretory system
- to recognize and correctly describe the radio-imaging changes in retroperitoneal and internal genital organs disorders
- to be able to compose a basic radio-imaging examination result

Course content:

1. Physics of X-rays. The radiological image. Physical principles of other methods (ultrasound, computed tomography, magnetic resonance imaging).
2. Dosimetry, radiobiology, radioprotection.
3. Radiology exploration of the excretory system.
4. Radiology exploration of the retroperitoneum and the pelvis
5. The breast. Pediatric radiology
6. Radiology exploration of the musculoskeletal system
7. Radiology and medical imaging in medical and surgical emergencies

Practical activities:

1. Elementary notions of physics and radio-imaging technique – definitions, terms, elements of semiology.
2. Excretory system - Examination techniques (UIV, ultrasound, CT, MRI). Normal radio-imaging anatomy. Syndromes: small kidney, large kidney, renal mass, obstruction, lithiasis, malformations.
3. Imaging exploration in the pathology of some retroperitoneal organs and the pelvis (adrenal glands, adenopathies). Radiographic and imaging exploration of the urinary bladder. Radiographic and imaging exploration of the internal genital organs.

4. Musculoskeletal system - examination techniques (XR, ultrasound, CT, MRI). Radio-imaging anatomy, basic radio-imaging semiology in locomotor pathology.
5. Basic radio-imaging aspects in infectious, inflammatory, degenerative and tumoral pathology of the musculoskeletal system. Musculoskeletal pathology specific to the child's age.
6. Basic radiographic aspects in medical and surgical emergencies (abdomen and pelvis: trauma, acute abdomen; extremities: trauma, vascular emergencies, disc herniation; foreign bodies)

References:

1. Ducea S.M. (sub red.) Radiologie. Vol. I. Ed. Med. Univ. Iuliu Hatieganu, Cluj-Napoca, 2021.

Evaluation: - common with the Discipline Medical Imaging

- Written exam 50%
- Practical exam 50%

B. MEDICAL IMAGING

Field of study: Health
Study Program: Medicine
Course title: Medical Imaging –Digestive tract
Course coordinator: Assoc. prof. Mihai Socaciu, MD, PhD
Department: Surgical Specialties
Discipline: Medical Imaging
Course code: MED4209EN

Semester	Course Type	Lectures			Practical activities			Individual study	TOTAL	Credits	Evaluation
		hours/week			hours/semester						
		L	PA	CI	L	PA	CI				
II	Compulsory	2	2	-	14	14	-	22	50	5*	Written+ practical exam

L = lectures; PA = practical activities; CI = clinical internship

**with discipline Radiology. Musculoskeletal system, excretory system and emergencies*

Pre-requisites: Medical Semiology, Pathological anatomy

General objectives:

Informing and familiarizing students with modern imaging techniques and integrating them into the diagnostic management of the digestive diseases

Specific objectives:

At the end of the course, students will be able to:

- To know the main imaging techniques used in medical practice (centered on pathology of the abdomen, especially the digestive tract and the accessory organs)
- To know their indications and limits
- To know the risks to which patients are subjected when performing specific procedures
- To know the clinical criteria on the basis of which diagnostic procedures involving images will be indicated
- To know criteria and ways of selecting the diagnostic method in relation to the specifics and severity of the disease
- To know how to combine imaging methods to get the right diagnosis
- To know the importance of using imaging methods in the follow-up of chronic diseases and in detecting the acute relapses.

- To know the patient's preparation necessary to obtain optimal images and the supplies needed to reach the proposed goal

Course/ practical activities content:

1. Conventional radiology of the digestive tract. Techniques and procedures. Clinical-imaging applications.
2. Ultrasonography of the liver and biliary system. Examination protocol. Normal aspect. Ultrasonographic semiology. Diffuse liver diseases. Portal hypertension. Liver tumors. Liver abscess. Biliary lithiasis. Acute cholecystitis. Cholestatic syndromes. Other biliary diseases (tumors, cholecystoses)
3. Pancreatic ultrasonography. Normal aspect. Acute pancreatitis. Chronic pancreatitis. Pancreatic tumors. Ultrasonography of the digestive tract and peritoneal serosa. Normal aspect. Tumoral vs inflammatory model. Digestive emergencies. Peritoneal ultrasonography. Normal aspect. Diffuse and circumscribed collections. Ascitis.
4. Computed tomography (CT) in the abdominal pathology. Normal aspect. Examination protocols. Pathology of the liver, biliary system, pancreas, digestive tract and peritoneum.
5. Magnetic resonance imaging (MRI) in the abdominal pathology. Examination protocols. Normal aspect. Liver pathology (diffuse liver diseases, tumors), biliary pathology (cholestasis, tumors), pancreatic pathology (inflammation, tumors), tumoral and inflammatory pathology (fistula, abscesses) of the rectum.
6. Nuclear medicine. Generalities: radioisotopes, scintigraphy exploration equipment, image formation, acquisition techniques.
7. Nuclear medicine. Applications in abdominal pathology: exploration of the digestive tract and accessory organs – scintigraphy in hepato-splenic, salivary, esophageal diseases, tumors, exploration of GI tract bleeding and Meckel diverticula. Applications in renal and musculo-skeletal diseases.

References:

1. Herring W. Learning radiology : recognizing the basics, 4th Ed. Philadelphia: Elsevier; 2020
2. Patel PR. Lecture notes. Radiology, 4th Ed. Hoboken: John Wiley & Sons; 2020
3. Farrell TA. Radiology 101 : the basics and fundamentals of imaging, 5th Ed. Philadelphia: Wolters Kluwer; 2020
4. Maher MM, Dixon AK. Grainger & Allison's diagnostic radiology : abdominal imaging, 6th Ed. London: Elsevier; 2016
5. Brant WE, Helms CA. Fundamentals of Diagnostic Radiology: Wolters Kluwer/Lippincott Williams & Wilkins; 2012.
6. Block B, Telger TC. Abdominal Ultrasound: Step by Step: Thieme; 2015.

7. Dahnert W. Radiology review manual, 8th Ed. Philadelphia: Wolters Kluwer; 2017
8. Harisinghani MG, Mueller PR. Teaching Atlas of Abdominal Imaging: Thieme; 2011.
9. European Association of Nuclear Medicine www.eanm.org/guidelines

Evaluation: - common with the Discipline Radiology. Musculoskeletal system, excretory system and emergencies

- Written exam 50%
- Practical exam 50%

OCCUPATIONAL MEDICINE AND OCCUPATIONAL DISEASES

Field of study:	Health
Study program:	Medicine
Course title:	Occupational Medicine
Course coordinator:	Assoc. Prof. Armand Râjnoveanu, MD, PhD
Department:	Community Medicine
Discipline:	Occupational Medicine
Course code:	MED4210EN

Semester	Courses Type	Lectures			Practical activities			Individual study	TOTAL	Credit	Evaluation
		hours/week			hours/sem.						
		L	PA	CI	L	PA	CI				
II	Compulsory	2	4	-	14	28	-	33	75	3	Written+ practical exam

L = lectures; PA = practical activities; CI = clinical internship.

Pre-requisites: Semiology, Biochemistry, Biophysics, Anatomy, Pathology, Physiology, Pathophysiology, Microbiology

General objectives:

- to be able to identify the suspicion of an occupational disease which is a legal obligation for all medical doctors, no matter their specialty and workplace.
- to know and apply the methodology for reporting an occupational disease.
- to identify based on occupational history the occupational risk factors which may be involved in the etiology of work-related diseases.
- to know some diagnostic, treatment, and prophylaxis for the most important occupational disorders.

Specific objectives:

At the end of the course the student will be able to:

- to carry out the correct and complete anamnesis and objective examination of patients with professional or work-related disease.
- to formulate at the first stage the clinical diagnosis (clinical interpretation) or the most likely clinical diagnoses.
- to formulate an appropriate exploration plan for the confirmation/refutation of each diagnosis it has suspected.
- to integrate clinical data with those of complementary explorations for the formulation of positive diagnosis (positive diagnoses).

- to formulate any differential diagnoses and to exclude/ confirm with the help of clinical/ laboratory elements these diagnoses.
- to specify what are the evolutionary possibilities and the prognosis of the diagnosed condition.
- to formulate a therapeutic plan, specifying the principles and means of treatment, in accordance with the current guidelines and adapted to the particularities of the patient.
- specify the criteria for monitoring the effectiveness of the treatment, as well as the possible causes of failure and/or complications.
- to correctly assess the conditions reflecting the patient's ability to work and, to the extent necessary, to formulate a recovery plan.
- to draw up, where appropriate, a dispensation plan.

Course content:

1. Occupational medicine. Occupational health. Occupational disease. Work-related illness.
2. Work-related bronchial asthma. Hypersensitivity pneumonitis
3. Pneumoconiosis. Silicosis. Coal worker pneumoconiosis. Asbestosis and the carcinogenic effects of exposure to asbestos.
4. General occupational toxicology. Occupational poisoning with metals and metalloids.
5. Occupational poisoning with organic solvents: group effects. Professional asphyxiants: carbon monoxide and cyanide compounds.
6. Occupational musculoskeletal disorders.
7. Occupational disorders induced by physical hazards (extreme heat, noise, vibration).

Practical activities:

1. The general tasks of the occupational health service in accordance with Convention 161 of the International Labour Organization. Notions of selection and professional orientation, the examination for employment, adaptation of new employees and periodical medical examination.
2. Diagnosis of occupational disease: diagnosis criteria, reporting, research, declaration, and record of occupational diseases. Methodology of research of working conditions and assessment of occupational risks.
3. Methodological criteria for sampling and interpretation of analysis reports for physical, physico-chemical, and chemical factors at a workplace.
4. The technique of monitoring respiratory function in personnel at risk of chronic obstructive pulmonary disease. Standard pulmonary function testing, small airways investigation, VEMS decline rate, bronchial provocation tests.
5. Diagnosis of a case of occupational or work-aggravated asthma by working conditions, professional or professional-related chronic obstructive pulmonary disease.

6. Cardiovascular functional tests, their application in the field of occupational medicine: Teslenko, Crampton and Brouha test.
7. Interpretation of a standard chest X-ray for the diagnosis of pneumoconiosis, according to the International Classification ILO 2011.
8. Diagnosis of a case of silicosis, asbestosis, anthracosis, siderosis.
9. Making and interpreting an audiogram. Cold challenge test for Raynaud syndrome testing. Allergological skin tests.
10. Diagnosis, treatment, and prophylaxis of a case of noise induced hearing loss/ deafness. Diagnosis of a case of occupational Raynaud's syndrome and occupational dermatitis.
11. Professional cancer: nuisances, trades, technological processes.
12. Diagnosis of a case of professional metal poisoning, professional intoxication with organic solvents.
13. Diagnosis of a professional or professional-related case of osteo-musculoskeletal-articular disease.
14. Recapitulative meeting, verification of practical knowledge.

References:

1. Erickson A & Parker J (eds). Essential MedNotes 2023. 39nd ed. Toronto Notes for Medical Students, Inc, Toronto, 2023.
2. Baxter PJ, Aw T-C, Cockcroft A, Durrington P, Harrington JM. Hunter's Diseases of Occupations. 10th Edition. CRC Press. Taylor & Francis Group. Boca Raton, Florida, USA, 2010.
3. LaDou J, Harrison R. Current Diagnosis and Treatment: Occupational and Environmental Medicine. 6th Edition. McGraw Hill, USA, 2021.
4. Aw T-C, Soo D, Koh Q. Textbook of Occupational Medicine Practice. 4th Edition. World Scientific Publishing Company. Singarope, 2022.
5. Taylor AN, Cullinan P, Blanc P, Pickering A. Parkes' Occupational Lung Disorders. 4th Edition. CRC Press. Taylor & Francis Group. Boca Raton, Florida. USA, 2017.
6. Feary J, Suojalehto H, Cullinan P. ERS Monograph. Occupational and Environmental Lung Disease. European Respiratory Society, Sheffield, UK. 2020.
7. ILO. Guidelines for the use of the ILO International Classification of Radiographs of Pneumoconioses. Revised edition 2011. Geneva, International Labour Office, 2011

Evaluation:

- Written exam 60%
- Practical exam 40%

SURGERY – 12 CREDITS

- GENERAL SURGERY
- ONCOLOGIC SURGERY
- CARDIOVASCULAR SURGERY
- THORACIC SURGERY
- PLASTIC SURGERY

Field of study: Health
Study program: Medicine
Course title: General Surgery
Course coordinator: Professor Al Hajjar Nadim, MD, PhD
Professor Puia Ion Cosmin, MD, Ph.D.
Assoc. Professor Zaharie Florin, MD, Ph.D.
Lecturer Oprea Alexandru, MD, Ph.D.
Assoc. Professor Palade Emanuel, MD Ph.D.
Lecturer Matei Ileana Ph.D
Assoc. Prof. Cosmin Lisencu Ph.D.
Lecturer Cosmin Codruț Nistor-Ciurba Ph.D.

Department: Surgery, Oncology
Discipline: Surgery III, Oncologic Surgery, Cardiovascular, vascular and thoracic Surgery, Plastic Surgery
Course code: MED4211EN

Sem.	Course type	Lectures			Practical activities			Individual study	TOTAL	Credits	Evaluation
		hours/week			hours/sem.						
		L	PA	CI	L	PA	CI				
II	Compulsory	12	-	24	84	-	168	100	352	12	Written+ practical exam

L =lectures; PA = practical activities; CI = clinical internship

Pre-requisites: Anatomy, Physiology, Pathological anatomy

General objectives:

Application and practice of basic knowledge and basic practical skills in acute and chronic surgical pathology of the digestive organs

Specific objectives:

- Learning and practicing the general clinical exam in patients from the outpatient department of general surgery or hospitalized with pathologies of the esophagus, stomach, small intestine, large intestine, liver, biliary ducts and pancreas.

- Learning the principles and practicing the basic methods of preventing nosocomial diseases and promoting health in patients admitted to the general surgery department.
- Learning and practicing, on simulators and in a relevant clinical context, the main clinical maneuvers, laboratory and diagnostic procedures.
- Learning the basic principles and practicing verbal and written communication with patients, medical staff and administration.
- Practicing clinical reasoning and decision making.
- Learning the basic principles and providing first aid in the most important medical-surgical emergencies, in simulated situations and in the outpatient surgical clinic.
- Formulation of therapeutic prescriptions for patients undergoing surgery.
- Development of managerial skills, critical evaluation of data (Evidence Based Medicine) and efficient use of resources.
- Learning and practicing in simulated conditions some elements of legislation and professional ethics.

Course content:

1. Clinical examination and surgical pathology of the esophagus. Surgical anatomy and physiology. Esophageal diverticula and achalasia. Hiatal hernia
2. Clinical exam and surgical pathology of the esophagus. Esophageal cancer. Corrosive esophagitis and postcaustic esophageal stenoses. Dysphagia / Gastroesophageal reflux disease
3. Clinical exam and surgical pathology of the stomach. Complications of the gastroduodenal ulcer. Benign and malignant tumors of the stomach. SDH / Hematemesis and melena
4. Clinical exam and surgical pathology of the liver. Surgical anatomy and physiology. Liver abscess. Benign and malignant liver tumors
5. Clinical exam and surgical pathology of the liver. Hepatic hydatid cyst. Surgical treatment in portal hypertension. Abdominal tumors
6. Clinical exam and surgical pathology of the biliary ducts. Surgical anatomy and physiology. Complications of gallstones, cholecystitis, acute colangitis, common bile duct stones, biliary-digestive fistulas. Biliary ducts cancer / treatment principles. Obstructive jaundice
7. Clinical exam and surgical pathology of the spleen. Surgical anatomy and physiology. Indications for splenectomy
8. Clinical exam and surgical pathology of the pancreas. Surgical anatomy and physiology. Surgical indications in acute pancreatitis. Chronic pancreatitis. Pancreatic tumors
9. Clinical exam and surgical pathology of the small intestine. Surgical anatomy and physiology. Benign and malignant tumors

Meckel's diverticulum. Crohn's disease / intestinal anastomoses / mechanical suture. Intestinal sutures

10. Clinical exam and surgical pathology of the appendix. Surgical anatomy and physiology. Acute appendicitis. Appendicular cancer
11. Clinical exam and surgical pathology of the colon. Surgical anatomy and physiology of the colon. Benign and malignant tumors of the colon. Colic diverticulosis. Ulcerative colitis. Indications for stoma in digestive surgery / Stomatherapy
12. Clinical exam and surgical pathology of the rectum and anus. Surgical anatomy and physiology. Hemorrhoids, perianorectal disease, perianorectal fistulas and abscesses, anal fissure, anal prolapse. Anorectal cancer. Anal incontinence. Anal pain and rectal bleeding
13. Clinical exam and treatment of abdominal emergencies. Surgical anatomy and physiology. Clinical exam in acute surgical abdomen. Paraclinical examinations in acute surgical abdomen
14. Clinical exam and treatment of abdominal emergencies. Digestive hemorrhage. Abdominal injuries

SUBMODULES:

CARDIOVASCULAR SURGERY

1. Introduction in cardiovascular surgery. Pulmonary embolism. Pericarditis
2. Ischemic heart disease
3. Pathology of the aortic valve, chronic aneurysms of the ascending aorta. Pathology of the mitral and tricuspid valve
4. Congenital heart disease.

THORACIC SURGERY:

Thoracic surgical pathology (7 hours)

1. General aspects in thoracic surgical pathology (diagnosis, therapeutic decision, indications and surgical techniques, postoperative follow-up, particularities)
2. Pleural diseases with pneumothorax and malignant pleural effusion in depth
3. Infectious diseases with the pleural empyema in depth
4. Thoracic tumor diseases with malignant lung tumors in depth

PLASTIC SURGERY:

1. Skin. Skin vascularization. Wound healing. Surgical treatment of defective wounds. Skin grafts. Flaps
2. Replantation. Revascularisation
3. Burns

ONCOLOGIC SURGERY

1. Soft tissue sarcomas.
2. Malignant melanoma.
3. Breast cancer.

4. General information about tumours.

Practical activities:

1. Scheme for presenting a surgical clinical case
2. Clinical exam and paraclinical examinations in surgical pathology of the esophagus
3. Surgical treatment of surgical pathology of the esophagus
4. Clinical exam and paraclinical examinations of surgical pathology of the stomach and duodenum
5. Surgical treatment of surgical pathology of the stomach and duodenum
6. Clinical exam and paraclinical examinations of surgical pathology of the small intestine
7. Surgical treatment of surgical pathology of the small intestine
8. Clinical exam and paraclinical examinations in surgical pathology of the appendix
9. Surgical treatment of surgical pathology of the appendix
10. Clinical exam and paraclinical examinations of surgical pathology of the colon
11. Surgical treatment of surgical pathology of the colon
12. Clinical exam and paraclinical examinations of surgical pathology of the rectum and anus
13. Surgical treatment of surgical pathology of the rectum and anus
14. Clinical exam and paraclinical examinations of the liver diseases
15. Surgical treatment of liver diseases
16. Clinical exam and paraclinical examinations of biliary ducts surgery
17. Surgical treatment of surgical pathology of the biliary ducts
18. Clinical exam and paraclinical examinations of surgical conditions of the pancreas
19. Surgical treatment of surgical pathology of the pancreas
20. Clinical exam and paraclinical examinations of surgical pathology of the spleen
21. Surgical treatment of surgical pathology of the spleen
22. Clinical exam and paraclinical examinations in acute surgical abdomen
23. Principles of treatment in acute surgical abdomen
24. Surgical sutures, mechanical sutures
25. Stoma: indications, stomatherapy
26. Digestive anastomoses
27. Instruments in open digestive surgery
28. Medical equipment used in digestive surgery
29. Notions of enteral and parenteral nutrition
30. Instruments in laparoscopic surgery
31. Clinical case presentations
32. Video demonstrations

33. Clinical scenarios
34. Structured Objective Examination (OSCE) Simulation I
35. Structured Objective Examination (OSCE) Simulation II
36. Case presentations in surgical pathology and gynecological oncology
37. Operating theatre-operations in the field of oncological surgery
38. Major limb trauma. Traumatic amputations of the upper limbs.
Replantation. Revascularization. Coverage of tissue defects in the limbs.
39. Coverage of soft tissue defects of the body. Thermal burns. Electrical burns

8.2.2. During the clinical internship, in addition to the activities carried out in the patient rooms and in the paraclinical examination offices, students will also participate in other activities such as:

- diagnostic / therapeutic activities;
- practical demonstrations of diagnostic examinations;
- weekly oral presentation of a special clinical case - followed by discussion based on the case;
- advances in the field of general surgery – special literature;
- interactive collective exercises for clinical reasoning and therapeutic strategy learning

References:

1. Essentials of General Surgery. Peter F Lawrence Ed., Wolters Kluwer Health/ Lippincott Williams and Wilkins, Fifth Edition, Baltimore, 2013;
2. Essentials of General Surgery And Surgical Specialities, [Peter Lawrence](#), Editura Wolters Kluwer Health, Editia VI-a, 2019 (tematică rezidențiat)
3. Operationsatlas Chirurgie (Deutsch) Gebundene Ausgabe, von [Volker Schumpelick](#) –2013
4. Nadim Al Hajjar. Patologie chirurgicală digestivă. Editura Medicală Universitară “Iuliu Hațieganu”, Cluj-Napoca, 2021
5. Tratatul National de Chirurgie sub redactia Irinel Popescu, Ed. Academica, 2015
6. Schwartz – Principiile chirurgiei, editia a 10-a, Editura Teora 2005
7. www.nccn.org (National Comprehensive Cancer Network);
8. www.websurg.com ;
9. e-Medicin
10. <https://almostadoctor.co.uk/>
11. <https://www.incision.care/>
12. Examenul clinic obiectiv structurat. OSCE cazuri clinice de chirurgie. Editura Colorama, Cluj-Napoca, 2018
13. Palade E. Curs de chirurgie toracica – Facultatea de medicina. Editura Medicala Universitara „Iuliu Hatieganu” Cluj-Napoca, 2021

14. Stoica V, Scripcaru V. Compendiu de specialitati medico-chirurgicale. Ed. Medicala, Bucuresti 2016
15. Erickson A & Parker J (eds). Essential MedNotes 2023. 39nd ed. Toronto Notes for Medical Students, Inc, Toronto, 2023.
16. Ghiduri ale societatile de specialitate (nationale/internationale), ghiduri nationale

Evaluation:

- Written exam 50%
- Practical exam 50%

CRANIO – MAXILLO – FACIAL SURGERY

Field of Study	Health
Study program	Medicine
Course title	Cranio-maxillo-facial surgery
Course coordinator	Assoc. Prof. Onișor Florin, MD, PhD
Department	Dental Medicine
	Department of Cranio-Maxillo-Facial Surgery and
	Dental Emergencies
Discipline	Maxillofacial Surgery
Course code	MED4212EN

Semester	Course type	Lectures			Practical activities			Individual study			TOTAL	Credits	Evaluation
		hours/week			hours/semester								
		L	PA	CI	L	PA	CI	SI					
II	Compulsory	2	-	2	14	14	-	22	50	2	Written exam		

L = lectures; PA = practical activities; CI = clinical internship

Pre-requisites: Anatomy, Physiology, Pathophysiology, Semiologie

General objectives:

The course provides 4th year students in General Medicine of the Faculty of Medicine the theoretical concepts related to the oral and maxillofacial pathology.

The practical assignments aim at acquiring practical skills necessary for establishing diagnosis and therapeutic modalities applicable in oral and maxillofacial pathology.

Specific objectives:

Acquiring knowledge about the field of oral and maxillofacial pathology.

Acquiring the skills needed to establish diagnosis and therapeutic methods applicable in oral and maxillofacial pathology.

Course content:

1. The specificities of objective examination in maxillofacial surgery. Pathology of dental eruption.
2. Dental and maxillofacial traumas: wounds of orofacial soft tissues; dental and periodontal traumas; facial skeleton fractures; multiple traumas.
3. Oro-maxillofacial infections: perimaxillary soft tissue infections, superficial and deep abscesses; nonspecific and specific infections of maxillary bones.

4. Pathology of dental origin of the maxillary sinus. Etiopathogeny, clinical signs, diagnosis and treatment.
5. Benign tumors of the soft and hard tissues on the maxillofacial territory. Clinical, therapeutic conduct. Malignant tumors of the maxillofacial soft and hard tissue. Clinical appearance, therapeutic conduct.
6. Salivary glands pathology. Research methods of salivary glands. Wounds and fistulae of salivary glands. Sialolithiasis. Salivary gland tumors. Sialosis.
7. Cranium and maxillofacial malformations. TMJ pathology and trigeminal neuralgia. The contribution of artificial intelligence, machine learning and virtual surgical planning in diagnosis

Practical activities:

1. Practical demonstrations of the particularity of the loco-regional clinical examination in maxillofacial surgery. Pathology of dental eruption. Clinical examination, diagnosis and treatment.
 2. Tooth-maxillofacial trauma. Clinical appearance, diagnosis, emergency treatment and final treatment. Management of polytrauma.
 3. Oro-maxillofacial infections. Etiopathogenesis, clinical appearance, diagnosis, emergency and curative treatment. Pathology of dental origin of the maxillary sinus. Diagnosis and treatment.
 4. Benign tumors of soft and hard maxillofacial tissues: cysts of the jaws and cervical and facial soft tissues, oral mucous membrane papilloma, conjunctival epithelial hyperplasia, pregnancy granuloma, epulis, hemangioma, osteoma, fibrous dysplasia, adamantinoma (ameloblastoma).
 5. Malignant tumors of soft and hard maxillofacial tissues: specificities of oral and facial cancer onset; cancer of the middle floor of the face; carcinoma of the mandible; jaw sarcomas; dental care of the patient to be tumor irradiated.
 6. Salivary gland pathology. Clinical appearance, diagnosis and treatment. Cranium and maxillofacial malformations. Clinical appearance, diagnosis, therapeutic principles
 7. TMJ pathology: diagnosis, treatment. Trigeminal neuralgia: clinical forms, diagnosis, treatment.
- The contribution of artificial intelligence, machine learning and virtual surgical planning in diagnosis and treatment.

References:

1. Hupp JR, Ellis E, Tucker MR. Contemporary Oral and Maxillofacial Surgery, 7th Edition, Elsevier, 2018
2. Andreasen JO, Andreasen FM, Andersson L, editors. Textbook and color atlas of traumatic injuries to the teeth. Fifth edition. Oxford: Wiley-Blackwell, 2019

3. Michael E. Matheny, Lucila Ohno-Machado, Sharon E. Davis, Shamim Nemati Cap. Data-driven approaches to generating knowledge: Machine learning, artificial intelligence, and predictive modeling. Clinical Decision Support and Beyond, third Edition, Chapter 7, 217-255, Elsevier 2023; page Clinical Key: <https://www.clinicalkey.com/#!/content/book/3-s2.0-B9780323912006000310?scrollTo=%23hl0000233>
4. Akhilesh K. S., Naresh K. S. Maxillofacial Trauma : A Clinical Guide, Springer, 2021

Evaluation:

- Written test 100%

ORTHOPAEDICS – 3 CREDITS

ORTHOPAEDICS – TRAUMATOLOGY PEDIATRICS ORTHOPAEDICS

Field of study:	Health
Study programme:	Medicine
Course title:	Orthopedics and traumatology
Course coordinator:	Assoc. Prof. Adrian Todor MD, PhD
Department:	Surgical specialties
Discipline:	Orthopaedic-Traumatology and Pediatric Orthopaedics
Course code:	MED4213EN

Semester	Course Type	Lectures	Practical activities			Lectures	Practical activities			Individual study	TOTAL	Credits	Evaluation
		hours/week			hours/sem.								
		L	PA	CI	L	PA	CI						
II	Compulsory	4	-	6	21	35	-	19	75	3	Written+ practical exam		

L = lectures; PA = practical activities; CI = clinical internship

Pre-requisites: Anatomy

General objectives:

Acquisition of theoretical and practical notions in dealing with traumatic and non-traumatic injuries of the locomotor system.

Specific objectives:

At the end of the course, the student will be able to:

- perform the correct and complete anamnesis and objective examination of patients with osteo-articular pathology
- formulate in the first stage the clinical diagnosis (clinical interpretation) or the most probable clinical diagnoses
- formulate an appropriate exploration plan to confirm / refute each suspected diagnosis
- integrate the clinical data with those of complementary explorations to formulate the positive diagnosis (positive diagnoses)
- formulate possible differential diagnoses and to exclude / confirm with the help of clinical / laboratory elements these diagnoses
- to specify what are the evolutionary possibilities and the prognosis of the diagnosed condition

- to formulate a therapeutic plan, specifying the principles and means of treatment, in accordance with the current guidelines and adapted to the patient's characteristics
- specify the criteria for monitoring the effectiveness of the treatment, as well as the possible causes of failure and/or complications
- correctly assess the conditions that reflect the patient's work capacity and, as far as this is necessary, formulate a recovery plan
- to establish, as the case may be, a dispensary plan

Course content:

1. Introduction. General notions of osteo-articular traumatology: - fractures - dislocations - sprains - joint wounds - compartment syndrome
2. Shoulder girdle traumatology
3. Humerus and elbow traumatology
4. Distal radius fractures. Spine traumatology. Pelvis traumatology. Hip dislocations
5. Fractures of the femur and patella
6. Knee sprains. Fractures of the tibia. Ankle fractures.
7. Osteoarthritis. Bone tumors.
8. Pediatric traumatology: the particularities of the bone in children; classification of closed fractures in children; classification of open fractures; classification of fractures by growth cartilage; treatment of fractures in children; Volkmann's syndrome; obstetric fractures; painful elbow pronation.
9. Idiopathic congenital varus-equine clubfoot. Developmental dysplasia of the hip
10. Adolescent idiopathic scoliosis

Practical activities:

1. Providing first aid and transporting patients with traumatic osteo-articular conditions
2. Maneuvers to reduce fractures and dislocations. plaster immobilization: plaster splint, circular plaster, plaster corsets. how to make and apply cast devices. temporary immobilizations (splints, continuous traction)
3. Presentation of implants used in orthopedics and osteo-articular traumatology
4. Presentations and discussions of clinical cases
5. Prevention and treatment of post-immobilization complications
6. Imaging methods used in diseases of the locomotor system
7. Video presentations with surgical resolution of fractures
8. Injuries of the locomotor system in children: diagnosis, complications, orthopedic and surgical treatment. idiopathic congenital varus-equine clubfoot: diagnosis, classification, treatment
9. Developmental dysplasia of the hip

10. Orthoses, prostheses and cast immobilizations used in Pediatric Orthopedics

References:

1. Tomoaia G., Traumatologie osteoarticulară, Editura Medicală Universitară "Iuliu Hațieganu", Cluj-Napoca, 2017
2. Tomoaia G., Ortopedie, Editura Medicală Universitară "Iuliu Hațieganu", Cluj-Napoca, 2013
3. Vasilescu D., Ortopedie pediatrică, Ed. Medicală Univ. "Iuliu Hațieganu", Cluj -Napoca, 2003
4. Tomoaia G., Caiet de lucrări practice de ortopedie-traumatologie, Ed. Medicală Universitară "Iuliu Hațieganu", Cluj-Napoca, 2014
5. Lawrence PF. Chirurgie generală și specialități chirurgicale. Crețu O, Jinga V, scripcariu V – coordonatorii ediției în limba română, Ed. A 6-a, Ed. Hipocrate, București, 2021 (pag. 585-633).

Evaluation:

- Theoretical exam 50%
- Practical exam 40%
- Activity during the semester 10%

5th YEAR

INTERNAL MEDICINE II. CARDIOLOGY. PNEUMOLOGY – 14 CREDITS

A. INTERNAL MEDICINE II.

Field of study:	Health
Study program:	Medicine
Course title:	Internal Medicine – Cardiology
Course coordinator:	Associate Professor Anca Daniela Fărcaș, PhD
Department:	Internal Medicine
Discipline:	Medical Clinic I
Course code:	MED5101EN

Semester	Course type	Practical activities			Lectures			Individual study	TOTAL	Credit	Evaluation
		Lectures	Practical activities		Lectures	Practical activities					
		hours/week	hours/sem.		hours/week	hours/sem.					
L	PA	CI	L	PA	CI						
I	Compulsory	4	-	7	28	-	56	66	150	6	Written + practical exam

L = lectures; PA = practical activities; CI = clinical internship

Pre-requisites: Biochemistry, Physiology, Pathophysiology, Immunology, Microbiology, Pathology, Semiology, Pharmacology

General objectives:

After completion students will be able to performed an accurate diagnostic and therapeutic approach of cardiovascular patient.

Specific objectives:

After completion students will be able to:

- to perform anamnesis and the correct and complete objective examination of the patients with cardiovascular pathology;
- to formulate in the first stage the clinical diagnosis (clinical interpretation) or the most probable clinical diagnoses;
- formulate an exploration plan appropriate for the confirmation / rejection of each suspected diagnosis;
- to integrate the clinical data with those of the complementary explorations for formulating the positive diagnosis (positive diagnoses);
- to formulate the possible differential diagnoses and to exclude / confirm, with the help of the clinical / laboratory elements, these diagnoses;

- to specify the evolutionary possibilities and the prognosis of cardiovascular disease, spontaneously and under treatment;
- to formulate a therapeutic plan, specifying the principles and the means of treatment, according to the current guidelines and adapted to the patient's particularities;
- to specify the criteria for monitoring the effectiveness of the treatment, as well as the possible causes of failure and / or adverse drug effects;
- to properly appreciate the conditions that reflect the patient's work capacity and, if necessary, to formulate a recovery plan;
- establish a dispensary plan for chronic cardiovascular diseases.

Course content:

1. Approach to the patient with lung diseases
2. Interstitial Lung Disease
3. Pleurisy
4. The pneumonias
5. Bronchiectasis
6. Acute and chronic respiratory insufficiency
7. Chronic obstructive pulmonary disease
8. Bronchial asthma
9. Atherosclerosis and cardiovascular risk factors
10. Essential hypertension
11. Secondary hypertension
12. Peripheral arteriopathy
13. Deep vein thrombosis
14. Chronic pulmonary heart disease

Practical activities:

1. The pneumonias
2. Interstitial Lung Disease
3. Pleurisy
4. Chronic obstructive pulmonary disease
5. Bronchiectasis
6. Bronchial asthma
7. Acute and chronic respiratory insufficiency
8. Atherosclerosis and cardiovascular risk factors
9. Essential hypertension
10. Secondary hypertension
11. Peripheral arteriopathy
12. Deep vein thrombosis
13. Chronic pulmonary heart disease

References:

1. Vida-Simiti L, Pop S , Marian I, Farcaș A, Stoia M, Anton F. Cardiologia. Cluj Napoca. Edit. Medicală Universitară „Iuliu Hațieganu” Cluj Napoca; 2013
2. Vida –Simiti L, Pop S , Marian I, Farcaș A, Stoia M, Anton F. Explorări noninvazive în bolile cardiovasculare. Indrumător pentru studenții și rezidenți. Cluj Napoca. Edit. Medicală Universitară „Iuliu Hațieganu” Cluj Napoca; 2011

Evaluation: Common exam with Cardiology and Pneumology

- Written exam 50%
- Practical exam 50%

B. CARDIOLOGY – REABILITATION

Field of study:	Health
Study program:	Medicine
Course:	Interventional Cardiology
Course coordinator:	Lecturer Gabriel Cismaru, MD, PhD
Department:	Internal Medicine
Discipline:	Cardiology - Rehabilitation
Course code:	MED5101EN

Semester	Courses Type	Lectures			Practical activities			Individual study	TOTAL	CREDIT	Evaluation
		hours/week			hours/sem.						
		L	PA	CI	L	PA	CI				
I	Compulsory	4	-	9	28	-	63	59	150	6	Written+ practical exam

L = lectures; PA = practical activities; CI = clinical internship

Pre-requisites: Anatomy, Physiology, Pathophysiology, Pharmacology, Methodology of scientific research

General objectives:

At the end of the course, students will be able to correctly carry out the therapeutic management of patients with the main cardiovascular and respiratory diseases

Specific objectives:

At the end of the course students will be able

- to list some of the etiological factors of the learned cardiovascular and respiratory diseases.
- to explain the pathogenetic mechanisms of cardiovascular and respiratory diseases and the hemodynamic changes that occur in heart diseases
- to synthesize the clinical data and to elaborate an investigation plan for the main clinical syndromes in cardiology and pulmonology
- to interpret an electrocardiogram, a cardiac ultrasound bulletin, spirometry and arterial gasometry
- to describe the semiological elements of a chest X-ray
- to elaborate a complete diagnosis of the main heart and respiratory diseases
- to make a plan of hygienic recommendations for each condition learned
- to draw up a plan of drug treatment of each cardiovascular and respiratory disease.

- to describe the side effects of the classes of drugs used in the pathology of the cardiovascular and respiratory apparatus
- to associate the common prognostic factors in the main cardiovascular and respiratory diseases learned.

Course / Practical activities content:

1. Approach to the cardiovascular patient
2. Heart failure
3. Arrhythmias and bradyarrhythmias
4. Ischemic heart disease
5. Cardiomyopathies
6. Rheumatic fever
7. Infective endocarditis
8. Valvular Heart Disease
9. Congenital Heart Disease
10. Pericardial Disease
11. Diseases of the aorta
12. Venous embolism
13. Syncope

References:

1. D. Pop, Zdrenghea D , Roșu R, Caloian B, Cismaru G, Comșa H, Grosz Cs, Gușetu G. CARDIOVASCULAR DISEASE. 2018. Editura Medicală Universitară „Iuliu Hațieganu” Cluj-Napoca
2. Dana Pop, Doina Todea, Dumitru Zdrenghea Radu Roșu, Bogdan Caloian, Gabriel Cismaru, Horațiu Comșa, Csongor Grosz, Gabriel Gușetu, Nicoleta Motoc, Ana Florica Chiș. Respiratory disease student manual. 2019. Editura Medicală Universitară „Iuliu Hațieganu” Cluj-Napoca
3. Kumar&Clarks. Clinical Medicine. Tenth Edition. Elsevier.2020
4. Douglas P.Zipes, Braunwald`s Heart Disease: A Textbook of Cardiovascular Medicine, Elsevier, 2018 ISBN: 978-032-346-342-3

Evaluation: - common with the discipline Internal Medicine II and Cardiology

- | | |
|--------------------------------|-----|
| ▪ Written exam | 50% |
| ▪ Practical exam | 40% |
| ▪ Activity during the semester | 10% |

C. PNEUMOLOGY

Field of study: Health
Study program: Medicine
Course title: Pneumology
Course coordinator: Prof. Doina Todea, MD, PhD
 Assoc. Prof. Man Milena, MD, PhD
 Lecturer Bianca Gergely-Hancu Domokos, MD, PhD
Departament Medical specialties
Discipline: Pneumology
Course code: MED5101EN

Sem.	Course type	Lectures	Practical activities			Lectures	Practical activities			Individual study	TOTAL	Credit	Evaluation	
		hours / week			hours / sem.									
		L	PA	CI	L	PA	CI							
I	Compulsory	2	-	2	14	-	14	22	50	2	Written + practical exam			

L=lectures; PA= practical activities; CI= clinical internship

Pre-requisites: Anatomy, Physiology, Pathophysiology, Semiology, Pharmacology, Methodology of Scientific Research

General objectives:

At the end of the course students will be able to develop a diagnostic and treatment algorithm

Specific objectives:

At the end of the course, students will be able to perform a complete examination, perform an anamnesis of patients with respiratory diseases, interpret a thoracopleuropulmonary radiography, request other necessary investigations, analyze results in clinical context, establish diagnosis of reperfusion diseases, establish positive diagnosis, know the differential diagnosis), to know the principles of treatment, to know how to develop a treatment plan, to release a medical prescription.

Course content:

1. Pulmonary suppurations: pulmonary abscess, bronchiectasis. Hydatid cyst
2. Sleep apnea syndrome
3. Tabacology (tobacco addiction, smoking-induced pathology)
4. Diffuse interstitial lung disease and idiopathic pulmonary fibrosis
5. Sarcoidosis and Mediastinal syndrome

6. Tuberculosis part I and II

Practical activities:

1. Clinical examination (anamnesis and physical examination) of patients with respiratory diseases - observation sheet
2. Pulmonary imaging: Pulmonary X-ray and computer tomography
3. Respiratory functional examinations: spirometry
4. Other diagnostic procedures used in respiratory diseases (nonspecific sputum examination, specific microscopy, culture, bronchoscopy, thoracentesis)
5. Diagnosis of Obstructive Sleep Apnea Syndrome: Investigation and Treatment
6. Presentation of the clinical case of tuberculosis with its particularities
7. Presentation of clinical cases of pneumology: diagnostic and treatment algorithm, presentation modalities

References:

1. Erickson A & Parker J (eds). Essential MedNotes 2023. 39nd ed. Toronto Notes for Medical Students, Inc, Toronto, 2023
2. Adam Feather, David Randall, Mona Waterhouse: Kumar și Clark Medicină Clinică. Leonard Azamfirei, Anca Dana Buzoianu, Dan Ionuț Gheonea – coordonatorii ediției în limba română, Ediția a 10-a, Editura Hipocrate, București, 2021
3. Apneea în somn și comorbiditățile sale” Note de curs, sub redacția Doina Todea, Editura Medicală Universitară „Iuliu Hatieganu”, Cluj-Napoca 2011
4. Doina Todea, Principii de diagnostic în leziunile cavitare pulmonare, ISBN 978-606-17-0505-4, Casa Cartii de Stiinta, Cluj-Napoca 2014
5. Pneumologie, sub red. Bogdan M; Ed. Universitară „Carol Davila”, București, 2008
6. European Respiratory Monograph, 2009-2012

Evaluation: Common exam with Internal Medicine II and Cardiology

- Written exam 50%
- Practical exam 50%

CLINICAL PHARMACOLOGY

Field of study: Health
Study program: Medicine
Course title: Clinical Pharmacology
Course coordinator: Assoc. Prof. Ioana Corina Bocşan, MD, PhD
Department: Morph-Functional Sciences
Discipline: Pharmacology, Toxicology and Clinical Pharmacology
Course code: MED5102EN

Semester	Course type	Practical activities			Practical activities			Individual study	TOTAL	Credit	Evaluation
		Lectures	hours/week		Lectures	hours/sem.					
		L	PA	CI	L	PA	C I				
I	Compulsory	3	3	-	21	21	-	58	100	4	Written + practical exam

L = lectures; PA = practical activities; CI = clinical internship

Pre-requisites: Pharmacology 3rd year, Physiology, Pathophysiology, Methodology of Scientific research

General objectives:

At the end of the course, students achieve an informational core on drugs that are used to treat different diseases, so as to have competencies on the drugs learned for the correct therapeutic management of the patient

Specific objectives:

At the end of the course students will be able to:

- list the classes of drugs used in with cardiovascular, respiratory or neuropsychiatric diseases; to know representatives of these classes
- to explain the mechanisms of action of antiarrhythmic drugs, drugs used in ischemic heart disease, hypertension or cardiac insufficiency
- to explain the mechanisms of action of anticough and mucolytic agents, bronchodilators and antiinflammatory drugs used in respiratory diseases,
- to explain the mechanisms of action of hypnotic, sedativ and tranquilizer drugs, antidepressant, neuroleptic, antiepileptic, myorelaxing, antiparkinsonian drugs, agents used in dementia
- mention the side effects of the medication and manage the adverse reactions of drugs used in cardiovascular, respiratory or neuropsychiatric diseases
- to efficiently manage the patient, based on his/her characteristics

- to monitor drug therapy in digestive, metabolic and blood diseases
- to use methods to prevent prescription errors
- to explain the importance of gender, age and pharmacogenetic aspects in the variability of patients' individual response
- students will be familiar with the principles of treatment of acute intoxications
- to recognize and describe the symptoms of the main drug addictions

Course content:

1. Drugs used in cardiovascular diseases. Beta blockers. Drugs that act in renin-angiotensin – aldosterone system. Calcium channel blockers.
2. Drugs used in ischemic heart disease. Nitrates. Beta blockers as antiangina drugs. Calcium channel blockers as antiangina drugs. Antiischemic vasodilators.
3. Antiarrhythmic drugs.
4. Antihypertensive agents. Diuretics in hypertension. Beta blockers. Drugs that act in renin-angiotensin – aldosterone system. Calcium channel blockers. Alpha adrenergic agents. Central sympathetic inhibitors. Vasodilators. Treatment of hypertensive emergency. Treatment of hypertension in particular situations.
5. Drug used in cardiac insufficiency. Diuretics in heart failure. Drugs that act in renin-angiotensin – aldosterone system in heart failure. Vasodilators in heart failure. Beta blockers in heart failure. Inotropic positive agents
6. Pharmacology of respiratory system. Mucolytic and anticough drugs. Drugs used in asthma. Drugs used in allergic rhinitis. Pulmonary surfactant.
7. Sedative, hypnotic and tranquilizing drugs.
8. Antidepressant drugs. Neuroleptic drugs.
9. Drugs used in Parkinson disease. Antiepileptic drugs. Central and peripheral myorelaxing drugs.
10. Drugs used in neurodegenerative disorders. Nootropic drugs.
11. Substances for abuse. Drugs and substances with addictive potential. Drug addictions.

Practical activities:

1. Antiangina treatment. Treatment of acute coronary syndrome. Vasodilator therapy.
2. Therapy of various cardiac arrhythmias
3. Treatment of hypertension
4. Treatment of cardiac insufficiency
5. Inhalatory dosage forms. Treatment of asthma and COPD. Treatment of allergic rhinitis.
6. Treatment of insomnia. Treatment of depression.
7. Treatment of epilepsy. Treatment of Parkinson disease.

References:

1. Anca Dana Buzoianu – Farmacologie. Curs pentru studenții anului V, Ed. Medicală Universitară „Iuliu Hațieganu” Cluj-Napoca, 2016
2. Karen Whalen PharmD – Lippincott Illustrated Reviews: Pharmacology- Seventh, North American Edition, 2018
3. Katzung BG. – Basic and Clinical Pharmacology (14th ed) Mc Graw Hill 2017
4. Rang HP, Dale MM et al. Pharmacology 8th ed., Elsevier Churchill Livingstone, 2015
5. Goodman and Gilman’s Manual of Pharmacology and Therapeutics, 13th ed, Mc Graw Hill Publishing, 2017
6. Feather A, Randall D, Waterhouse M – Kumar și Clark Medicină clinică. Azamfirei L, Buzoianu AD, Gheonea ID- coordonatorii ediției în limba română, Ed. A 10-a, Ed.Hipocrate, București 2021
7. Erickson A & Parker J (eds). Essential MedNotes 2023. 39nd ed. Toronto Notes for Medical Students, Inc, Toronto, 2023.
8. Anca Dana Buzoianu – Farmacologie. Curs pentru studenții anului IV, Ed. Medicală Universitară „Iuliu Hațieganu” Cluj-Napoca, 2015
9. <https://www.anm.ro> Nomenclatorul Medicamentelor
10. Memomed 2020/ Agenda Medicală 2020

Evaluation:

- | | |
|------------------|-----|
| ▪ Written exam | 70% |
| ▪ Practical exam | 30% |

NEUROSCIENCES – 10 CREDITS

- NEUROLOGY
- NEUROSURGERY

A. NEUROLOGY

Field of study: Health
Study program: Medicine
Course title: Neurology
Course coordinator: Prof. Dafin Fior Mureșanu, MD, PhD,
 Assoc. Prof. Ioana Stănescu, MD, PhD
 Assoc. Prof. Adina Dora Stan, MD, PhD
Department: Neurosciences
Discipline: Neurology and Pediatric Neurology
Course code: MED5103EN

Semester	Course Type	Lectures			Practical activities			Individual study	TOTAL	Credits	Evaluation
		hours/week			hours/sem.						
		L	PA	CI	L	PA	CI				
I	Compulsory	8	-	10	56	-	70	74	200	10*	Written + practical exam

L = lectures; PA = practical activities; CI = clinical internship

**with the Disciplines Neurosurgery*

Pre-requisites: Anatomy, Pathological anatomy, Physiology, Pathophysiology, Semiology, General Pharmacology

General objectives:

- Acquiring practical skills to recognize the main neurological syndromes
- Understanding how neurological patients are treated

Specific objectives:

- The recognition of semiological features in neurological patients
- Integration of clinical symptomatology in a syndrome
- Acquiring theoretical knowledge and direct clinical practice on 3 successive stages:
 - neurological semiology
 - neurological syndromology
 - neurological pathology

Course content:

1. Introduction in neurology. Neurological examination – basic principles. Neurological paraclinical examinations.
2. Sensory clinical examination. Spinal cord sensory syndromes. Thalamic sensory syndrome. Cortical sensory syndrome.
3. Motility and reflexes. The motor pathways (neuroanatomy). Motility testing: volutar motility: Active movements, Segmental muscle strength, Paresis tests. Examination of reflexes: Deep tendon reflexes, Cutaneous,articular and postural reflexes, Pathologic reflexes
4. The muscle tone
5. Upper motor neuron syndrome (pyramidal syndrome). Lower motor neuron syndrome. Workout in a patient with motor deficit (paralysis, hemiplegia, paraplegia)
6. Gait examination; pathological gaits
7. Extrapyrarnidal semiology
8. Involuntary movements
9. Cerebellar syndrome. Neuroanatomy. Testing cerebellar function. Cerebellar syndrome; cerebellar pathology
10. Cranial nerves semiology. Olfactory nerve: Optic nerve, Oculomotor nerves (III, IV, VI), Trigeminal nerve, Facial nerve
11. Cranial nerves semiology: Acustico-vestibular nerve, Glossopharyngeus nerve, Vagus nerve, Accesory nerve, Hypoglossal nerve
12. Cranial nerves pathology. Brainstem syndromes
13. Cortical syndromes (frontal, parietal, temporal, occipital)
14. Cognitive functions: Agnosia, Aphasia, Language testing, Apraxias
15. Alteration in consciousness: stupor and coma; persistent vegetative state; brain death. Sleep disorders
16. Autonomic nervous system semiology; Dysautonomias
17. Cerebrovascular diseases: Neurovascular syndromes, Ischemic stroke. Hemorrhagic stroke.
18. Cerebrovascular diseases. Neurovascular syndromes
19. Infectious and inflammatory diseases of the nervous system (viral, bacterial, fungic, parasitary, prionic). Meningites and encephalitis
20. Demyelinating diseases. Multiple sclerosis. Acute disseminated encephalomyelitis
21. Neurodegenerative and hereditary diseases. Degenerative diseases with dementia. Degenerative diseases with epilepsy. Degenerative diseases with ataxia. Degenerative diseases with motor deficit and amyotrophy (ALS, progressive spinal muscular atrophyes)
22. Movement Disorders. Parkinson disease and Parkinsonism. Huntington disease. Wilson disease
23. Spinal cord diseases (spinal cord compressions; myelopathies)
24. Traumatic Brain Injuries and Spinal Cord Injuries

25. Peripheral nervous system pathology. Polyradiculoneuritis
26. Muscular diseases (muscular dystrophies, myotonias, polymyositis). Myasthenia and myasthenis syndromes
27. Neuropathic pain. Headache and migraine; craniofacial pain. Encephalopathies
28. Neurologic symptoms in general diseases.

Practical activities:

1. Involvement in hospital activity. Clinical tour. Active involvement in patient's clinical examination. Particular attitudes. Involuntary movements
2. Motility and reflexes. The motor pathways (neuroanatomy). Motility testing: voluntary motility. Active movements: Segmental muscle strength, Paresis tests. Examination of reflexes: Deep tendon reflexes, Cutaneous, articular and postural reflexes. Pathologic reflexes
3. Motility. The muscle tone. Upper motor neuron syndrome (pyramidal syndrome). Lower motor neuron syndrome. Recognition of motor deficit (paralysis, hemiplegia, paraplegia, monoplegia). Gait
4. Sensory clinical examination. Sensory pathways. Cortical sensory syndrome. Thalamic sensory syndrome. Spinal cord sensory syndromes. Polyneuropathy, mononeuropathy, radicular syndrome
5. Extrapyramidal semiology and pathology (Parkinson disease, Huntington disease, Wilson disease)
6. Cerebellar semiology. Testing cerebellar function. Cerebellar syndrome; cerebellar pathology
7. Cranial nerves semiology and pathology. Olfactory nerve. Optic nerve. Oculomotor nerves (III, IV, VI). Trigeminal nerve. Facial nerve
8. Cranial nerves semiology. Acustico-vestibular nerve. Glossopharyngeus nerve. Vagus nerve. Accessory nerve. Hypoglossal nerve
9. Brainstem syndromes, cortical syndromes (frontal, parietal, temporal, occipital), Alteration in consciousness: stupor and coma; persistent vegetative state; brain death. Sleep disorders. Cognitive functions: Agnosia, Aphasia, Language testing, Apraxias
10. Cerebrovascular diseases: Vascular syndromes, Ischemic stroke
11. Cerebrovascular diseases: Hemorrhagic stroke, Cerebral venous thrombosis, Subarachnoid hemorrhage
12. Demyelinating diseases. Multiple sclerosis
13. Neurodegenerative and hereditary diseases. Degenerative diseases with dementia. Degenerative diseases with epilepsy. Degenerative diseases with ataxia. Degenerative diseases with motor deficit and amyotrophy (ALS, progressive spinal muscular atrophies)
14. Myasthenia gravis. Polyradiculoneuritis. Mononeuritis: sciatic nerve palsy, median, ulnar, radial nerve palsies
15. Peculiarities in neurological examination of infant and child

16. Neurological examination in the newborn (normality and pathology)
17. Archaic reflexes and neuropsychomotor development in the first year of life (normality and pathology)
18. Neuropsychomotor development in infantile, pre-school, small and older schoolchildren (normality and pathology)
19. Cerebral palsy – clinical presentation, work-up, differential diagnosis, management
20. Epileptic seizures, epileptic syndromes and non-epileptic critical events in childhood – diagnosis and management
21. Neurodegenerative disorders, neuro-inflammatory disorders, and their characteristics in childhood

References:

1. *Neurology Course* (electronic form)
2. Erickson A & Parker J (eds). *Essential MedNotes 2023*. 39nd ed. Toronto Notes for Medical Students, Inc, Toronto, 2023
3. Adam Feather, David Randall, Mona Waterhouse: *Kumar and Clark's Clinical Medicine*, 10th Edition, eBook ISBN: 9780702078705, Elsevier, 2020
4. Allan Ropper, Martin Samuels, Joshua Klein, Adams and Victor's *Principles of Neurology*, Ed. 10, ISBN: 9780071794794, New-York, McGraw-Hill Companies, 2014
5. Swaiman's *Pediatric Neurology, Principles And Practice*, Ed. Elsevier, 6th Edition, 2018
6. Aicardi's 4th Edition "Diseases of the Nervous System in Childhood", Mac Keith Press, 2018

Evaluation: - common exam with the discipline Neurosurgery

- Written exam 70%
- Practical exam 30%

B. NEUROSURGERY

Field of study: Health
Study program: Medicine
Course title: Neurosurgery
Course coordinator: Prof. Ioan Stefan Florian, MD, PhD
Department: Neuroscience
Discipline: Neurosurgery
Course code: MED5103EN

Semester	Course Type	Lectures	Practical activities			Lectures	Practical activities			Individual study	TOTAL	Credits	Evaluation
		hours/week			hours/sem.								
		L	PA	CI	L	PA	CI						
I	Compulsory	2	-	2	14	-	14	22	50	10*	Written exam		

L = lectures; PA = practical activities; CI = clinical internship

**with the disciplines Neurology*

Pre-requisites: -

General objectives:

Acknowledgment of elementary neurosurgical principles and techniques.

Specific objectives:

Acknowledgment of the clinical aspects, of the investigation means, principles of treatment, basic techniques, the treatment of the postoperative complications at neurosurgical patients.

Course content:

1. Introduction in Neurosurgery – acknowledgment of basic principles of neurosurgery, basic neurosurgical techniques, aspects of medical care in neurosurgical patients.
2. Head trauma – acknowledgment of the neurosurgical pathological aspects in head trauma patients, investigation methods and their correlation with the neurosurgical operative indication, pre-hospital emergency medical care principles, and principles of surgical treatment, description of basic techniques, nursing and postop treatment of head trauma patients.
3. Spinal injuries - acknowledgment of the neurosurgical pathological aspects in spinal trauma patients, investigation methods and their correlation with the neurosurgical operative indication, pre-hospital emergency medical care

principles, principles of surgical treatment, description of basic techniques, nursing and postop treatment of spinal injured patients.

4. Brain tumors – acknowledgment of the cerebral tumoral pathology, clinical aspects in brain tumors, investigation methods, case management principles, operative indications, principles of neurosurgical treatment and techniques, adjuvant therapies, principles of prevention and treatment of postoperative complications

5. Spinal cord compressions - acknowledgment of the pathology, clinical aspects, investigation methods, case management principles, operative indications, principles of neurosurgical treatment and techniques, principles of prevention and treatment of postoperative complications, nursing and postop treatment of patients with neurological deficits due to spinal cord compression

6. Brain hemorrhagic stroke – acknowledgment of the different types of hemorrhages, causes, risk factors, investigations methods regarding operative indications and complications detection, pre-hospital emergency medical care, principles of neurosurgical treatment and techniques, prevention and treatment of postoperative complications, nursing and treatment of patients with neurological sequellae

7. Pediatric Neurosurgery – introduction to the neurosurgical congenital/malformative pathology in children, presentation of developmental abnormalities, clinical recognition of neurosurgical pathologies in children, radiological investigations and principles of treatment.

References:

1. Florian Ioan Stefan, *Neurochirurgie – curs pentru studenti*, Editura Didactica Universitara "Iuliu Hațieganu", Cluj-Napoca, 215 pag., 2003.
2. Mark S. Greenberg. *Handbook of Neurosurgery* Thieme Medical Publishers, New York, 2006
3. L.N. Shekar, R.G. Fessler, *Atlas of Neurosurgical Techniques, Brain*, Thieme 2006
4. coord. ed. în lb. română: Ioan Ștefan Florian, *Principiile Chirurgiei Neurologice* Editia a 4-a, Editura Hipocrate, 2019.

Evaluation: - common exam with the discipline Neurology

- Written exam 50%
- Practical exam 50%

RADIOLOGY. RESPIRATORY, CARDIOVASCULAR AND NEUROLOGICAL SYSTEM

Field of study: Health
Study program: Medicine
Course title: Radiology. Respiratory, Cardiovascular and Neurological system
Course coordinator: Assoc. Prof. Diana Feier, MD, PhD
 Assoc. Prof. Andrei Lebovici, MD, PhD
Department: Surgical Specialties
Discipline: Radiology
Course code: MED5205EN

Semester	Courses type	Lectures			Practical activities			Individual study	TOTAL	Credit	Evaluation
		hours/week			hours/sem.						
		L	PA	CI	L	PA	CI				
II	Compulsory	2	2	-	14	14	-	22	50	2	Written + oral exam

L = lectures; PA = practical activities; CI = clinical internship

Pre-requisites: -

General objectives:

Acquiring the notions of semiology characteristic of each type of examination, with the explanation of the basic notions in obtaining the radio-imaging image. Acquiring the indications and contraindications of radio-imaging methods, as well as the examination algorithms in order to reduce exposure to radiation, the correlation of common and individualized pathological aspects in the pathology of the respiratory system, cardiovascular and neurological conditions, as well as in the medical-surgical emergencies of these devices

Specific objectives:

At the end of the course students will be able to:

- list and correctly indicate, depending on the clinical-biological picture, the radio-imaging methods used in the exploration of the pathology of the respiratory system, cardiovascular system and neurological conditions
- to know the absolute and relative contraindications of the administration of contrast substances used in radio-imaging explorations
- to know the incidents and accidents of the administration of contrast substances used in radio-imaging explorations and their treatment principles

- to recognize and correctly describe the radio-imaging changes in the diseases of the respiratory system
- to recognize and correctly describe the radio-imaging changes in diseases of the cardiovascular system
- recognize and correctly describe radio-imaging changes in neurological conditions
- to outline a radio-imaging examination result

Course content:

1. Respiratory system. Anatomy. Examinations methods. Radio-imaging semeiology
2. Pulmonary syndromes. Radio-imaging aspect of diverse pulmonary pathologies, including tumors and pleural affections
3. Radio-imaging evaluation of the heart. Radio-imaging anatomy and semeiology
4. Radio-imaging evaluation in the pulmonary vascular syndrome. Radio-imaging evaluation of the aorta, coronary and pulmonary vessels
5. Radio-imaging aspect of the pericardial and myocardial pathologies. Radio-imaging evaluation of the peripheral vessels
6. Radio-imaging aspect in the mediastinal pathologies
7. Radio-imaging evaluation in neurology – anatomy. Examination methods. CT and MRI semeiology. Radio-imaging aspect of the cerebral strokes, tumors and vascular pathology.
8. Radio-imaging aspects in thoracic, central nervous system and spine medico-surgical emergencies

Practical activities:

1. Respiratory system - Examination techniques (UIV, ultrasound, CT, MRI). Normal radio-imaging anatomy. Normal chest image. Syndromes: alveolar, interstitial, pleural, bronchial, parietal filling. Radiographic semiology of pulmonary nodules. Radiographic aspect in atelectasis
2. Mediastinum - Examination techniques (UIV, ultrasound, CT, MRI). Normal radiographic anatomy. Pathological aspects
3. Heart - Examination techniques (RX, ultrasound, CT, MRI). Radiographic anatomy, elementary radiographic semiology. Radiographic aspect in the syndrome of enlargement of the heart cavities, in the myocardial and pericardial syndrome
4. Peripheral vessels - Examination techniques. Radiographic changes in the pathology of peripheral arteries and veins
5. Nervous system - Examination techniques (RX, ultrasound, CT, MRI). Anatomy of radio-imaging, elementary radiographic semiology.

Radiographic changes in the pathology of the central nervous system, spinal cord

6. Radiographic aspects in thoracic, surgical, central nervous system and spinal cord emergencies.

References:

1. Ciurea A.I. (editor.) Radiology for medical students. Vol. II. Ed. Med. Univ. Iuliu Hatieganu, Cluj-Napoca, 2022.

Evaluation:

- Written exam 50%
- Practical exam 50%

PEDIATRICS, PUERICULTURE, PEDIATRIC SURGERY – 12 CREDITS

A. PEDIATRICS AND PUERICULTURE

Field of study:	Health
Study programme:	Medicine
Course title:	Pediatrics and Puericulture
Course coordinator:	Prof. Man Sorin Claudiu, MD, PhD Assoc. Prof. Lazar Călin, MD PhD
Department:	Mother and Child
Discipline:	Pediatrics Clinic I and III
Course code:	MED5206EN

Semester	Course Type	Lectures			Practical activities			Individual study	TOTAL	Credits	Evaluation
		hours/week			hours/sem.						
		L	PA	CI	L	PA	CI				
II	Compulsory	10,5	-	21,75	84	-	174	5	263	12*	Written + practical exam

L = lectures; PA = practical activities; CI = clinical internship

**with the discipline Pediatric Surgery*

Pre-requisites: Anatomy, Histology, Physiology, Anatomic Pathology, Pathophysiology, Medical Genetics, Semiology, Clinical Pharmacology

General objectives:

- Acquiring notions about the growth and development of children;
- Knowledge of pathology in children and its particularities
- At the end of the course, students will be able to establish the correct therapeutic management of pediatric patients

Specific goals:

At the end of the course students will be able:

- to perform a complete clinical evaluation with anamnesis and physical exam in the child
- to identify the normal aspects of somatic and psychomotor development of the child,
- to interpret laboratory and paraclinical data applied to the clinically evaluated case
- to make a correct differential diagnosis and an appropriate investigation plan for the clinical classification of the patient

- to establish a proper diet plan for the normal development of the infant and the baby
- to identify special nutritional needs in various diseases and establish a recovery plan
- to mention the side effects of medication and to manage the adverse reactions of the drugs used
- to identify the particularities of the posology of medication, including particular aspects related to the medication administration technique (eg inhaled treatment of the child)
- to monitor drug therapy in acute illness
- to use methods to prevent prescription errors
 - students will be familiar with the principles of acute poisoning
- to perform prophylaxis of certain diseases in the child's pathology
- communicate effectively with the children and their families.

Course content:

PUERICULTURE: 14 hours

1. Growth and Development of Children
 2. Nutritional Needs of Children
 3. Human Milk and Breastfeeding
 4. Cow Milk and Formula Feeding
 5. Complementary Feeding and Nutrition of Toddlers, 6. Pre-School and School Children
- I. Diseases of the respiratory system in children: 10 hours
1. Nasopharyngitis. Acute adenoiditis. Acute pharyngitis.
 2. Acute laryngitis. Acute bronchitis. Acute bronchiolitis
 3. Asthma
 4. Bronchopneumonia, acute pneumonia. Acute respiratory failure
 5. Cystic fibrosis
- II. Gastroenterology and hepatology in children. 14 hours
1. Vomiting syndrome (gastroesophageal reflux disease (gerd), gastritis and peptic ulcer
 2. Acute gastroenteritis. Acute dehydration syndrome
 3. Chronic diarrhea. Disorders of malabsorption (classification, physiopathology, exploration): celiac disease, cystic fibrosis, lactose intolerance, milk and soy protein allergy
 4. Inflammatory bowel disease
 5. Chronic constipation
 6. Jaundice in infants and preschoolers (hemolytic, hepatocellular, cholestatic,)
 7. Chronic hepatitis. Chronic cirrhosis
- III. Nephrology in children. 8 hours
1. Glomerulonephritis

2. Nephrotic syndrome
3. Urinary tract infection
4. Acute kidney injury and chronic renal disease
- IV. Cardiovascular diseases in children. 10 hours
 1. Congenital heart disease
 2. Endocarditis, myocarditis, non-rheumatic pericarditis.
 3. Cardiac arrhythmias
 4. Systemic hypertension. Cardiomyopathies
 5. Cardiac insufficiency
- V. Rheumatology. 4 hours
 1. Juvenile idiopathic arthritis
 2. Rheumatic fever
 3. Vasculitis
 4. Systemic lupus erythematosus (sle)
- VI. Nutrition, endocrinology and metabolism. 8 hours
 1. Rickets
 2. Diabetes mellitus
 3. Obesity. Congenital hypothyroidism
 4. Failure to thrive and malnutrition
 5. Short stature. Growth hormone (gh) deficiency
- VII. Genetics and birth defects. 4 hours
 1. Abnormalities of chromosomes (autosomal, gonosomal, numeric and structural)
 2. Inborn errors of metabolism (phenylketonuria, pku; galactosemia; gaucher disease, mucopolysaccharidoses, 21- hydroxylase deficiency)
 3. Birth defects
- VIII. Hematology and oncology 6 hours
 1. Anemias in children
 2. Acute lymphoblastic leukemia
 3. Bleeding disorders
- IX. Immunodeficiencies (genetic and aquired). 2 hours
- X. Pediatric emergencies. (fever, comas, seizures, acute poisonings, anaphylactic shock) 4 hours

Practical activities:

- A. The medical assistance of a child
 1. Evaluating the pediatric patient and completing the medical records:
 - a. history
 - b. clinical examination, including: morphogram, thermometry, blood pressure measurement, determination of SpO₂
 - c. establishing a plan for laboratory examinations and treatment
 - d. filling in the discharge papers
 - e. health education measures

2. Nursing of the sick child
3. Feeding: technique of infant feeding, establishing a diet according to the child's disease and age
4. Monitoring vital signs
5. Treatment: administering drugs orally, injectable treatment (intramuscular, intravenous), preparing and supervising intravenous perfusions, Oxygen therapy techniques, inhalatory administered drugs
- B. Sampling techniques
 1. Throat swab collection
 2. Stool collection
 3. Blood collection
 4. Urine collection
- C. Interpretation of laboratory investigations and results of diagnostic explorations:
 1. Complete urine analysis: density, proteinuria, leucocytes, nitrite, urobilinogen, bilirubin, ketones, urinary sediment, urinary electrolytes, pH.
 2. Cerebrospinal fluid (CSF) tests: biochemistry examinations: proteins, glucose and chloride, bacteriological examinations, microscopic examination of the smear
 3. Haematological examinations from the peripheric blood: complete blood count, blood smear, reticulocytes, medulogram
 4. Imagistic investigations (radiographic films, ultrasounds, CT, MRI)
 5. ECG
 6. Blood biochemical examinations: inflammatory tests, function tests- liver, renal, metabolic, acid-base balance, blood gases, electrolytes
 7. Spirometry
 8. Coprologic examinations: culture, cells, pH digestion
- D. Presentations of clinical cases of each course topic

References:

1. Pediatrics for Medical Students, Man SC, sub redacția; coautori Cherecheș-Panța P, Iacob D, Ichim GE, Mihețiu M, Mureșan M, Pop D, Sas V, Schnell CN. Editura Risoprint, 2017, ISBN 978-973-53-2041-6
2. Feather A, Randall D, Waterhouse M – Kumar și Clark Medicină clinică. Azamfirei L, Buzoianu AD, Gheonea ID- coordonatorii ediției în limba română, Ed. A 10-a, Ed.Hipocrate, București 2021
3. L. Ganti, D Lebowitz, J Rosario, A Vera: Sinopsis de Medicină. C.O. Mărgineanu, C. Poiană – coordonatorii ediției în limba română, ed. a 5-a, Ed.Hipocrate, București, 2021.
4. Tratat de Pediatrie - Doina Anca Pleșca, ISBN: 978-606-95260-0-2, editura Medichub Media SRL, 2021
5. Tratat de Pediatrie - Florea Iordăchescu, ISBN: 978-606-587-550-0, editura ALL, 2019

6. Esențialul în Pediatrie - Carmen Ciofu, Eugen Ciofu, ISBN: 978-973-162-169-2, editura Amaltea, 2018
7. Protocoale de diagnostic și tratament în pediatrie - Doina Anca Pleșca, ISBN: 978-973-162-209-5, editura Amaltea, 2020
8. Kliegman R.M., Stanton B.F., St Geme J.W., Scor N.F. Nelson - Textbook of Pediatrics, 21-th ed., ELSEVIER, Philadelphia 2019
9. White A.J., Pop T.L. (coord.ed. în lb.română). Ghid practic de Pediatrie Washington, București, Ed. Hipocrate, 2019, ISBN 978-606-94576-3-4

Evaluation: - common with the discipline Pediatric Surgery

- Written exam 30%
- Practical exam 70%

B. PEDIATRIC SURGERY

Domain	Health
Program	Medicine
Lecturers	Pediatric Surgery
Chairman	Lecturer Gocan Horațiu, MD, PhD
Department	Mother and Child
Discipline	Surgery and Pediatric Surgery
Code	MED5206EN

Semester	Course Type	Lectures			Practical activities			Individual study	TOTAL	Credits	Evaluation
		hours/week			hours/sem.						
		L	PA	CI	L	PA	CI				
II	Compulsory	1	-	3	7	-	21	7	37	12*	Written + practical exam

L=lecturers; P=practical;

**with the Discipline Pediatrics and Puericulture*

Pre-requisites: -

General objectives:

Familiarization and recognition of child surgical pathology, principles of diagnosis and treatment in children

Specific objectives:

Congenital and acquired surgical pathology in newborn, infant and child.

Course content:

1. Malformations of the digestive tract and abdominal wall in children
2. Surgical acute abdomen
3. Abdominal trauma. Hemangiomas, lymphangiomas. Digestive haemorrhages
4. Notes on pediatric urology

Practical activities:

1. Presentation of the pathology of the newborn
2. Presentation of the pathology of the young and preschool child
3. Occlusive syndrome in infants and young children
4. Pediatric kidney pathology
5. Congenital malformations of the digestive tract
6. Malformations of the abdominal wall of the child

7. Acute surgical abdomen.

Bibliography:

1. Anca Budusan, Pediatric Surgery for medical students. Ed. Medicală Universitară "Iuliu Hațieganu" Cluj-Napoca, 2018
2. Ashcraft's Pediatric Surgery, 6th Edition, Saunders 2014

Evaluation: - common exam with the discipline Pediatrics and Childcare

- Written exam 50%
- Practical exam 50%

ENT – OTOLARYNGOLOGY

Field of study: Health
Study program: Medicine
Course title: Otolaryngology
Course coordinator: Lecturer Sever Septimiu Pop, MD, PhD
Department: Surgical Specialties
Discipline: Otolaryngology
Course code: MED5207EN

Semester	Course type	Lectures			Practical activities			Individual study	TOTAL	Credit	Evaluation
		hours/week			hours/sem.						
		L	PA	CI	L	PA	CI				
II	Compulsory	4	4	-	28	28	-	44	100	4	Written+ practical exam

L = lectures; PA = practical activities; CI = clinical internship

Pre-requisites: Anatomy, Physiology, Pathophysiology, Pharmacology, Methodology of Scientific Research

General objectives:

At the end of the ENT module, the students must be familiar with the basics of the ENT pathology

Specific objectives:

- The students must be able to take an adequate history of a patient with ENT pathology, to perform all the clinical examinations required for a clinical diagnosis, to assess data from specific paraclinical examinations
- The students must recognize an ENT emergency and must know the basic principles of the management

Course content:

1. Rhinology
2. Faringology
3. Laryngology
4. Otology, Audiology & Vestibular pathology
5. Audiology
6. Vestibular pathology
7. Salivary glands & Neck pathology

Practical activity:

1. Rhinology: inspection, palpation of the sinusal points, examination of the nasal vestibule, examination of the nasal cavities (anterior rhinoscopy, endoscopic examination)
2. Faringology: inspection, palpation, examination of the nasopharynx (posterior rhinoscopy, endoscopic examination), examination of the oropharynx (oropharyngoscopy), examination of the hypopharynx (mirror examination, endoscopic examination)
3. Laryngology: inspection, palpation, examination of the larynx (mirror examination, endoscopic examination)
4. Otology: inspection, palpation, otoscopy,
5. Audiology: whispered voice test, tuning fork tests, pure-tone audiometry
6. Vestibular pathology: nystagmus, Romberg test, Unterberger test, Dix-Hallpike maneuver
7. Salivary Glands & Neck pathology: inspection, palpation
8. Attending ENT surgical procedures in the operating theatre

References:

Mandatory references:

1. Sever Pop (Editor) - ENT Basics, Editura Medicală Universitară "Iuliu Hațieganu", Cluj-Napoca 2022, ISBN 978-606-075-072-7, 354 pages

Supplementary references:

2. Bingham BJ, Hawke M, Kwok P – Atlas of Clinical Otolaryngology, Mosby 1992
3. Erickson A & Parker J (eds). Essential MedNotes 2023. 39nd ed. Toronto Notes for Medical Students, Inc, Toronto, 2023

Evaluation:

- Written exam 60%
- Practical exam 40%

MEDICAL ONCOLOGY. RADIOTHERAPY – 4 CREDITS

A. MEDICAL ONCOLOGY

Study domain	Health
Study program	Medicine
Course	Oncology
Discipline holder	Prof. Căinap Călin, MD, PhD Lecturer Andra Meşter, MD, PhD
Department	Oncology
Discipline	Medical Oncology
Course code	MED5208EN

Semester	Courses Type	Lectures			Practical activities			Individual study	TOTAL	Credits	Evaluation
		hours / week			hours/ week						
		L	PA	CI	L	PA	CI				
II	Compulsory	1	-	1	14	-	14	22	50	2	Written+ practical exam

L=lectures; PA=practical activities; CI=clinical internship

Pre-requisites: Anatomy, Physiology, Physiopathology, Pathological Anatomy, Medical Semiology, Internal Medicine 4th year, Surgery, Clinical Pharmacology 4th year, Hematology

General objectives:

At the end of the course the students will be able to integrate the theoretical notions related to the oncological pathology into clinical practice by identifying the needs and the correct application of the specific therapeutic and palliative methods and of oncological patient.

Specific objectives:

At the end of the course students will be able to:

- Identify the risk factors for cancer (exo and endogenous)
- To know the cancers where a screening programme is standard
- How to confirm a malignancy
- How to make a work-up for complete and correct TNM stadialisation of the main primary tumours
- To prepare an indication for the strategy of management of a neoplastic patient (integration of surgery, radiotherapy and systemic treatments)
- To identify the main toxicities of the oncological therapies

- To identify an oncologic emergency

Course content:

1. Cancerogenesis, Mutations in cancer. Natural history of cancer
2. Principles of systemic treatment in oncology & side effects
3. Breast cancer
4. Lung cancer & MELANOMA
5. Gynecologic cancers
6. Genito-urinary cancers
7. Digestive cancers

Practical activities:

1. Breast cancer
2. Lung cancer
3. Gynecologic cancers
4. Genito-urinary cancers
5. Digestive cancers
6. Melanoma

Bibliography:

1. DeVita, Jr., Vincent T.; Lawrence, Theodore S.; Rosenberg, Steven A. DeVita, Hellman, and Rosenberg's Cancer: Principles & Practice of Oncology. 11th ed. Philadelphia: Lippincott Williams & Wilkins (LWW); 2018. 2432p.
2. Halperin, Edward; Wazer, David; Perez, Carlos; Brady, Luther. Perez & Brady's Principles and Practice of Radiation Oncology. 7th ed. Philadelphia: Lippincott Williams & Wilkins (LWW); 2018. 2448p.
3. <https://www.nccn.org/>
4. <https://www.esmo.org/guidelines>
5. David J. Kerr, Daniel G. Haller, Cornelis J. H. van de Velde, Michael Baumann (eds.) - Oxford Textbook of Oncology-Oxford University Press
6. Erickson A & Parker J (eds). Essential MedNotes 2023. 39nd ed. Toronto Notes for Medical Students, Inc, Toronto, 2023

Evaluation: - common with the discipline of Radiotherapy

- Written exam 50%
- Practical exam 50%

B. RADIOTHERAPY

Study domain	Health
Study program	Medicine
Course	Oncology
Discipline holder	Prof. Gabriel Kacsó, MD, PhD Lecturer Zolt Fekete, MD, PhD
Department	Oncology
Discipline	Oncology - Radiotherapy
Course code	MED5208EN

Semester	Courses Type	Lectures			Practical activities			Individual study	TOTAL	Credits	Evaluation
		hours / week			hours/ week						
		L	PA	CI	L	PA	CI				
II	Compulsory	1	-	2	7	-	14	29	50	2	Written+ practical exam

L=lectures; PA=practical activities; CI=clinical internship

Pre-requisites: Anatomy, Pathophysiology, Pathological anatomy, Imaging, Scientific research methodology

General objective:

At the completion of the course students will be capable of defining a complete diagnosis and to establish a correct therapeutic plan.

Specific objectives:

At the end of the course the students will be capable:

- To analyze the socioeconomic impact of cancer on a populational level
- To synthesize and exemplify exogenous and endogenous etiological factors
- Differentiate primary, secondary and tertiary prophylaxis methods in a specific cancer (breast, cervical, colorectal, liver, melanoma, prostate, etc.);
- Propose lifestyle changes and recommendations likely to decrease the incidence of a specific cancer (breast, broncho-pulmonary, skin, etc.);
- Distinguish in a clinical case the direct and indirect signs of suspicion of malignancy and establish a complete diagnostic plan (biopsy, staging, comorbidities, performance index);
- Rank the complementary (paraclinical) examinations for a specific cancer according to the diagnostic contribution, invasiveness and estimated cost;

- Plan the post-therapeutic control agenda of an oncology patient, schedule and justify the necessary examinations;
- Evaluate common acute and chronic toxicities (neutropenia, nausea/vomiting, alopecia, extravasation, etc.), respectively specific of a radiotherapy sequence and propose the necessary measures to combat/prevent it;
- Justify the indication of radiotherapy in a clinical case;
- Explain to the patient/colleague/mentor the course of radiotherapy (total dose, number of fractions, total duration), acute and late reactions of irradiation in order to obtain informed consent;
- Point out the differences and rationales of neoadjuvant, concurrent and adjuvant multidisciplinary therapeutic associations in oncology;
- Diagnose an oncological emergency;
- Qualitatively and quantitatively evaluate chronic pain and formulate analgesics and adjuvant therapeutic strategy (prescription) for a specific cancer patient;
- Critically evaluate the data from the literature;
- Integrates the principles of professional ethics towards the oncological patient (respect and empathy towards the patient, medical confidentiality, etc.).

Course content:

1. Tumor precursors and risk groups. Cancer prevention
2. Diagnosis of malignancy. The therapeutic decision. Pretherapeutic balance. Evaluation of therapeutic results
3. Treatment methods: Radiation Therapy
4. Oncological emergencies

Practical activities:

1. Generalities. Tumor adenopathy's. ENT cancers.
2. Lung cancers
3. Gynecological cancers
4. Digestive cancers
5. Urological cancers
6. Breast cancer.
7. CNS cancer. Bone and limb sarcomas

Bibliography:

1. Kacsó G. (Editor). CANCER. Principles and practice of General Oncology. Editura Medicala Universitara „Iuliu Hatieganu” Cluj, 2009
2. Halperin, Edward C., Luther W. Brady, David E Wazer, and Carlos A. Perez. Perez and Brady's Principles and Practice of Radiation Oncology. 7th

edition. Philadelphia: Wolters Kluwer Health/Lippincott Williams & Wilkins, 2018

3. DeVita, Vincent T., Jr., Theodore S. Lawrence, and Steven A. Rosenberg. Devita, Hellman, and Rosenberg's Cancer: Principles & Practice of Oncology. 11th edition. Philadelphia: Wolters Kluwer, 2018.
4. Nagy V (sub redactia). Propedeutica Oncologica. Editura Medicala Universitara „Iuliu Hatieganu” Cluj, 2008
5. AJCC Cancer Staging Handbook, 8th ED, Springer, New York Heidelberg London, 2017
6. Chao CKS, Perez CA, Bardy LW. Radiation Oncology Management Decisions, 4th ED. LWW Philadelphia, 2018

Evaluation: - common with the discipline of Medical Oncology

- Written exam 50%
- Practical exam 50%

RHEUMATOLOGY AND MEDICAL REHABILITATION – 5 CREDITS

A. RHEUMATOLOGY

Field of study:	Health
Study program:	Medicine
Course title:	Rheumatology
Course coordinator:	Assoc. Prof. Muntean Laura, MD, PhD
Department:	Medical Specialties
Discipline:	Rheumatology
Course code:	MED5209EN

Sem.	Course type	Lectures			Practical activities			Individual study	TOTAL	Credits	Evaluation
		Hours/week			Hours/semester						
		L	PA	CI	L	PA	CI				
II	Compulsory	3	-	2	21	-	14	30	75	3	Written + practical exam

L = lectures; PA = practical activities; CI = clinical internship

Pre-requisites: Anatomy, Physiology, Pathophysiology, Medical Semiology, Internal Medicine year 4, Clinical Pharmacology year 4

General objectives:

- To know the major rheumatic diseases and recognize the individual and society burden of these diseases
- To be able to take a relevant history in the knowledge of the characteristics of the major rheumatic diseases
 - To be able to identify, characterize and differentiate the major rheumatic syndromes (polyarthritis, monoarthritis, oligoarthritis, generalized pain, regional pain)
 - To characterize the main types and joint patterns of the major rheumatic diseases
 - To recognize rheumatic diseases which should be referred directly to a rheumatologist for urgent specialist assessment
 - To demonstrate the ability to distinguish arthritis from soft tissue non articular syndromes, as well as inflammatory arthritis from degenerative diseases, through patient inquiry, examination and limited investigation
- To demonstrate a basic understanding in the indications for and the interpretation of results from laboratory tests to establish the diagnosis of

rheumatologic emergencies (acute-phase reactants, immunological tests, musculoskeletal imaging methods, etc)

- To construct an appropriate differential diagnosis for a patient presented with rheumatologic diseases
- To demonstrate a basic understanding of the major indications, adverse effects and contraindications of drugs commonly used in the management of rheumatic conditions.

Specific objectives:

Lecture 1. Introduction

- What is rheumatology? The principles of history and physical examination of the musculoskeletal system
- To make an appropriate evaluation of the musculoskeletal pain (acute vs chronic, regional vs. generalized, intraarticular vs periarticular, inflammatory vs. mechanical pain)
- To understand the impact of a chronic musculoskeletal condition on an individual and their families and on society, due to impairment of function, limitation of activities, and restriction of participation (disability and handicap)
- To demonstrate the ability to construct To understand the impact of a chronic musculoskeletal condition on an individual and their families and on society, due to impairment of function, limitation of activities, and restriction of participation (disability and handicap)
- To make a differential diagnosis in patients presenting with regional pain syndromes
- To make an appropriate evaluation through inquiry, examination and limited investigation and construct a positive diagnosis for a patient presenting with chronic generalized pain (fibromyalgia)
- To be able to explain the available management strategies (nonpharmacologic and pharmacologic) to a fibromyalgia patient, and to establish an appropriate management plan, as a shared decision between patient and physician.

Lecture 2. Polyarthritis and Rheumatoid arthritis (RA)

- To understand the appropriate approach to a patient with polyarthritis and to be able to differentiate RA from other poly-articular diseases (diagnostic algorithm for patients with polyarthritis)
- To enumerate and hierarchize the main differential diagnosis in patient with polyarthritis
- To be able to identify synovitis, tenosynovitis, deformities/joint instability, subcutaneous nodules, and the signs of compressive neuropathy, as a part of general examination of extremities in a patient with RA
- To be able to identify the extra-articular manifestations in RA

- To demonstrate an appropriate use and interpretation of laboratory tests (acute-phase reactants, rheumatoid factor, anti-cyclic citrullinated peptides antibodies - ACPA) and relevant imaging methods (musculoskeletal ultrasound, standard X-ray, MRI examination) for diagnosis and assessment of RA
- To understand the principles of monitoring disease activity and functional capacity and to use appropriately the disease activity scores in the assessment of patients with RA
- To identify correctly the benefit/risk profile of the drugs commonly used in the management of patients with RA (DMARDs - *Disease-modifying antirheumatic drugs*, biologic agents, non-steroidal anti-inflammatory drugs, corticosteroids)

Lecture 3. Oligoarthritis, Low back pain, Spondylarthritis (SpA)

- To identify patients with oligoarthritis to hierarchize the main differential diagnosis and to construct an appropriate investigation strategy (diagnostic algorithm for patients with oligoarthritis)
- To be able to collect and interpret appropriate clinical data and to construct a positive and differential diagnosis for a patient presenting with low back pain
- To demonstrate an appropriate use and interpretation of laboratory tests and relevant imaging methods for diagnosis of patients with chronic low back pain
- To understand the unifying concept of SpA, to know and identify articular and extra-articular manifestations that are associated with SpA
- To discuss the relationship between the genetic and environmental factors implicated in the pathogenesis of SpA
- To be able to propose a strategy for early diagnosing ankylosing spondylitis
- To construct an appropriate positive diagnosis through patient inquiry, examination and investigations for the patient with ankylosing spondylitis, psoriatic arthritis, reactive arthritis and enteral arthritis
- To be able of outlining the appropriate principles of management according to the clinical presentation and severity of the disease, in patients with ankylosing spondylitis, psoriatic arthritis, reactive arthritis and enteral arthritis

Lecture 4. Monoarthritis. Osteoarthritis. Crystal deposition diseases

- To enumerate and hierarchize the main differential diagnosis and to construct an appropriate investigation strategy in patients with monoarthritis (diagnostic algorithm for patients with monoarthritis)
- To recognize the emergencies associated to monoarthritis, including septic arthritis and rupture of a popliteal cyst

- To know the principles and interpretation of results of synovial fluid analysis in patients presenting with monoarthritis
- To construct an appropriate positive diagnosis through patient inquiry, examination and investigations for the patient with crystal deposition arthritis (gout, calcium pyrophosphate deposition disease, etc)
- To demonstrate the ability to construct and implement an appropriate treatment plan for the care of a patient with crystal deposition arthritis, according to the clinical presentation, disease course and comorbidities
- To be able to perform a proper examination of knee joint: to identify knee effusion, misalignment, knee stability, crepitations and popliteal cyst
- To apply knowledge of clinical pharmacology and benefit/risk profile to selection and use of nonsteroidal anti-inflammatory drugs in old patients presenting with osteoarthritis.

Lecture 5. Is this a connective tissue disease? Identification of systemic rheumatic diseases. Systemic lupus erythematosus (SLE). Antiphospholipid antibody syndrome (APS)

- To discuss the main mechanisms of autoimmunity and immune inflammation, including the role of genetic and hormonal factors in the pathogenesis of SLE
- To demonstrate an appropriate use and interpretation of immunologic tests, including antinuclear antibodies (ANA) and antiphospholipid antibodies
- To understand the utility and limits of classification criteria in SLE
- To know and identify clinical manifestations that are associated with SLE
- To know and identify possible complication and common causes of death in patients with SLE
- To recognize the high risk of cardiovascular diseases and early atherosclerosis in patients with SLE
- To know the major indications, adverse effects, and contraindications of drugs commonly used in the management of lupus patients
- To be able to evaluate correctly the indications for and the risks and benefits of corticosteroid treatment in patients with SLE
- To be able of outlining the appropriate treatment plan with immunosupresor drugs (including corticosteroid-sparing drugs) according to the clinical presentation and severity of the disease in patients with SLE
- To know and identify clinical manifestations and appropriate tests for the screening of APS

Lecture 6. Is this a connective tissue disease? Identification of systemic rheumatic diseases. Systemic autoimmune rheumatic diseases: systemic scleroderma, inflammatory myopathies, Sjogren syndrome, recurrent chondritis, mixed connective tissue disease, etc

- To recognize Raynaud phenomenon and to be able to differentiate between primary and secondary Raynaud phenomenon through clinical examination, antinuclear antibody test and capillaroscopy
- To know the classification criteria and relevant clinical manifestations associated with limited and diffuse systemic scleroderma
- To understand and know the importance of monitoring visceral involvement in systemic scleroderma, through clinical examination and investigations
- To be able of outlining the appropriate treatment plan according to the clinical presentation, visceral involvement and severity of the disease in patients with systemic scleroderma
- To know and identify clinical manifestations and relevant clinical associations in patients with dermatomyositis/polymyositis
- To explain the benefits and risks of the drugs commonly used in the management of patients with inflammatory myopathies - mainly corticosteroids, but also other immunosuppressors
- To know and identify clinical manifestations, associated comorbidities and complications related to Sjogren syndrome
- To know rare diseases that has to be differentiated from other systemic connective tissue diseases (recurrent chondritis, Behcet disease, mixed connective tissue disease)

Lecture 7. Systemic vasculitis

- To understand the basic pathogenic mechanisms in systemic vasculitis
- To know current classification and terminology of this heterogeneous group of diseases
- To know and identify clinical manifestations relevant for the systemic vasculitis
- To be able to recognize the emergencies associated to giantocellular arteritis and to establish an appropriate management plan
- To demonstrate an appropriate use and interpretation of paraclinical tests for the positive and differential diagnosis of systemic vasculitis (antineutrophil cytoplasmic antibodies – ANCA, imaging tests, biopsy)
- To be able of outlining the appropriate treatment plan with immunosuppressor drugs in patients with systemic vasculitis
- To discuss integrated clinical cases and quizzes, with the evaluation of the clinical skills acquired.

Course content:

1. Introduction – what is Rheumatology? The principles of history and physical examination of the musculoskeletal system
2. Polyarthrititis and Rheumatoid arthritis (RA)
3. Oligoarthrititis, Low back pain, Spondylarthrititis (SpA)

4. Monoarthritis. Osteoarthritis. Crystal deposition diseases
5. Is this a connective tissue disease? Identification of systemic rheumatic diseases. Systemic lupus erythematosus (SLE). Antiphospholipid antibody syndrome (APS)
6. Is this a connective tissue disease? Identification of systemic rheumatic diseases. Systemic autoimmune rheumatic diseases: systemic scleroderma, inflammatory myopathies, Sjogren syndrome, recurrent polychondritis, mixed connective tissue disease, etc
7. Systemic vasculitis.

Practical activities:

1. History taking and physical examination relevant for musculoskeletal diseases. Evaluation of the musculoskeletal pain. Screening examination of the musculoskeletal system (*GALS - Gait, Arms, Leg, Spine*) in accordance with European recommendations
2. Clinical cases with various types of polyarthritis. Regional musculoskeletal examination of the hands. Recognize and describe the characteristic joint modifications in advanced rheumatoid arthritis and psoriatic arthritis. Recognize Bouchard's and Heberden's nodes . Perform Gaensslen test. Detect synovitis of the hands. Make a functional assessment of the hand – assess power grip and pincer grip
3. Clinical cases with spondyloarthritis. Perform regional examination of the back. Recognize spine deformities. Detect muscle contraction. Assess spine mobility. Perform and interpret Schober's test. Perform and interpret straight leg raise test (Lasegue's test)
4. Clinical cases with monoarthritis. Perform regional examination of the knee. Recognize *varus* and *valgus* deformities of the knee. Detect knee crepitations. Palpate for tenderness around and over a joint. Detect an effusion at the knee – demonstrate the patellar tap
5. Clinical cases with systemic connective tissue diseases. General physical examination relevant for systemic connective tissue diseases - characteristic facies in rheumatologic diseases, dermatologic lesions, nodules, etc
6. Clinical cases with systemic connective tissue diseases. Perform clinical examination of hands and skin in patients with systemic sclerosis
7. Clinical cases with systemic vasculitis. General physical examination relevant for systemic vasculitis

References:

1. Simona Rednic. *Reumatologie clinică – ghid de studiu*. Editura Medicală Universitară Iuliu Hațieganu, Cluj-Napoca, 2018
2. Erickson A & Parker J (eds). *Essential MedNotes 2023*. 39nd ed. Toronto Notes for Medical Students, Inc, Toronto, 2023

3. Jose Da Silva and Anthony Woolf. *Rheumatology in practice*, Springer Verlag, London, 2010

Evaluation: common with discipline Medical Rehabilitation

- Written exam 50%
- Practical exam 50%

B. MEDICAL REHABILITATION

Field of study: Health
Study program: Medicine
Course title: Medical rehabilitation
Course coordinator: Assoc. Prof. Irsay Laszlo, MD, PhD
 Assoc. Prof. Ileana Monica Borda, MD, PhD
 Lecturer Viorela Ciortea, MD, PhD
Department: Medical Specialties
Discipline: Medical rehabilitation
Course code: MED5209EN

Sem.	Course type	Lectures			Practical activities			Individual study	TOTAL	Credits	Evaluation
		hours/week			hours/semester						
		L	PA	CI	L	PA	CI				
II	Compulsory	2	-	2	14	-	14	22	50	2	Written+ practical exam

L=lectures; PA=practical activities; CI=clinical internship

Pre-requisites: Anatomy, Semiology, Methodology of scientific research

General objectives:

At the end of the module students will be able to correctly manage the medical rehabilitation programs in patients with rheumatological, neurological, orthopedic- posttraumatic, cardiological, respiratory diseases.

Specific objectives:

Definition of basic concepts in the field of medical rehabilitation.
 Importance and reasons for using rehab techniques in medical practice.
 Knowledge of medical rehabilitation techniques, physiotherapy methods and applicability in everyday medical practice.

Course content:

1. Title: Introductory course. Definitions. Prescribing principles. Indications and contraindications. General examination of the locomotor system. Assessment of disability, definition of medical rehabilitation: rehabilitation team, principles for prescribing the rehabilitation program, methods of medical rehabilitation, indications of medical rehabilitation, major contraindications, general examination of the locomotor system, assessment of the type and degree of disability

2. Title: Natural Physical Agents

Mineral waters: definition, conditions for water to be considered mineral water, mode of action of mineral waters, classification of mineral waters, the physical and chemical effects of mineral waters, the main types of mineral waters and the therapeutic indications (cold and warm oligomineral, carbonated, alkaline, salted, sulphurous)

Medical climatology: definition, characteristics of a climate, types of bioclimate, microclimates (salt mines, urban climatopathology) - characteristics, effects and therapeutic indications / harmful effects

Peloids / Muds: definition, types of peloids (sapropelic, peat, spring), physical properties, biological properties, application techniques, therapeutic indications

3. Title: Artificial physical agents

Electrotherapy: definition, classification, low frequency currents (types, effects, therapeutic indications), medium frequency currents (types, effects, therapeutic indications), high frequency currents (types, effects, therapeutic indications), ultrasound therapy, extracorporeal shock wave therapy, magnetic field treatments, phototherapy

Hydrotherapy: the definition of hydrotherapy, physical properties of water, thermoregulation, the main effects of the heat factor, the main effects of the mechanical factor, the main effects of the chemical factor, the action of hydrothermotherapy on the cardiovascular system, the action of hydrothermotherapy on the respiratory system, the action of hydrothermotherapy on muscles, hydrotherapeutic reaction, cure reaction in hydrothermotherapy, the main hydrothermotherapy procedures, thermotherapy, cryotherapy

Medical kinesiology and kinesitherapy: types of muscle contractions, types of exercises, advantages and disadvantages of isotonic and isometric muscle contraction, posture, passive mobilizations, active mobilizations, analytical exercise therapy, water based exercise therapy

Medical massage: definition of medical massage, local effects, general effects, main massage procedures, indications, contraindications, special techniques and indications

New technologies and devices used in rehabilitation, robotics

4. Title: Rehabilitation of patients with rheumatologic disorders: definition, goals, features, adapting the medical rehabilitation program to the major types of pathology

5. Title: Rehabilitation of patients with neurological disorders: definition, goals, features, adapting the medical rehabilitation program to the major types of pathology

6. Title: Rehabilitation of patients with traumatic and orthopedic diseases: definition, goals, features, adapting the medical rehabilitation program to the major types of pathology

7. Title: Rehabilitation of patients with pulmonary, cardiovascular diseases: definition, goals, features, adapting the medical rehabilitation program to the major types of pathology

Practical activities:

Clinical case presentations, physical examination of the locomotory system, rehabilitation protocols, physiotherapy techniques, way of organizing and functioning of the rehabilitation ward and the physiotherapy ward.

References:

1. L. Pop, L. Irsay: *Textbook of Physiotherapy*. Ed. Medicală Universitară „Iuliu Hațieganu” – Cluj, 2006
2. L. Irsay, L. Pop: *Textbook of Rheumatological Rehabilitation*. edit. Medicală Universitară „Iuliu Hațieganu” – Cluj, 2006
3. Joel A DeLisa, Bruce M Gans, Nicolas E Walsh et al: *Physical Medicine and Rehabilitation: Principles and Practice*, 2 Vol, edițiile 1998 or 2004
4. Randall L. Braddom: *Physical Medicine and Rehabilitation*. ed 2006
5. Ioan Onac: *Reabilitare medicala: caiete de curs 1*, Editura Medicală Universitară “Iuliu Hațieganu” Cluj-Napoca, 2013
6. Ioan Onac, Monica Borda, Viorela Ciortea, Gabriela Dogaru, Laszlo Irsay, Rodica Ungur - *Reabilitare Medicala*, Editura Medicala Universitara "Iuliu Hațieganu", Cluj-Napoca, 2018
7. Written form of lectures of the Departement/handouts

Evaluation: - common with discipline Rheumatology

- Written exam 60%
- Practycal exam 40%

6th YEAR

FAMILY MEDICINE

Field of study: Health
Study program: Medicine
Course title: Family Medicine
Course coordinator: Lecturer Codruța Mărginean, MD, PhD
Lecturer Aida Puia, MD, PhD
Department: Community Medicine
Discipline: Family Medicine
Course code: MED6101EN

Sem.	Course type	Lectures			Practical activities			Individual study	TOTAL	Credit	Evaluation
		hours / week			hours / semester						
		L	PA	CI	L	PA	CI				
I	Compulsory	4	-	6	28	-	42	55	125	5	Written + practical exam

L= lectures; PA= Practical activities; CI= clinical internship

Pre-requisites: Semiology, Internal medicine 4th year, Pediatrics, Pharmacology 4th year, Methodology of scientific research

General objectives:

- Understanding the content, role and place of family medicine in the health system, awareness of the importance of the specialty and the complexity of training for this specialty.
- Acquiring the clinical skills and basic attitudes necessary to practice the specialty (holistic approach, patient and family focus, the importance of psychosocial, economic and educational aspects).
- Assimilation of knowledge and acquisition of skills to solve current problems of pathology in the practice of family medicine (FM.)

Specific objectives:

- Family physician's tasks
- Theoretical and practical knowledge assessment, regarding health promotion, early risk factors identification, early diagnosis, chronic diseases management (comprehensive history, efficient physical exam)
- Primary and secondary prophylaxis' principles
- Selection and interpretation of diagnostic procedures (appropriate and gradual use of laboratory tests)

- Acquiring the knowledge necessary for the diagnosis and treatment in primary care (counseling regarding the diet, psychological, social and physical stress, recommendations for lifestyle changes)
- Acute and chronic disease treatment, side effects
- Complementary therapies principles
- Iatrogenic pathology-diagnosis errors.
- Therapeutic particularities in geriatrics
- Acquiring the knowledge and skills for interventions in palliative care and home care.

Course content:

1. Family medicine (FM) - definition, content. Differences in family medicine compared to other medical specialties. Peculiarities of consultation, diagnosis and treatment in FM
2. The place of the FM in the Health Insurance System. The packages of basic, minimal and optional medical services in FM. Primary prevention in FM.
3. The full-term and premature newborn and infant in the family doctor's practice (clinical examination, vaccination and nutrition)
4. The child's fever syndrome in FM practice: causes, investigations, principles of treatment.
5. Approach to acute pathology (respiratory and digestive) of infants and young children in FM
6. The child's edematous syndrome
7. Chest pain - Algorithm of evaluation and treatment
8. Approach to the patient with dyspnea in FM
9. Chronic cough-assessment and treatment in FM
10. Evaluation and treatment of the patient with nausea and vomiting and of the patient with unintentional weight loss in FM
11. Hepato- splenomegaly syndrome: causes, investigations, treatment principles
12. Joint manifestations in various diseases in FM
13. Pain in the extremities - diagnostic and therapeutic algorithm in FM
14. Home visit in FM: advantages, disadvantages

Practical activities:

1. To perform, record and interpret balance examinations in children and adults of different ages and to present recommendations regarding the identified risk of disease
2. Apply risk reduction strategies through: screening, early detection, immunizations and counseling
3. To acquire communication skills with the patient, to record the medical history
4. Perform and record the physical exam

5. To apply clinical thinking in the interpretation of data from anamnesis and physical exam, establishing the clinical diagnosis
6. Appropriately use of investigations
7. Develop and implement a treatment and monitoring plan for the most common conditions in FM
8. Participate in pregnancy monitoring and risk identification
9. Lab tests and EKG interpretation
10. To participate in the selection and vaccination of children in vaccination campaigns
11. To know the objectives of the newborn's visit
12. Know the rules for prescribing electronic prescriptions
13. To complete specific medical documents in FM
14. To develop home care programs for the chronic patients

References:

1. Buzoianu Anca, Mureşan Daniel, Mira Florea, Claudia Gherman, Sorin Man, et al. – *Caiet de practică medicală de specialitate pentru studenții facultății de medicină*, Cluj-Napoca, 2015
2. Simon C., Everit H. *Oxford Book of general practice*, Oxford University Press, Fifth edition, June 2020
3. Sara Mirali, Ayesh Seneviratne. *Essential Med Notes 2020: Comprehensive Medical Reference and Review*, 36th Edition, Thieme Medical Publishers, Incorporated, Jan 2020
4. Centers for Disease Control and Prevention: *Vaccine Storage and Handling. Recommendations and Guidelines*.
<http://www.cdc.gov/vaccines/recs/storage/>
5. Mindy A. Smith, Leslie A. Shimp, Sarina Schragger. *Family Medicine: Ambulatory Care and Prevention*, 6th edition, 2017, (Lange Clinical Manuals)
6. Rakel R.E, Rakel D. P. *Textbook of Family Medicine*, 9th Edition, Elsevier Saunders 2016.
7. Erickson A & Parker J (eds). *Essential MedNotes 2023*. 39nd ed. Toronto Notes for Medical Students, Inc, Toronto, 2023

Evaluation:

- Written exam 60%
- Practical exam 40%

SPECIAL EPIDEMIOLOGY AND HEALTHCARE ASSOCIATED INFECTIONS

Field of study: Health
Study program: Medicine
Course title: Special epidemiology and healthcare associated infections
Course coordinator: Lecturer Radu-Tudor Coman, MD, PhD
Department: Medical specialties
Discipline: Infectious diseases. Epidemiology
Course code MED6102EN

Sem.	Course type	Lectures			Practical activities			Individual study	TOTAL	Credits	Evaluation
		hours / week			hours / sem.						
		L	PA	CI	L	PA	CI				
I	Compulsory	2	2	-	14	14	-	22	50	2	Written+ practical exam

L=lectures; PA=practical activities; CI=clinical internship

Pre-requisites: -

General objectives:

At the end of the course, the students will integrate the notions of epidemiology with the clinical ones in order to promote health and prevent diseases in the community and in medical services.

Specific objectives:

At the end of the course students will possess the skills required to:

- explain the interrelationship between risk, environmental and host factors in the determinism of infectious and chronic diseases;
- integrate the particularities of the epidemiology of infectious diseases in order to prevent and control diseases caused by infectious agents;
- apply the immunoprophylaxis principles in the population and in groups of people at high risk for the acquisition and / or severity of infections;
- integrate the notions of the epidemiology of healthcare associated infections in the practical and effective approach of prophylaxis and control measures;
- use chemoprophylaxis judiciously in exogenous and endogenous infections;
- apply standard and transmission-based precautions effectively

Course content:

1. Basic methodology used for the epidemiological approach to infectious diseases; Categories of infectious diseases classified based on current perceptions;

Epidemiology, community health significance, population manifestation, epidemiological surveillance, prevention and control of respiratory infectious diseases, influenza, severe acute respiratory infections (SARI), Covid-19, streptococcal infections.

2. Epidemiology, importance for community health, mode of population manifestation, epidemiological surveillance, prevention and control of infectious diseases transmitted through food and water (with digestive entry gate): acute diarrheal disease, acute viral diarrhea, cholera, dysentery, food poisoning, botulism, hepatitis A, hepatitis E. Enterocolitis with *Clostridioides difficile*, community and healthcare-associated infection, epidemiological conditioning, surveillance, prophylaxis and control measures.

3. Epidemiology, importance for community health, mode of population manifestation, epidemiological surveillance, prevention and control of blood-borne infectious diseases: hepatitis B, D, C, human immunodeficiency virus (HIV) infection.

4. Surveillance of healthcare-associated infections (HAI): case definitions, specific epidemiological indicators according to the level of risk for HAI; The importance of HAI for community health from the perspective of individual, epidemiological and economic impact. Conditional epidemiological factors of HAI, mode of manifestation of the epidemiological process; Categories of prevention and control measures of HAI, declaration of HAI case.

5. The main epidemiological characteristics, risk factors, prevention and control measures adapted to the main clinical-epidemiological types of HAI: urinary, respiratory infections, bacteremias, infections associated with vascular catheters, post-operative, post-transfusion infections, infections in transplant recipients.

6. Diseases preventable by vaccination: measles, rubella, urticaria infection, hepatitis B, varicella, poliomyelitis, diphtheria, whooping cough, tetanus - epidemiological surveillance, evaluation of the population impact of vaccination programs. Preparations for interventions in case of epidemic, pandemic and other epidemiological emergencies: population risk assessment, planning and evaluation of intervention measures.

7. Epidemiology of cardiovascular diseases, morbidity and mortality patterns of cardiovascular diseases in developed and developing countries. The impact of cardiovascular diseases in Romania, the main cause of morbidity and mortality.

8. Modifiable and non-modifiable causal and risk factors in cardiovascular pathology. The main measures of primary prophylaxis of cardiovascular diseases based on the population strategy and the increased individual risk.
9. Analysis of epidemiological surveillance data on chronic diseases with an impact on community health; Analysis of morbidity and mortality indicators at national and European level; Population-level impact analysis; Evaluative analysis of surveillance and screening programs for cardiovascular disease, cancer (breast, cervical, colorectal) and other chronic conditions.
10. Behavioral epidemiology - lifestyle, preventable behavioral precursors of deaths in population strategies of primary and secondary prevention. The main behavioral risk factors, strategies and means of prevention and control of smoking, excessive consumption of alcohol, psychoactive substances, eating disorders, behavioral addictions, sexual behavior at risk.
11. Molecular epidemiology methods for identifying biomarkers, their use for measuring environmental exposures, assessing individual susceptibility and in the diagnosis of diseases. Integrating the notions of molecular biology with epidemiological methodology in order to increase the validity of descriptive and analytical epidemiological studies.

Practical activities:

1. Characteristics of prophylactic anti-epidemic activity adopted in primary care. Identifying prophylactic activities performed by the practical activity
2. Characteristics of combative anti-epidemic activity: the main categories of combative measures; the application of quarantine measures. Epidemiological investigation, principles, methodology and completion of communicable disease case declaration forms (FUR) and specific ones in outbreaks of measles (or rubella), hepatitis B or C, healthcare-associated infections and others depending on the epidemiological situation.
3. Immunoprophylaxis of infectious diseases: definitions, terminology, classification, rules of use, individual and population benefits. Passive immunoprophylaxis: definitions, terminology, indications, method of administration, side effects of passive immunoprophylaxis, assistance and necessary operations in the event of anaphylactic shock. Hands-on simulation on adult and child simulation systems.
4. Active immunoprophylaxis: definitions, components of the vaccination strategy (indications, contraindications, minimum age for vaccination, vaccination schedule, side effects), organization of vaccination programs; types of vaccine preparations and their storage (cold chain); The National Program of Immunizations from Romania and the European Union; Practical simulation of the administration of immunoglobulin and vaccine preparations on adult and child simulation systems. Simulating recording of vaccinations and side effects in the National Electronic Register of Vaccinations.

5. The diphtheria-tetanus-pertussis-polio-Haemophilus influenzae type b, anti-hepatitis B, BCG, anti-Covid-19 vaccination program; Measles-Rubella-Mumps Vaccination Program;
6. Vaccination program against papilloma virus infections; Anti-pneumococcal vaccination program; Vaccination programs in particular epidemiological situations: anti-influenza, anti-rabies vaccination; Immunizations for particular population categories: vaccinations for newcomers, categories with occupational risk or due to medical conditions: vaccination of pregnant women, medical personnel and patients with chronic diseases/immunosuppression.
7. Chemoprophylaxis - individual and group recommendations in exogenous monoetiological infections. Identifies possible situations and the behavior to be adopted towards the presented problem.
Chemoprophylaxis - individualized recommendations in exogenous or endogenous plurietiological infections, applications in continuous evolution depending on evidence-based medicine. Recognize the importance of epidemiological studies and clinical guidelines for prevention, diagnosis and treatment.
8. Standard precautions – components, hand hygiene, the personal protective equipment (PPE).
9. Transmission based precautions (additional) – airborne, droplets and contact precautions and protective environment isolation.
Identifying the types of precautions for patients with infectious pathology
10. The attitude in case of occupational exposure to blood and other potentially infectious body fluids - hepatitis B, C viruses and HIV. Identification of risks and risk management in case studies.

References:

1. Epidemiology and Primary Health Care - electronic support of the practical activities for the use of medical students.
2. Erickson A & Parker J (eds). Essential MedNotes 2023. 39nd ed. Toronto Notes for Medical Students, Inc, Toronto, 2023

Supplementary references:

1. Bonita R, Beaglehole R, Kjellström T. Basic epidemiology. 2nd edition World Health Organization 2006.
whqlibdoc.who.int/publications/2006/9241547073_eng.pdf.
2. Mandel G.L, Bennett J.E, Dolin R. Principles and Practice of Infectious Disease 8th Edition, Churchill Livingstone, London, New York, 2015. ISBN-10: 1455748013
3. Aschengrau A, Seage G. Essentials of Epidemiology in Public Health. 3rd Ed. Jones & Bartlett Learning. 2014. ISBN 9781284028911.

4. Merrill R. Introduction to Epidemiology 6th Ed. Ed. Jones & Bartlett Learning. 2013. ISBN 9781449665487.
5. Hebel JR, McCarter R. Study guide to Epidemiology and Biostatistics 7th Ed. Ed. Jones & Bartlett Learning. 2012. ISBN9781449604752.
6. Fletcher RH, Fletcher SW. Clinical Epidemiology – the Essentials 4th Ed., Lippincott Williams &Wilkins, 2012. 9781451144475.
7. Nelson KE, Williams C. Infectious Disease Epidemiology Theory and Practice 3rd Ed. Ed. Jones & Bartlett Learning. 2014. ISBN 9781449683795.
8. Rothman K.J., Greenland S, Lash TL. “Modern Epidemiology” 3rd ed. Lippincott Williams & Wilkins, Philadelphia 2012, ISBN-13: 978-1451190052.
9. Plotkin SA, Orenstein WA, Offit PA, Edwards KM. Plotkin’s Vaccines. 7th ed., Elsevier 2018. ISBN: 978-0-323-35761-6.
10. European Centre for Disease Prevention and Control. ECDC Available at: <https://www.ecdc.europa.eu/en/home>.
11. Centrul National de Supraveghere si Control al Bolilor Transmisibile (CNCSBT) – Available at: <https://cncsbt.ro/>.
12. Centers for Disease Control and Prevention. Summary of Infection Prevention Practices in Dental Settings: Basic Expectations for Safe Care. Centers for Disease Control and Prevention, US Dept of Health and Human Services; 2016. <https://www.cdc.gov/oralhealth/infectioncontrol/pdf/safe-care2.pdf>.
13. ORDIN Nr. 1101/2016 privind aprobarea Normelor de supraveghere, prevenire și limitare a infecțiilor asociate asistenței medicale în unitățile sanitare.
14. ORDIN nr. 961/2016 pentru aprobarea Normelor tehnice privind curățarea, dezinfectia și sterilizarea în unitățile sanitare publice și private, tehnicii de lucru și interpretare pentru testele de evaluare a eficienței procedurii de curățenie și dezinfectie, procedurilor recomandate pentru dezinfectia mâinilor, în funcție de nivelul de risc, metodelor de aplicare a dezinfectantelor chimice în funcție de suportul care urmează să fie tratat și a metodelor de evaluare a derulării și eficienței procesului de sterilizare.
15. Ordinul nr. 828/2020 privind măsurile de organizare și desfășurare a activității la nivelul cabinetelor stomatologice, la nivelul unităților sanitare non-COVID și al ambulatoriilor de specialitate pe perioada stării de alertă.
16. ECDC – COVID-19 pandemic. <https://www.ecdc.europa.eu/en/covid-19-pandemic>.
17. WHO – Coronavirus disease (COVID-19) pandemic. <https://www.who.int/emergencies/diseases/novel-coronavirus-2019>.

Evaluation:

- Written exam 70%
- Practical exam 30%

DERMATOLOGY. ALLERGOLOGY – 6 CREDITS

A. DERMATOLOGY

Field of study:	Health
Study program:	Medicine
Course title:	Dermatology and Venerology
Course coordinator:	Assoc. Prof. Loredana Ungureanu, MD, PhD Assoc. Prof. Simona Şenilă, MD, PhD
Departament:	Medical specialties
Discipline:	Dermatology
Course code:	MED6103EN

Semester	Course Type	Lectures			Practical activities			Individual study	TOTAL	Credit	Evaluation
		hours/week			hours/sem.						
		L	PA	CI	L	PA	CI				
I	Compulsory	4	-	4	28	-	28	44	100	4	Written + practical exam

L = lectures; PA = practical activities; CI= clinical internship

Pre-requisites: Histology, Pathological anatomy, Physiology, Physiopathology, Semiology, Microbiology, Internal Medicine, General surgery, Rheumatology, Oncology

General objectives:

- To acquire knowledge regarding cutaneous diseases
- Ability to make correlations among the practical and theoretical knowledge from other specialties and dermatology

Specific objectives:

At the end of the module, the student will be able to:

- Perform the anamnesis and a correct and complete general examination of the patient with skin diseases
- Make the clinical diagnosis
- Formulate an appropriate exploration plan for the confirmation / refutation of each diagnosis he has suspected;
- Integrate clinical data with those of complementary explorations for the formulation of positive diagnosis (positive diagnoses);
- Formulate any differential diagnoses and exclude / confirm with the help of clinical / laboratory elements these diagnoses;

- Specify what are the evolutionary possibilities and the prognosis of the diagnosed condition;
- Formulate a therapeutic plan, specifying the principles and means of treatment, in accordance with the current guidelines and adapted to the patient's particularities;
- Specify the criteria for monitoring the effectiveness of treatment, as well as possible causes of failure and / or complications;
- Correctly assess the conditions reflecting the patient's ability to work and, to the extent necessary, formulate a recovery plan;
- Establish, where appropriate, a follow-up plan;

Course content:

1. Introduction in dermatology. Parasitic infections
2. Viral and bacterial infections
3. Fungal infections
4. Sexually transmitted diseases
5. Urticaria. Cutaneous drug reactions
6. Dermatitis. Prurigo
7. Vasculites. Paniculitis
8. Autoimmune bullous diseases
9. Connective tissue diseases
10. Erythematous-squamous diseases
11. Hair and pigmentary diseases. Genodermatoses
12. Diseases of the sebaceous glands. Leg ulcer
13. Benign skin tumors
14. Malignant skin tumors

Practical activity

1. Clinical diagnosis in dermatology. Elementary lesions
2. Investigations and therapeutic methods in dermatology
3. Cutaneous infections
4. Sexually transmitted diseases. Connective tissue diseases
5. Urticaria. Cutaneous drug reactions
6. Dermatitis. Prurigo. Vasculitis. Paniculitis
7. Viral exanthemas. Erythrodermia
8. Dermatologic surgery. Aesthetic dermatology.
9. Erythematous-squamous diseases. Pigmentary diseases
10. Autoimmune bulous diseases. Hair disorders
11. Benign skin tumors. Genodermatoses.
12. Malignant skin tumors
13. Special sites – oral and genital mucosa
14. Special sites – folds, scalp, face

References:

1. Rachael Morris-Jones. ABC of Dermatology. 7th Edition. Wiley-Blackwell, 2019.
2. Erickson A & Parker J (eds). Essential MedNotes 2023. 39nd ed. Toronto Notes for Medical Students, Inc, Toronto, 2023

Evaluation: - common with the discipline Allergology

- Written exam 60%
- Practical exam 40%

B. ALLERGOLOGY

Field of study: Health
Study program: Medicine
Course title: Allergology
Course coordinator: Assoc. Prof. Adriana Ioana Muntean, MD, PhD
Department: Morpho-Functional Sciences
Discipline: Immunology and Allergology
Course code: MED6103EN

Semester	Course Type	Lectures			Practical activities			Individual study	TOTAL	Credits	Evaluation
		hours/week			hours/sem.						
		L	PA	CI	L	PA	CI				
I	Compulsory	0,5	-	1	7	-	14	29	50	2	Written+ practical exam

L=lectures; PA=practical activities; CI=clinical internship

Pre-requisites: Immunology, Internal Medicine

General objectives:

Knowledge, understanding and correct use of the notions of hypersensitivity, allergy

Specific objectives:

At the end of the course the student will be able to:

- to perform the anamnesis and the correct and complete objective examination of the patients with allergic pathology, to integrate the clinical data with those of the complementary explorations for formulating the positive diagnosis (positive diagnoses), to formulate an adequate exploration plan to confirm / refute each diagnosis suspected
- to formulate the possible differential diagnoses and to exclude / confirm with the help of the clinical / laboratory elements these diagnoses, to specify what are the evolutionary possibilities and the prognosis of the diagnosed disease
- to formulate a therapeutic plan, specifying the principles and means of treatment, in accordance with current guidelines and adapted to the patient's particularities, to specify the criteria for monitoring the effectiveness of treatment, as well as possible causes of failure and / or complications
- Familiarization of students with aspects related to the application of theoretical and practical principles of allergology with emphasis on the use

of diagnostic methods: in vivo testing (skin tests, challenge tests) and in vitro (serological, Fadia-top, Immuno-CAP, ISAC - diagnosis solved by component)

- Knowledge of the main characteristics of diseases with allergic mechanism
- Understand the reasons and mechanisms underlying the tolerance induction response
- Familiarization with the main research directions in the field of allergology
- Exercising the capacity of synthesis and bibliographic documentation

Course content:

1. The hypersensitivity response. Types, Allergens.
2. The mechanism of allergic reactions. IgE, cells, mediators
3. Skin allergies. Urticaria, Dermatitis
4. Food allergies. Food, mechanism, symptoms, treatment, oral immunotherapy
5. Drug allergies. Classification, mechanism, examples, diagnosis, treatment, induction of tolerance
6. Anaphylactic shock. Examples, symptoms, diagnosis, treatment, immunotherapy
7. Specific treatment. Allergen immunotherapy. Biological therapies, personalized medicine

Practical activities:

1. In vitro investigation methods (ELISA, Immuno-CAP, ISAC etc)
2. In vivo diagnostic methods. Skin testing (prick, patch - epicutaneous, prick-to-prick)
3. In vivo diagnostic methods. Simple blind provocation tests
4. In vivo diagnostic methods. Double-blind provocation tests
5. Case presentations: food allergy
6. Case presentations: drug allergy (diagnosis)
7. Case presentations: drug allergy (treatment)
8. Case presentations: respiratory allergy (rhinitis, conjunctivitis, asthma)
9. Case presentations: skin allergy
10. Case presentations: atopic dermatitis
11. Treatment in allergies
12. Specific topical allergen immunotherapy
13. Specific subcutaneous allergen immunotherapy
14. Biological therapies in allergies

References:

1. Middleton's Allergy, 8th Edition, N. Franklin Adkinson Jr. et al, 2014

2. Patterson's Allergic Diseases, Leslie Grammer, 2018
3. Promoting and achieving excellence in the delivery of Integrated Allergy Care: the European Academy of Allergy and Clinical Immunology competencies for allied health professionals working in allergy, Skypala, IJ., et al CTA. 2018 (eaaci.org/resources/position-papers)
4. EAACI position paper on how to classify cutaneous manifestations of drug hypersensitivity
5. Brockow, K., et al. Allergy. 2018, Food Allergy and Anaphylaxis guidelines, Allergen Immunotherapy Guidelines, EAACI guidelines (eaaci.org/resources/guidelines)
6. Erickson A & Parker J (eds). Essential MedNotes 2023. 39nd ed. Toronto Notes for Medical Students, Inc, Toronto, 2023

Evaluation:

- | | |
|------------------|-----|
| ▪ Written exam | 70% |
| ▪ Practical exam | 30% |

OBSTETRICS-GINECOLOGY, NEONATOLOGY – 10 CREDITS

A. OBSTETRICS-GINECOLOGY

Field of study:	Health
Study program:	Medicine
Course title:	Obstetrics and Gynecology
Course coordinator:	Assoc. Prof. Răzvan Ciortea, MD, PhD Assoc. Prof. Andrei Maluțan, MD, PhD
Departament:	Mother and child
Discipline:	Obstetrics and Gynecology Clinic II
Course code:	MED6104EN

Sem.	Course type	Lectures			Practical activities			Individual study	TOTAL	Credits	Evaluation
		Hours/week			Hours/sem						
		L	PA	CI	L	PA	CI				
I	Compulsory	8	-	20	56	-	140	4	200	10*	Theoretical + practical exam

L=lectures; PA=practical activities; CI=clinical internship

**with the Discipline Neonatology*

Pre-requisites: -

General objectives:

- At the end of the course, students will be assimilated the theoretical notions referring to the physiological and pathological obstetrics, but also to the gynecological pathology
- At the end of the course, students will be able to apply correctly paraclinical investigations in gynecological and obstetrical practice.

Specific objectives:

- At the end of the course students will be able to:
 - Perform a prenatal consultation properly
 - Establish pregnancy diagnosis
 - Proper puerperium monitoring
 - Screening of cervical cancer
- At the end of the course students will:
 - Know the theoretical and practical maneuvers required for delivery assistance

- Know the maneuvers to be performed in the case of obstetric emergencies
- Be familiar with basic notions in family planning

Course content:

1. Anatomy of the female genitalia Physiology of the female genital tract
2. Clinical gynaecological examination. Obstetric clinical examination.
3. Paraclinical examinations in obstetrics and gynaecology.
4. Gametogenesis, ovulation, fertilization, egg migration. Morphophysiology of the placenta, amniotic fluid, umbilical cord.
5. Diagnosis of pregnancy. Morphofunctional changes of the maternal organism during pregnancy.
6. Dispensing pregnancy. Prenatal consultation. Pregnant woman at obstetric risk.
7. Maternal bone pool. Obstetrically term fetus. Laws of fetal accommodation in the uterus. Attitude, sitting, position, presentation, varieties of position.
8. Physiology of labour. Birth determinism, clinical periods of birth
9. Birth in flexed cranial presentation. Birth in deflected cranial presentations.
10. Birth in pelvic presentation. Transverse position.
11. Multiple pregnancy
12. Third and fourth period of childbirth. Physiological and pathological aspects. Fetal and maternal trauma.
13. Physiological laxity. Lactation. Pathological lactation.
14. Haemorrhages in the first half of pregnancy: abortion, ectopic pregnancy, gestational trophoblastic disease.
15. Haemorrhages in the second half of pregnancy: placenta praevia, premature detachment of the normally inserted placenta.
16. 8.1.15. Premature rupture of membranes. Premature birth. 8.1.16 Prolonged pregnancy. Artificial induction of labour. Rh and ABO isoimmunisation. Diabetes mellitus and pregnancy.
17. Dystocic labour.
18. Medical and surgical diseases associated with pregnancy.
19. Hypertensive diseases in pregnancy. Early dysgravida.
20. Acute and chronic fetal distress. Fetal intrauterine growth retardation. Intrauterine death of the product of conception.
21. Physiological stages of women: puberty, menopause. Disorders of menstrual flow by excess. Menstrual flow disorders by insufficiency.
22. Pathology of the vulva. Pathology of the vagina.
23. Pelvic static disorders. Stress urinary incontinence.
24. Pathology of the cervix
25. Pathology of the uterine body: endocervical polyps, uterine fibroid,

- endometrial cancer. Malformations of the female genital tract.
26. Endometriosis. Pelvic inflammatory disease. Dysmenorrhoea. Dyspareunia.
 27. Conjugal sterility.
 28. Ovarian pathology
 29. Contraception and family planning

Practical activities:

During the clinical internships, case presentations and demonstrations, the students will examine, observe and analyze the most important diseases of the specialty of obstetrics and gynecology: genital cancer screening; benign and malignant genital tumors; pelvic static disorders; vulvovaginal diseases; infertility of the couple; family planning; prenatal consultation; pregnancy diagnosis; physiological pregnancy supervision; birth assistance in different presentations; supervision and assistance in laudation; pathology associated with pregnancy; surveillance of high-risk pregnancy; obstetric emergencies.

References:

1. Coord: Dan Mihiu, Răzvan Ciortea, Andrei Mihai Măluțan. Autori: Doru Diculescu, Cezarin Todea, Renata Nicula, Daria Pop, Cristian Iuhas, Mihaela Oancea, Ciprian Porumb, Radu Mocan-Hognogi, Carmen Bucuri. Gynecology. Ed Medicală Universitară "Iuliu Hațieganu" Cluj-Napoca 2020 ISBN 978-973-693-975-4
2. Coord: Dan Mihiu, Răzvan Ciortea, Andrei Mihai Măluțan. Autori: Doru Diculescu, Cezarin Todea, Renata Nicula, Daria Pop, Cristian Iuhas, Mihaela Oancea, Ciprian Porumb, Radu Mocan-Hognogi, Carmen Bucuri, Virgil Dorca. Physiological obstetrics. Ed Medicală Universitară "Iuliu Hațieganu" Cluj-Napoca 2020 ISBN 978-973-693-977-8
3. Coord: Dan Mihiu, Răzvan Ciortea, Andrei Mihai Măluțan. Autori: Doru Diculescu, Cezarin Todea, Renata Nicula, Daria Pop, Cristian Iuhas, Mihaela Oancea, Ciprian Porumb, Radu Mocan-Hognogi, Carmen Bucuri. Pathological obstetrics. Ed Medicală Universitară "Iuliu Hațieganu" Cluj-Napoca 2020 ISBN 978-973-693-976-1
4. Gary Cunningham, Kenneth J. Leveno, Steven L. Bloom, Jodi S. Dashe, Catherine Y. Spong, Barbara L. Hoffman, Brian M. Casey and Catherine Y. Spong. Williams Obstetrics 25th ed. 2019. McGraw Hill Professional
5. Barbara L. Hoffman, John O. Schorge, Lisa M. Halvorson, Cherine A. Hamid, Marlene M. Corton, Joseph I. Schaffer. Williams gynecology 4th ed. 2018. McGraw Hill Professional

License references:

6. Erickson A & Parker J (eds). Essential MedNotes 2023. 39nd ed. Toronto Notes for Medical Students, Inc, Toronto, 2023

Evaluation: - common with the discipline Neonatology

- Written exam 45%
- Practical exam 55%

The final grade is composed of the Obstetrics and Gynecology exam grade (90%) and the Neonatology exam grade (10%).

B. NEONATOLOGY

Field of study: Health
Study program: Medicine
Course title: Neonatology
Course coordinator: Prof. Gabriela Zaharie, MD, PhD
 Assoc. Prof. Matyas Melinda, MD, PhD
Department: Mother and child
Discipline: Neonatology
Course code: MED6104EN

Sem.	Course type	Lectures			Practical activities			Individual study	TOTAL	Credits	Evaluation
		hours / week			hours / semester						
		L	PA	CI	L	PA	CI				
I	Compulsory	1	-	2	7	-	14	29	50	10*	Written + practical exam

L= lectures; PA=practical activities; CI=clinical internship

**with the Discipline Obstetrics- Gynecology*

Pre-requisites: Pediatrics and Puericulture

General objectives:

Acquisition of theoretical and practical notions related to healthy newborn, premature newborn and with intrauterine growth restriction as well as theoretical notions related to the main entities of neonatal pathology. Acquiring the necessary maneuvers needed for neonatal resuscitation.

Specific objectives:

Acquisition of theoretical notions related to the specific pathology of the newborn:

1. Respiratory distress syndrome
2. Newborn hyperbilirubinemia
3. Neonatal asphyxia
4. Neonatal resuscitation
5. Infectious diseases during the neonatal period
6. Specific conditions and complications of the newborn with intrauterine growth restriction
7. Newborn at term: Definition, Clinical examination , Classification
8. Presentation on mannequins of specific maneuvers used in neonatal resuscitation: positive pressure ventilation, orotracheal intubation, chest compression external , drug administration.

9. Presentation of neonatology work using video materials.

Course content:

1. Newborn at term. Definition, newborn classification, gestational age assessment. Transition and adaptation to extrauterine life. The term newborn clinical aspects. Clinical examination, specific conditions of the newborn. Care of the newborn. Nutrition of the Newborn
2. Neonatal asphyxia. Incidence and relationship with cerebral palsy. Risk factor. Presentation of organs injury in asphyxia. Patterns of brain injury. Diagnosis of neonatal asphyxia. Differential diagnosis of neonatal encephalopathy. Seizures as a manifestation of HIE. Neuroimaging used in HIE. General principles of treatment. Prognostic, brain death, ethics
3. Principles of neonatal resuscitation. Primary and secondary apnea. Reanimation principles, drugs used in neonatal resuscitation
4. Respiratory distress syndrome. Hyaline membrane disease (HMD). Transient Tachypnea of the Newborn (TTN), Meconium Aspiration Syndrome (MAS)
5. Hyperbilirubinemia at newborn. Hyperbilirubinemia by Rh incompatibility (Rhesus disease). Haemolytic disorder by ABO incompatibility. Hyperbilirubinemia with conjugated bilirubin
6. Intrauterine growth restriction. Intrauterine growth restriction: definition, incidence, fetal development. Etiopathogenesis, classification, diagnosis. Clinical examination, neonatal effects of IUGR
7. Neonatal infections. Colonizing the newborn. Prevention of infection. Risk factors for neonatal infection. Clinical signs of bacterial sepsis and meningitis. Classification of neonatal infections. Diagnosis of sepsis. Principles of treatment in neonatal infection.

Practical activities:

1. The clinical observation in neonatology, the particularities of the anamnesis. Organization of the neonatology section. Interpretation of growth curves
2. Physical exam of the newborn. Assessing gestational age
3. Presentation a case of respiratory distress. Presentation of neonatal intensive care equipment
4. Newborn monitoring in intensive care unit. Interpretation of biological parameters in the newborn
5. Presentation of a case of hyperbilirubinemia. Fitting of jaundice in the neonatal period: physiological / pathological.
6. Therapeutic means for neonatal jaundice: equipment, conditions of use, indications, contraindications, care of a child with jaundice
7. Newborn term neonatal resuscitation
8. Premature neonatal resuscitation
9. Presentation of a premature case with the complications of prematurity
10. Acquisition of aseptic and antiseptic measures

11. Presentation of a case with neonatal infection
12. Doe case - complex case: pros and cons in the correct management of the case.

References:

1. Blaga L, Matyas M , coordonator Zaharie G. Noțiuni practice în neonatologie. Ed Medicală Universitară Iuliu Hațieganu, Cluj Napoca 2016
2. Zaharie Gabriela Corina (coord.), Blaga Ligia, Matyas Melinda, Hășmășanu Monica, Andreica Sorin, Rotar Ioana, Mureșan Daniel. Neonatologie- elemente teoretice și practice. Editura Medicală Universitară, 2022
3. John P. Cloherty, Ann R. Stark Manual of neonatal care, 9th Edition, Kindle Edition 2022
4. Tricia Lacy Gomella,,Gomella's Neonatology, Management, Procedures, On call Problems, Diseases, and Drugs, Eighth Edition, Lange Medical Books, New.York, 2020
5. Ghidurile Societatii Române de Neonatologie - <http://old.ms.ro/index.php?pag=181&pg=1>
6. Erickson A & Parker J (eds). Essential MedNotes 2023. 39nd ed. Toronto Notes for Medical Students, Inc, Toronto, 2023

Evaluation: - common with the discipline Obstetrics and Gynecology

- Written exam 50%
- Practical exam 50%

The final grade is composed of the Obstetrics and Gynecology exam grade (90%) and the Neonatology exam grade (10%).

FORENSIC MEDICINE

Field of study: Health
Study program: Medicine
Course title: Forensic Medicine
Course coordinator: Assoc. Prof. Ștefan Anițan, MD, PhD
 Assoc. Prof. Ovidiu Chiroban, MD, PhD
Department: Community Medicine
Discipline: Forensic Medicine
Course code: MED6105EN

Semester	Course Type	Lectures	Practical activities			Lectures	Practical activities			Individual study	TOTAL	Credit	Evaluation
		hours/week			hours/sem.								
		L	PA	CI	L	PA	CI						
I	Compulsory	3	3	-	21	21	-	33	75	3	Written + practical exam		

L = lectures; PA = practical activities; CI = clinical internship

Pre-requisites: Anatomy, Pathological Anatomy, Pathophysiology, Semiology, Orthopedics, Neurosurgery, Radiology

General objectives:

At the end of the course the students will know the types of forensic activities: legal medicine prosecution, clinical legal medicine, legal medicine laboratory and the necessary legal and medical knowledge, will be able to recognize a forensic situation and act accordingly, in accordance with the legal provisions.

Specific objectives:

At the end of the course students will be able:

- to know the procedures underlying the necropsy request
- forensic medicine and the situations in which forensic necropsy is required;
- to be able to determine the way of death, to distinguish between non-violent death and violent death;
- to acquire the notions of tanatogenetic mechanisms and tanatogenerator syndromes in both violent and non-violent deaths;
- knowledge of early and late cadaveric changes (signs of real death), natural phenomena for the preservation of corpses, artificial methods of conservation, techniques of tanatopraxia;

- be able to do an external examination of the body with a focus on the type of death and possible causes of death and the recognition of a potential forensic case;
- to know the role of clinical legal medicine and the situations when forensic examination is required in the living person;
- assimilate the types of forensic examinations;
- to do the clinical examination with the identification of the legal aspects: traumatic injury findings - specifying their characteristics;
- to assess the severity of bodily injuries in accordance with CP provisions - to enumerate the provisions of art. 180, 181, 182 CP, understanding the notion of days of medical care;
- to know the types of complementary forensic examinations: forensic toxicology, forensic serology, histopathology;
- acquiring basic notions regarding toxicity, toxicity, particularities of forensic toxicology in relation to clinical toxicology;

Course content:

1. Overview in forensic medicine, Juridical bases, Legislation. Thanatology. Forensic Entomology.
2. Injuries and death caused by its own means of attack - human defense. Injuries caused by weapons. Falling and precipitation injuries
3. Forensic road accidents. Forensic Firearms
4. Mechanical asphyxia. Physical agents. Chemical agents
5. Forensic examination of the body, autopsy and exhumation of corpses.
6. The forensic examination of life persons. The forensic examination in obstetrics and gynecology. Forensic sexology aspects. Psychiatric expertise
7. Methodology of forensic examination in delaying and interruption of prison sentence. Expertise forensic work capacity. Malpractice. Expertise of DNA and other kind of forensic identification

Practical activities:

1. Tanatology
2. Primary traumatic injuries
3. Mechanical asphyxiation
4. Physical agents
5. Chemical agents
6. Road accident
7. Forensic expertise methodology. Malpractice.

Reference:

1. Perju-Dumbrava Dan – Legal Medicine, Editura Medicala Universitara. 2017
2. Erickson A & Parker J (eds). Essential MedNotes 2023. 39nd ed. Toronto Notes for Medical Students, Inc, Toronto, 2023

Evaluation:

- Written exam 50%
- Practical exam 40%
- Activity during the semester 10%

EMERGENCY MEDICINE

Field of study:	Health
Study program:	Medicine
Course title:	Emergency Medicine
Course coordinator:	Associate professor Adela Golea, MD, PhD
Department:	Surgery
Discipline:	Emergency Medicine
Course code:	MED6106EN

Semester	Course Type	Lectures			Practical activities			Individual study	TOTAL	Credit	Evaluation
		hours/week			hours/sem.						
		L	PA	CI	L	PA	CI				
I	Compulsory	1	2	-	7	14	-	29	50	2	Written + practical exam

L = lectures; PA = practical activities; CI = clinical internship

Pre-requisites: Medical Semiology, Internal Medicine, Cardiology, Surgery, Medical Imaging

General objectives:

At the end of the course the student will be able to know the concept of emergency medical care, triage, primary assessment and to ensure correctly the first practical measures to assist the critically ill patient, in cardio-respiratory arrest, traumatized / burned, intoxicated.

Specific objectives:

At the end of the course the student will be able to:

1. Describe the concept of emergency medical care, regardless of the area of practice, for any unsystematized clinical picture.
2. To know and be able to implement (put into practice) the concept of triage in case of multiple victims or disasters.
3. To be able to primarily assess a potentially critical patient and to recognize life-threatening situations.
4. Perform basic resuscitation and early defibrillation.
5. To know and apply the basic and advanced life support algorithm in common and special situations, participating in the resuscitation team.
6. To be able to elaborate a first plan of emergency medical assistance of the critical patient: shocked, traumatized / burned, intoxicated regardless of the practice area.

7. To formulate probable diagnoses in an emergency clinical context and to formulate a plan for monitoring, paraclinical evaluation and flexible medical intervention until the patient stabilizes.
8. To know the usefulness of point of care examinations and interdisciplinary team communication for the observance of the concept of "golden hour" in case management in critical emergencies.

Course content:

1. Emergency and Disaster Medicine - peculiarities of medical practice. Professional opportunities: interdisciplinary research and development subspecialties. Triage in case of limited resources and disasters
2. ABCDE evaluation of the critical patient. Identification of the critical patient and the first measures of medical assistance for the non-traumatized patient. Working in the emergency team and communicating with other specialties, the patient and the relatives. Communicating negative news.
3. The chain of survival. Basal life support algorithm and DEA.
4. Advanced life support algorithm. Special situations in resuscitation.
5. Basic notions of approaching an accident. ABCDE primary assessment and first emergency measures.
6. Emergency assistance of the shock of unknown etiology. Features traumatic shock.
7. Basic notions of emergency recognition of intoxication. Integration of emergency bed side examinations.

Practical activities:

1. Identifying the degree of triage. Identification of the critical patient by ABCDE evaluation
2. BLS: practicing the algorithm in clinical scenarios
3. ALS: the practice of the algorithm for shocking rhythms
4. ALS: the practice of the algorithm for non-shocking rhythms
5. ALS: practice of the algorithm for special situations
6. ABCDE in trauma: CA clearance, cervical collar, bleeding stop, pneumothorax decompression, fracture immobilization
7. Clinical scenarios with ABCDE evaluation, introduction of SCR identification and BLS / ALS algorithm

References:

Manual:

1. Initiation course in SMURD 2018 activity

Summary:

1. Erickson A & Parker J (eds). Essential MedNotes 2023. 39nd ed. Toronto Notes for Medical Students, Inc, Toronto, 2023

2. Mark Levine, William Gilmore, Practical Guide to Emergency Medicine Washington (Lippincott Medical Guides), Adela Golea - coordinator edition in Romanian, 756 pages, Hippocrates Publishing House, Bucharest 2018

3. Judith E. Tintinalli, Emergency Medicine: A Comprehensive Study Guide, 8th, 2017

Guides of specialized companies (national / international), national guides:

1. European Resuscitation Guide 2021 - ERC: <http://www.erc.edu>

2. National triage protocol - 2019 (WHO 443/2019)

Evaluation:

- Written exam 50%
- Practical exam 50%

PALLIATIVE CARE

Field of study: Health
Study program: Medicine
Course title: Palliative Care
Course coordinator: Assoc. Prof. Ruxandra-Mioara Râjnoveanu, MD, PhD
Department: Oncology
Discipline: Palliative Care
Course Code: MED6207EN

Sem.	Type of course	Lectures			Practical activities			Individual Study	TOTAL	Credits	Evaluation
		hours/ week			hours / sem / module						
		L	PA	CI	L	PA	CI				
II	Compulsory	2	-	2	14	-	14	22	50	2	Written+ practical exam

L=lectures; PA=Practical Activities; St= stages

Pre-requisites: Anatomy, Physiology, Physiopathology, Clinical Biochemistry, Pharmacology, Semiology, Clinical Pharmacology, Intern Medicine, Cardiology, Pneumology, Oncology, Neurology, Pediatrics, Endocrinology, Diabetes mellitus, nutrition and metabolism diseases, Nephrology

General objectives:

- Palliative Medicine as an integrated medical discipline.
- To describe and critically discuss the philosophy and practice of palliative care (PC).
- To understand the types, levels and integration of PC services in both adult and child care.
- To work as a team.
- The holistic approach in teamwork in PC, the role of each team member according to each one's expertise, team dynamics, interdisciplinarity.
- Communication with the patient and his family - holistic evaluation - To understand how to holistically evaluate patients and their families in the context of PC.
- Empathic communication and active listening - Understand practical applications and the effect of key communication skills.
- Challenges in communication in the PC field: communication of bad news; breaking the conspiracy of silence.
- Understanding the impact of the disease on the patient with a chronic illness (and his family) on a psycho-social and spiritual level.

- Pain Assessment and Management - Develop clinical skills and competencies in a complete and accurate pain assessment.
- Principles of assessment and management of symptoms commonly encountered in palliative care, using the best evidence-based guidelines and care protocols.
- Terminal status - recognition, evaluation and management of the terminally ill patient.
- Loss and mourning - Understanding the causes and responses to loss and mourning of patients with chronic diseases (and their families).
- Self-care - To understand the emotional impact that patient care has on the health professional.

Specific objectives:

At the end of the course the student will be able:

- to recognize and argue the importance of integrating PC with curative therapies for non-oncological and oncological diseases;
- to apply in the daily routine interventions of the basic PC;
- to differentiate between basic and specialized PC;
- to demonstrate the ability to perform a holistic assessment of the palliative patient;
- to describe the role and complementarity of the physician (and other professionals) in the PC team (physiotherapy, occupational therapy, social work, psychology, pastoral care);
- to discuss the different trajectories of non-oncological and oncological diseases;
- to identify and describe the losses faced by patients and their families along the course of the disease; also, for the families after the death of patients;
- to differentiate between loss and mourning, including identifying signs of abnormal or prolonged mourning;
- to demonstrate an empathic understanding of the stress / loss response and the link between adaptation and psychological dysfunction / disorder;
- to understand pain as a multidimensional experience;
- to identify elements of total pain in a clinical assessment of pain;
- to establish the diagnosis of pain;
- to know how to use opioids for moderate and severe pain; know how to combine medications and how to rotate painkillers; know how to minimize side effects;
- to recognize the complexity of pain management, be prepared to monitor pain management outcomes, and address patients' fears about the pain regimen;

- to prescribe appropriate doses, use appropriate forms and routes of administration for cases of pain, including prescription for painful onset;
- to identify the individual and specific characteristics of the way in which the patient communicates, but also of the patient himself;
- to use active listening in different medical situations;
- to describe at least 5 techniques that facilitate active communication and listening;
- to understand and explain the effects of empathy in clinical care;
- to understand the goals of end-of-life care;
- to describe methods and tools for establishing the prognosis, but also their limitations;
- to describe 10 principles of patient management in the last days or hours of life;

Course content:

1. Palliative care as an integrated medical discipline. Palliative care in the hospital and community. The disease evolution.
2. Psycho-social care. Spiritual care. Loss and mourning.
3. Pain and total pain in palliative care. Pathophysiology, classification and measurement of pain. Principles of pain treatment. Side effects of opioids and how to manage them.
4. Principles of assessment and management of common symptoms in palliative care using the best care protocols. Emergencies in PC.
5. Empathic communication and active listening.
Basic communication skills in palliative care. Challenges in communication in the field of palliative care - communicating the bad news.
6. Specific aspects of communication: communication with the patient's relatives. Challenges in communication in the field of palliative care - breaking the conspiracy of silence, assertive communication in conflict situations.
7. The terminal status. End-of-life patient care.

Practical activities:

1. Type, role, location, team providing basic and specialized PC interventions. Discussing the different evolution of the disease, recognizing the importance of early integration of PC during the disease and the challenges involved in this integration of PC.
2. Work in the palliative care team and team dynamics. Description of expectations and roles within the multidisciplinary team in supporting / providing psychological and social, spiritual assistance.
3. Use of validated tools / scales / applications to assess pain for children and patients, including those with cognitive impairment. Presentation of analgesic and co-analgesic drugs. Description of how to start opioid treatment in cancer

pain and non-oncological conditions: initiation, titration. Special prescription forms.

4. Use a systematic approach (e.g. OPQRSTUV framework) to investigate symptoms when performing a holistic assessment (constipation; diarrhea; nausea / vomiting; anorexia / cachexia; fatigue; oral problems (xerostomia, dysphagia); dyspnea, cough, bedsores), lymphedema, exulcerated tumors, convulsions, delirium, anxiety, depression, insomnia). Emergencies in PC (hypercalcemia, hemorrhage, spinal cord compression, superior vena cava syndrome, etc.)

5. Communication with the patient and his family: holistic evaluation. Bad news communication. The conflict.

6. Specific aspects of communication: communication with the patient's relatives. Planning and moderating a family meeting. Breaking the conspiracy of silence.

7. End-of-life practicalities for patients and families

References:

Erickson A & Parker J (eds). Essential MedNotes 2023. 39nd ed. Toronto Notes for Medical Students, Inc, Toronto, 2023

Supplementary references:

1. Cherny NI, Fallon M, Kaasa S, Portenoy RK, Currow D, editors. Oxford textbook of palliative medicine. Oxford University Press, USA; 2015.
2. Hanks G, Cherny NI, Christakis NA, Kaasa S, editors. Oxford textbook of palliative medicine. Oxford university press; 2011
3. <https://learningplatform.thepalliativehub.com/course/view.php?id=67>
4. McAteer RA, Wellbery CE. Palliative care: benefits, barriers, and best practices. American family physician. 2013 Dec 15;88(12):807-13.
5. Nevin M, Smith V, Hynes G. Non-specialist palliative care: a principle-based concept analysis. Palliative Medicine. 2019 Jun;33(6):634-49.
6. Hartogh GD. Suffering and dying well: on the proper aim of palliative care. Medicine, Health Care and Philosophy. 2017 Sep;20(3):413-24.
7. Mills J, Wand T, Fraser JA. Exploring the meaning and practice of self-care among palliative care nurses and doctors: a qualitative study. BMC palliative care. 2018 Dec;17(1):1-2

Evaluation:

- Written exam 60%
- Practical exam 40%

GERIATRICS

Field of study: Health
Study program: Medicine
Course title: Geriatrics and Gerontology
Course coordinator: Assoc. Prof. Valer Donca, MD, PhD
Department: Medical specialties
Discipline: Geriatrics and Gerontology
Course Code: MED6208EN

Sem.	Type of course	Lectures			Practical activities			Individual Study	TOTAL	Credits	Evaluation
		hours/ week			hours / sem / module						
		L	PA	CI	L	PA	CI				
II	Compulsory	2	-	2	14	-	14	22	50	2	Written+ practical exam

L=lectures; PA=Practical Activities; St= stages

Pre-requisites: -

General objectives:

- assessment of multiple medical, psychosocial and functional needs and problems of the older people with the assessment of individual resources and capacity in order to preserve functionality and prevent the onset of disability, improving the quality of life of the geriatric patient;
- important objective, the distinction between so-called normal ageing and pathological changes in ageing in order to avoid both the interpretation of curable pathology as a simple manifestation of ageing and the attempt to treat the natural processes of ageing as diseases.

Specific objectives:

- geriatric medical, functional, cognitive, affective, nutritional and socio-economic-environmental
- determination of medical and/or social care needs;
- development of coordinated intervention measures on problems individual problems.
- improving the health status of the elderly;
- reducing the costs of health services

Course content:

1. Aging; general principles of geriatric care; causes of aging. Geriatric assessment: medical, functional. Elder abuse. Frailty syndrome
2. Aging and exercise capacity. Sarcopenia

3. Falls
4. Nutrition and malnutrition of the elderly.
5. Delirium. Late-onset depression. Cognitive impairment.
6. Aging of the cardiovascular, respiratory
7. Principles of geriatric pharmacotherapy

Practical activities:

1. Geriatric assessment
2. Sarcopenia
3. Falls: causes
4. Nutrition
5. Delirium
6. Respiratory and cardiac functional assessment
7. Medication inventory. The principles of prescribing.

References:

1. Lectures - handouts/electronic format
2. Geriatrics Review Syllabus (10th Editions)
3. Dronca Valer, Evaluare geriatrică, Ed. Colorama, 2020

Evaluation:

- | | |
|------------------|-----|
| ▪ Written exam | 80% |
| ▪ Practical exam | 20% |

PSYCHIATRY. PEDIATRIC PSYCHIATRY – 8 CREDITS

A. PSYCHIATRY

Field of study: Health
Study program: Medicine
Course title: Psychiatry
Course coordinator: Prof. Ioana Micluția, MD, PhD
Lecturer Octavia Căpățână, MD, PhD
Departament: Neurosciences
Discipline: Psychiatry and pediatric psychiatry
Course code: MED6209EN

Semester	Course Type	Lectures			Practical activities			Individual study	TOTAL	Credit	Evaluation
		hours/week			hours/sem.						
		L	PA	CI	L	PA	CI				
II	Compulsory	6	-	6	42	-	42	66	150	8*	Written + practical exam

L=lectures; PA=practical activities; CI=clinical internship

**with the Discipline Pediatric psychiatry*

Pre-requisites: Anatomy, Physiology, Behavioral Sciences, Neurology, Medical Psychology, Semiology, Communication Basics

General objectives:

At the end of the lecture the students will be able to perform a management therapeutically correct of the patients with mental illnesses.

Specific objectives:

At the end of the lecture the students will be capable to:

- Clinically asses the patient and elaborate a diagnosis.
- To apply clinical scales of assessment for a specific pathology.
- Have the skill-sets for establishing and maintaining the therapeutic alliance.
- Set and asses the clinical outcomes.
- Adjust the clinical approach according to the patients` needs.
- Explain the relevance of the risk factors, as well as the importance of treatment adherence, together with how the disorder can progress.

Course content:

1. Introductory concepts: history of psychiatry, concepts of health, illness, normality and psychiatric abnormality.
2. Psychiatric semiology and terminology.
3. Schizophrenia and psychotic disorders.
4. Mood disorders. Suicidal Behaviors in Mood disorders.
5. Organic mental disorders. Postpartum psychiatric disorders.
6. Alcohol use disorder. Mental and behavioral disorders due to psychoactive substance use.
7. Mental and behavioral disorders due to psychoactive substance use.
8. Anxiety disorders. Trauma and stress-related disorders. Somatoform disorders.
9. Personality disorders.
10. Impulse-control disorder. Eating disorders. Sleep disorders.
11. Sexual disorders and dysfunctions.
12. Therapeutic approaches in psychiatry.
13. Psychotherapy – introductory notions.
14. Psychiatric rehabilitation. Legal aspects of psychiatry. Work and functional capacity of psychiatric patients.

Practical activities:

1. Psychiatric semiology
2. Schizophrenia and other psychotic disorders
3. Disorders of disposition
4. Bipolar affective disorder
5. Organic psychiatric disorders (including dementia)
6. Disorders induced by alcohol consumption
7. Disorders induced by the consumption of psychoactive substances
8. Psychiatric emergencies
9. Neurotic disorders, stress disorders, somatization disorders
10. Personality disorders
11. Impulse control disorders. Sleep disorders
12. Eating disorders
13. Sexuality disorders.

References:

1. Ioana Micluția, Cătălina Crișan - Essential in Clinical Psychiatry for Medical Students, Editura Medicală Universitară "Iuliu Hatieganu" Cluj-Napoca, 2017.

2. Miclutia I, Psihiatrie, (2010), Ed. A II-a, Editura Medicală Universitara "Iuliu Hațieganu" Cluj-Napoca, 2010
3. Erickson A & Parker J (eds). Essential MedNotes 2023. 39nd ed. Toronto Notes for Medical Students, Inc, Toronto, 2023 - Neuroscience/Psychiatry Chapter.

Evaluation: - common with the discipline Pediatric Psychiatry

- Written exam 50%
- Practical exam 40%
- Activity during the semester 10%

The final grade is composed of the Psychiatry exam grade (75%) and the Pediatric Psychiatry exam grade (25%)

B. PEDIATRIC PSYCHIATRY

Field of study: Health
Study program: Medicine
Course title: Child and adolescent psychiatry
Course coordinator: Lector Roxana Şipoş, MD, PhD
Department: Neurosciences
Discipline: Psychiatry and Pediatric Psychiatry
Course code: MED6209EN

Semester	Course Type	Lectures			Practical activities			Individual study	TOTAL	Credits	Evaluation
		hours/week			hours/sem.						
		L	PA	CI	L	PA	CI				
II	Compulsory	2	-	2	14	-	14	22	50	8*	Written + practical exam

L = lectures; PA = practical activities; CI = clinical internship

**with the Discipline Psychiatry*

Pre-requisites: Anatomy, Physiology, Medical Psychology, Semiology, Pediatrics, Neurology, Clinical Pharmacology

General objectives:

At the end of the lectures, students will be able to correctly establish the clinical diagnosis and intervention plan for the main psychiatric disorders in children and adolescents.

Specific objectives:

At the end of the course students will be able to

- Understand aspects related to the application of the theoretical and practical principles of pediatric psychiatry
- Correctly apply protocols for assessment and diagnosis of the main psychiatric disorders in children and adolescents
- Know the multimodal prevention and intervention methods for the main psychiatric disorders in children and adolescents and apply them working in a multidisciplinary team
- List the main classes of psychotropic drugs indicated in child and adolescent psychiatric disorders and representatives of these classes
- Mention the medication side effects and their management for the drugs used in child and adolescent psychiatric disorders
- Monitor drug therapy in terms of efficiency and safety

- List the types of psychotherapy indicated in child and adolescent psychiatric disorders
- Students will be familiar with the main research directions in the field of pediatric psychiatry
- Students will develop their synthesis and bibliographic documentation skills.

Course content:

1. Principles and basic theories of pediatric psychiatry. Psychiatric examination in child and adolescent. Particularities of psychopathology by age stages
2. Attention deficit hyperkinetic disorder. Conduct disorders. Juvenile delinquency.
3. Intellectual disability. Learning disorders. Tics. Stuttering. Enuresis and encopresis. Sleep disorders in children and adolescents.
4. Anxiety disorders in children and adolescents. Eating disorders in children and adolescents. Abuse in children and adolescents.
5. Autism Spectrum Disorder
6. Affective disorders in children and adolescents. Psychotic disorders in children and adolescents.
7. Addictions in children and adolescents. Notions of psychotherapy and psychopharmacology in children and adolescents.

Practical activity

1. Particularities of psychiatric examination in children and adolescent anamnesis, child/adolescent psychological examination, functioning impairment in family, school and social environment, overall functional assessment of the child / adolescent and his family
2. Attention deficit hyperkinetic disorder. Conduct disorders.
child / adolescent and caregiver history and obtaining informed consent; psychiatric examination; give information to child / family about the disorder, the effects of medication, possible adverse effects and the importance of compliance with treatment; elaborating and communicating a case management plan and monitoring therapeutic intervention in the pediatric population with ADHD; discussing the importance of early prevention and diagnosis strategies for the child / adolescent with ADHD
3. Intellectual disability. Learning disorders. Tics. Stuttering. Enuresis and encopresis. Sleep disorders in children and adolescents child / adolescent and caregiver history and obtaining informed consent; psychiatric examination; give information to child / family about the disorder, the effects of medication, possible adverse effects and the importance of compliance with treatment; discussing the importance of early prevention and diagnosis strategies

4. Anxiety disorders in children and adolescents. Eating disorders in children and adolescents. Addictions in children and adolescents. child / adolescent and caregiver history and obtaining informed consent; psychiatric examination; give information to child / family about the disorder, the effects of medication, possible adverse effects and the importance of compliance with treatment; elaborating and communicating a case management plan and monitoring therapeutic intervention in the pediatric population
5. Autism Spectrum Disorder in children and adolescents child / adolescent and caregiver history and obtaining informed consent; psychiatric examination; give information to child / family about the disorder, intervention and recovery options; the importance of compliance with psychotherapy and the active involvement of the caregivers in the multidisciplinary team; elaborating and communicating a case management plan and monitoring the therapeutic intervention for the pediatric population with ASD; discussing the importance of early prevention and diagnosis strategies for the child with ASD
6. Depression in children and adolescents. Bipolar disorder in children and adolescents. Schizophrenia in children and adolescents. child / adolescent and caregiver history and obtaining informed consent; psychiatric examination; give information to child / family about the disorder, the effects of medication, possible adverse effects and the importance of compliance with treatment; elaborating and communicating a case management plan and monitoring therapeutic intervention in the pediatric population
7. Abuse in children and adolescents. Notions of psychotherapy and psychopharmacology in children and adolescents. child / adolescent and caregiver history and obtaining informed consent; psychiatric examination; elaborating and communicating a case management plan in a multidisciplinary team, exemplifying the content and duration of a psychotherapy plan. Recapitulation

References:

1. Lecture notes
2. Diagnostic and Statistical Manual of Mental Disorders, 5th ed. Text Revision. Washington (DC). American Psychiatric Association, 2013.
3. International classification of mental and behavioral disorders. Clinical descriptions and diagnostic guidelines, 10th ed. Geneva: World Health Organization, 1992.
4. Erickson A & Parker J (eds). Essential MedNotes 2023. 39nd ed. Toronto Notes for Medical Students, Inc, Toronto, 2023
5. www.nice.org

6. <http://ktclearinghouse.ca/cebm/>. Centre for Evidence-Based Medicine

Evaluation: - common with the discipline Psychiatry

- Written exam 50%
- Practical exam 50%

The final grade is composed of the Psychiatry exam grade (75%) and the Pediatric Psychiatry exam grade (25%)

INFECTIOUS DISEASES

Field of study: Health
Study program: Medicine
Course title: Infectious Diseases
Course coordinator: Prof. Lupșe Mihaela, MD, PhD,
 Lecturer Monica Muntean, MD, PhD
Departament: Medical specialities
Discipline: Infectious Diseases. Epidemiology
Course code: MED6210EN

Sem.	Course type	Lectures			Practical activities			Individual study	TOTAL	Credits	Evaluation
		hours / week			hours / sem.						
		L	PA	CI	L	PA	CI				
II	Compulsory	7	-	10	49	-	70	81	200	8	Written+ practical exam

L = lectures; PA = practical activities; CI = clinical internship

Pre-requisites: Microbiology, Pathology, Physiology, Pharmacology, Semiology, Internal Medicine, Pediatrics, Neurology

General objectives:

- At the beginning of the third millennium the infectious diseases still represent, worldwide, major causes of morbidity and mortality. The study and understanding of the infectious diseases is a necessity regarding epidemiological, etiology-pathogenesis and clinical aspects, but also concerning the methods of diagnostic and the therapeutic strategies (etiologic, pathogenic and symptomatic).
- Importance of Infectious Diseases in condition of the new and re-emerging pathogens and bioterrorism threat.
- Difficulties in establishing the therapeutic attitude due to high resistance to chemotherapy of many pathogens (bacteria, viruses, fungi, parasites).
- Knowledge that many causes of immunosuppression are contributing factor for emergence of infectious diseases with serious outcome.

Specific objectives:

- Under the current conditions clinical presentation and outcome of many infectious diseases is not typical being influenced by changes in resistance and reactivity of host organism, pathogenicity and chemotherapeutic sensitivity of microorganisms. As a result, epidemiological and clinical diagnosis requires corroboration with laboratory examinations

(microbiological, serological and molecular) and a complex differential diagnosis of many other diseases (infectious or noninfectious) must be done.

- Establishing therapeutic strategy (etiologic, pathogenic, symptomatic) takes into account the changes in sensitivity to chemotherapy and clinical forms of disease, often severe, and possible complications that may influence the clinical course and prognosis.

Course content:

Basic principles of infectious diseases

1. Infection, Infectious diseases
2. Pathogenic Mechanisms of Infectious Diseases
3. Basic Principles in the Diagnosis of Infectious Diseases
4. Anti-Infective Therapy: Principles of Anti-Infective Therapy. Pharmacokinetics of antiinfective agents, clinical prophylactic use, untowards reactions. Antibacterial drugs: Beta-Lactam Antibiotics (Penicillins, Cephalosporins, Other Beta-Lactam Antibiotics), Aminoglycosides, Macrolides, Clindamycin, Ketolides, Glycopeptides, Rifamycins, Tetracyclines, Chloramphenicol, Polymyxins, Oxazolidinones, Sulfonamides and Trimethoprim, Quinolones, Metronidazole. Antiviral drugs (other than antiretrovirals). Systemic antifungal agents
5. Therapy with hyperimmune antiserum, interferons, immunoglobulins, glucocorticosteroids, immunomodulatory agents

Infectious Diseases

1. Acute Pharyngitis: Viral Pharyngitis. Bacterial Pharyngitis (group A beta-hemolytic streptococci, group C and G beta-hemolytic streptococci, mixed aerobic/anaerobic infection). Vincent and Ludwig Angina, Peritonsillar Abscess
2. Streptococcal Infectious (Scarlet Fever, Erysipelas, Streptococcal Toxic Shock Syndrome)
3. Staphylococcal Infectious
4. Rubeola (Measles)
5. Rubella (German Measles)
6. Infectious with Varicella-Zoster Virus (Varicella, Herpes Zoster)
7. Influenza
8. Infectious Mononucleosis
9. Mumps
10. Diphtheria
11. Pertussis
12. Community acquired Pneumonia
13. Central Nervous System Infections: Viral and Bacterial Meningitis. Acute Encephalitis

14. Gastrointestinal Infections: Shigellosis. Foodborne Disease. Botulism. Cholera. Trichinosis
15. Acute Viral Hepatitis
16. Cardiovascular Infections: Endocarditis
17. Tetanus
18. Anthrax
19. Rabies
20. Sepsis and sepsis shock
21. Leptospirosis
22. Lyme disease
23. HIV infection

On each disease it will be presented aspects related to: etiology, pathogenesis, clinical picture, clinical forms of disease, complications, prognosis, treatment, and prophylaxis.

Clinical Practice:

Clinical cases (case presentations with infectious pathology)

1. Streptococcal Infections
2. Staphylococcal Infections
3. Infections with Varicella-Zoster Virus
4. Mumps
5. Measles
6. Rubella
7. Infectious Mononucleosis
8. Influenza
9. Pneumonia
10. Meningitis
11. Viral Encephalitis
12. Acute Viral Hepatitis
13. Gastrointestinal Infections
14. Foodborne Disease
15. Trichinosis
16. Leptospirosis
17. Anthrax (clinical practice or images)
18. Tetanus (clinical practice or images)
19. Sepsis
20. HIV infection/AIDS
21. Diphtheria (clinical practice or images)

References:

1. Erickson A & Parker J (eds). Essential MedNotes 2023. 39nd ed. Toronto Notes for Medical Students, Inc, Toronto, 2023

2. Lupte Mihaela - *Lecture Notes on Infectious Diseases*, Ed. Medicală Universitară "Iuliu Hațieganu" Cluj-Napoca 2011
3. Lecture handouts

Evaluation:

- Written exam 50%
- Practical exam 50%

ANESTHESIA AND INTENSIVE CARE

Field of study: Health
Study program: Medicine
Course title: Anaesthesia and Intensive Care
Course coordinator: Assoc. Professor Petrișor Cristina, MD, PhD
 Lecturer Oana Antal, MD, PhD
Department: Surgery
Discipline: Anesthesia and Intensive Care II (ATI II)
Course code: MED6211EN

Sem.	Course type	Lectures			Practical activities			Individual study			TOTAL	Credit	Evaluation
		Hours/week			Hours/sem								
		L	PA	CI	L	PA	CI						
II	Compulsory	3	-	3	21	21	-	33	75	3	Written + practical exam		

L=lectures; PA=practical activities; CI=clinical internship

Pre-requisites: Physiology, Physiopathology, Pharmacology, Clinical semiology, General surgery, Internal medicine

General objectives:

- Anaesthesia as a modality to prevent somatic and psychologic events induced by surgery
- Intensive care medicine at the cross-roads between different domains: pathology, diagnosis of diseases and therapy of major organ dysfunctions
- Practical skills acquisition, procedures
- Perioperative medicine knowledge
- Raising interest in anesthesia and intensive care

Specific objectives:

- Anaesthesia: preoperative evaluation, risk evaluation, choosing the appropriate anaesthesia technique
- General anaesthesia techniques: inhalatory, intravenous, combined
- Regional anaesthesia techniques: spinal, epidural, peripheral nerve blocks-simulation, attending interventions in the operating room
- Breathing insufficiency: causes, clinical signs and symptoms, management of respiratory failure, mechanical non-invasive and invasive ventilation. Practical activities: airway desobstruction, tracheal intubation, laryngeal

mask airways, oxygen therapy, respiratory physical therapy, capnometry and capnography, blood gas analysis

- Shock: pathology, shock mechanisms (hypodynamic and hyperdynamic), hemodynamic monitoring and tissue perfusion monitoring in shock. Clinical signs and symptoms, shock treatment for hypovolemic, septic, anaphylactic, cardiogenic, and obstructive shocks. Practical tips for hemodynamic non-invasive and invasive monitoring.
- Post-resuscitation care. In-hospital resuscitation.
- Fluids, electrolytes and blood gas analysis

Course content:

1. General anaesthesia
2. Regional anaesthesia
3. Shock
4. Respiratory insufficiency
5. Perioperative medicine
6. Acute and chronic pain
7. Fluids, electrolytes, blood gas analysis and transfusions

Practical activities:

1. Airway management
2. In the operating room- Intra-anaesthetic monitoring, discussions about anesthesia plans, anesthesia types (options), perianesthetic risks, assisting general and regional anesthesia types: GENERAL anesthesia
3. In the ICU> Shock- standard and advanced monitoring in the ICU critically ill patient with shock.
4. In the ICU> Breathing insufficiency- pulse oxymetry, capnometry, oxygen therapy, non-invasive and invasive ventilation
5. In the operating room- Intra-anaesthetic monitoring, discussions about anesthesia plans, anesthesia types (options), perianesthetic risks, assisting general and regional anesthesia types: REGIONAL anesthesia
6. Blood gas analysis, fluids and electrolytes balances, transfusions
7. Rehearsal- personalised approach of the ICU patient

Mandatory reference:

1. Erickson A & Parker J (eds). Essential MedNotes 2023. 39nd ed. Toronto Notes for Medical Students, Inc, Toronto, 2023.
2. Butterworth J, Mackey D, Wasnik J. Morgan & Mikhail's clinical anesthesiology. *Lange Ed 7*, 2022.
3. Ionescu D, Bodolea C. manual de anestezie-terapie intensivă pentru studenții la medicină. Ed Iuliu Hațieganu 2019.

4. Bersten A, Handy J. T Oh Intensive Care manual. Elsevier Health Sciences
2018

Evaluation:

- Written exam 50%
- Practical exam 50%

TRAINING IN THE PRACTICAL SKILLS CENTER. INTERPROFESSIONAL EDUCATION

Field of study: Health
Study program: Medicine
Course title: Training in the practical skills center.
 Interprofessional education
Course coordinator: Prof. Claudia Diana Gherman, MD, PhD
Department: Surgery
Discipline: Practical Skills
Course code: MED6212EN

Semester	Course Type	Lectures			Practical activities			Individual study	TOTAL	Credits	Evaluation
		hours/week			hours/sem.						
		L	PA	CI	L	PA	CI				
II	Compulsory	1	-	3	7	21	-	22	50	2	Verification

L=lectures; PA=practical activities; CI=clinical internships

Pre-requisites: -

General objectives:

Learning and exercising advanced clinical labors necessary for the profession of medical doctor.

Specific objectives:

- Learning and exercising labours indispensable to the practicing of the medical profession (emergency medicine, surgery, gynaecology and ATI) on mannequins and simulators.
- Mastering the base and advanced principles, as well as providing the first aid qualified in the most important medical – surgical emergencies, in simulated situations.
- Learning by practicing the evaluation of the critical patient and of the management of the emergency situations.

Course contents / Practical activities:

EMERGENCY MEDICINE

Evaluation of the critical patient type ABCDE

1. Airway - obstruction; maintenance - supraglottic devices: Frog
2. Breathing - ventilation on the balloon and mask; ventilation using supraglottic devices; check SpO₂, EtCO₂
3. Circulation - TA, AV, TRC measurement - interpretation of values; sources of error. Interpretation of heart rhythm: RS, FiA, TPSV, BAV

4. Immobilization and mobilization of traumatized patient: Rauteck maneuver; pelvic girdle; shovel stretcher

SURGERY

1. Thoracocentesis

2. Paracentesis

GYNECOLOGY

1. Clinical gynecological examination - Examination with valves and speculum

2. Clinical gynecological examination - Vaginal touch and rectal touch

3. Technique for collecting vaginal secretions, cervical secretions, cytotumor examination

4. Cervical biopsy

5. Uterine curettage

6. IUD Insertion / Removal

OBSTETRICS

1. Soft pelvis - the bony pelvis

2. Obstetric clinical examination

3. Birth assistance in presentation: cranial, pelvic

4. Obstetric care in delivery: Manual extraction of the placenta, Dystocic birth assistance (shoulder dystocia)

5. Instrumental fetal extraction (suction cup)

6. Episiotomy / episiorafia

7. Fetal monitoring

ATI

1. Hemorrhagic shock (clinical scenario)

2. Anaphylactic shock (clinical scenario)

References:

1. Boet S, Granry JC, Savoldelli G. La simulation en santé - De la théorie à la pratique. Ed. Springer-Verlag Paris, 2013
2. Levine A.I, DeMaria S Jr., Schwartz A.D., Sim A.J. The Comprehensive Textbook of Healthcare Simulation, Ed. Springer-Verlag New York, 2013
3. OSCE Stations for Medical Finals. Adam Feather, Ashling Lillis, Tony Joy, John S P. Lumle, Pastest, 2012
4. OSCE Cases with Mark Schemes. Tamara North, Dr., Jeremy F. Lynch, Aneesha Verma, Anshan Publishers, 2012
5. Surgery, OSCE and Data Interpretation. Nadeem Nadeem, Holly Holly, Nadeem Hasan, Holly Sitsapesan Taylor & Francis Group, 29 mar. 2013
6. Gherman Claudia, Ghid de manopere medico-chirurgicale, Editura Casa Cărții de Știință, Cluj-Napoca, 2017
7. Gherman Claudia, Ghid de tehnici medico-chirurgicale, Editura Casa Cărții de Știință, Cluj-Napoca, 2017

Evaluation:

- Evaluation range charts of the clinical performance 80%
- Activity portfolio 20%

PUBLIC HEALTH AND MANAGEMENT

Field of Study: Health
Study program: Medicine
Course title: Public Health and Management
Course Lecturer: Bogdan Florin Covaliu, MD, PhD
coordinator: Lecturer Gabor Harosa Florina Maria, MD, PhD
Department: Community Medicine
Discipline: Public Health and Management
Course code: MED6213EN

Sem.	Course type	Lectures			Practical activities			Individual study	TOTAL	Credit	Evaluation
		hours / week			hours / week						
		C	LP	St	C	LP	St				
II	Compulsory	4	-	2	28	-	14	33	75	3	Written+ practical exam

C = courses; LP = workshop; St=internship

Pre-requisites: Oncology; Basic epidemiology and primary health care, Behavioral sciences, Scientific research methodology

General objectives:

Understanding the content of Public Health, defining and measuring the health status of the population and its factors, the main demographic events and phenomena, demographic transition, reproduction of the population, indicators of health status measurement, chronic diseases as a public health problem, preventive strategies, health promotion and health education, healthcare management, healthcare systems, health insurance and project management.

Specific objectives:

- Defining the state of health and the factors that condition it
- The use of the main indicators for measuring the state of health
- Assessment of the state of health and the importance of some associated factors
- Understanding and critical analysis of the main trends in population issues
- Defining the main demographic events and phenomena
- The use of demographic information in the measurement and analysis of phenomena
- Description of the main characteristics of demographic phenomena

- Understanding the existing relationships between demography and Public Health
- Identifying the factors that influence population reproduction
- Measurement, description and comparative analysis of mortality and identification of the main characteristics of mortality and control possibilities
- Supporting the topicality of the concept of prophylaxis
- Demonstration of the advantages and limits of different preventive strategies
- Description of preventive actions and services at the primary level regarding the main health problems
- Defining the concept of health promotion and that of health education and delimiting the objectives of the two concepts
- Understanding the notions of communication and behavior in the field of health
- Identifying the programming and evaluation stages of health education
- Understanding the medico-social importance of the elderly population
- Description of some demographic phenomena related to the aging of the population
- Description of the impact of the demographic transition on the health of the population
- Identification of managerial roles, functions, attributes
- Description of organizational culture and the development of systemic thinking in health
- Understanding the concept of medico-social marketing
- The importance and stages of project management

Course content:

1. The objectives of the World Health Organization in the 21st century
2. Public health and individual health
3. The state of health of the population and factors that condition it
4. Indicators for measuring the state of health
5. The main demographic events and phenomena
6. The demographic transition
7. Reproduction of the population
8. Chronic diseases as a public health problem
9. Preventive strategies, health promotion and health education
10. The regime of toxic and narcotic drugs in health
11. Introduction to the Management of health services, medico-social marketing and project management
12. Health care systems, social health insurance

Practical activities:

1. The job description and duties of the family doctor
2. The employment contract and the work program
3. The information system used by the family doctor for the activity with the patients and the release of the medication
4. Patient rights
5. Coding of morbidity recorded by family doctors, doctors specializing in offices, outpatient clinics and hospitals
6. Ways of Financing health care in Romania, compared to EU countries, including the DRG system
7. Dispensing medication for patients in primary, secondary and tertiary care, standardized forms, legal regulations
8. Narcotic substances in medical practice. Ethnobotanical substances - a public health problem among young people
9. Monitoring of chronically ill patients by the family doctor together with the specialist doctor and Expertise of work capacity
10. Medical leave with temporary incapacity for work - current legal regulations, forms and codification
11. Confirmation of birth – the medical certificate confirming the birth, the prenuptial medical certificate
12. Confirmation of death – the medical certificate confirming the death
13. Infant mortality, by age subgroups, inclusion limits according to WHO, death records by age subgroups.
14. The elderly - medico-social investigation, degrees of dependency, protection units at community level
15. Decentralization in community medical assistance and reorganization of the health care system
16. Classic and electronic observation sheet. Discharge and assistance of medico-socially dependent patients and home care
17. The medico-social supervision of the pregnant woman by the family doctor and the specialist doctor

References:

1. BORZAN C. - *Noi abordări ale Sănătății Publice și Managementului în Regiunea Europeană a Organizației Mondiale a Sănătății*, Editura Medicală Universitară „I. Hațieganu”, Cluj-Napoca, 2007
2. BORZAN C., MOCEAN F., - *Sănătate Publică*, Editura Medicală Universitară „I. Hațieganu”, Cluj-Napoca, 2002
3. MARCU M.G., MINCĂ D., *Sănătate publică și management sanitar*, Editura Universitară “Carol Davila”, București, 2003
4. MUREȘAN P., *Manual de metode matematice în analiza stării de sănătate*, Editura medicală, București, 1989

5. O.M.S. – *Health 21 – Health for all în the 21-st century, European Health for All, Series no. 5*, Copenhaga, 1996
6. TREBICI V., *Demografie*, Editura Științifică și Enciclopedică, București, 1979
7. TREBICI V., *Populația Terrei*, Editura Științifică, București, 1991
8. VLĂDESCU C. (coord.), *Managementul serviciilor de sănătate*, Editura Expert, București, 2000
9. Legea drepturilor pacientului nr. 46/ 2003;
10. Legislație sanitară actualizată

Evaluation:

- Written exam 60%
- Practical exam 40%

MALPRACTICE AND MEDICAL LAW. MEDICAL DEONTOLOGY

Field of study:	Health
Study program:	Medicine
Course title:	Malpractice and medical law. Medical deontology
Course coordinator:	Leturer adv. Ionut Vida-Simiti, PhD
Department:	Medical Education
Discipline:	Humanistic Sciences
Course Code:	MED6214EN

Sem.	Type of course	Lectures			Practical Activities			Individual Study	TOTAL	Credit	Evaluation
		hours/ week			hours / sem / module						
		L	PA	CI	L	PA	CI				
II	Compulsory	2	-	-	14	-	-	36	50	2	Verification

C = Course; P. = Practical classes; St. = Stages

Pre-requisite conditions: -

General objectives:

Merging medical knowledge with the legal framework

Specific objectives:

Acquiring technical and practical knowledge about the juridical framework for exercising medical profession.

The beneficiaries and the medical care providers' rights and obligations.

Acquiring technical and practical knowledge about the concept of medical liability.

Course content

1. Medical juridical relationships: Introduction in medical law. The concept and regulation of medical relationship. The notion and the sources of medical law.
2. The origin of medical juridical relationship: Medical contract. Medical juridical act. The group of contracts in the Public Healthcare System
3. The elements of the medical juridical relationship: Medical healthcare providers and beneficiaries. Object and content of the medical service
4. Medical personal of the medical health providers: General conditions for exercising the medical profession. The membership of Romanian Medical Association
5. Medical liability: The concept of medical liability. Criminal liability, disciplinary liability, labour liability. Civil medical liability

6. Requirements for medical liability: General requirements (damage, unlawful acts, causation, guilt). Special requirements (unlawful act during exercising medical profession). Situations that don't imply medical liability

7. The consequences of medical liability: A new juridical relationship with the purpose of covering the damage. The special procedure and malpractice insurance.

References:

1. I. Vida-Simiti: Interventional clinical and chemical studies in Romania, legal guarantees. *Revista de Chimie (București)*, 1 /2018, p. 267-270
2. I. Vida-Simiti: Medical liability for Off Label use of drugs in Romania. *Revista de Chimie (București)*, 3/2018, p.755-757
3. J. Samanta, A. Samanta, *Medical Law*, Ediția a II-a, Ed. Palgrave Macmillan Publishers Limited, Londra, 2015
4. I. Vida-Simiti, *Răspunderea civilă a medicului [Medical Civil Liability]*, Ed. Hamangiu, București, 2013
5. T. Hope, J. Savulescu, J. Hendrick, *Medical Ethics and Law*, Ed. Churchill Livingstone, 2007
6. M. Stauch, K. Wheat, J. Tingle, *Text, Cases and Materials on Medical Law*, Ed. Routledge-Cavendish, 2007

Evaluation:

- Written exam 100%

B. ELECTIVE COURSES

METHODOLOGY REGARDING THE ELECTIVE COURSES AT THE FACULTY OF MEDICINE Academic year 2023-2024

The purpose of the present Methodology is to help students of the Faculty of Medicine choose elective courses.

1. The Council of the Faculty of Medicine organized in March approves the list of elective courses offered by the departments. Students are informed about this offer through:
 - a) the website of the Faculty of Medicine, the section "Noutăți pentru studenți"
 - b) the panel of the Faculty of Medicine
 - c) the students' internet discussion groups.
2. Each student in the Faculty of Medicine must choose an elective course and register for it within the period established by the Direction of the Faculty.
3. The enrollment can be done online on <http://bc.umfcluj.ro/optionale/>
4. Once filled in and signed, the application represents the student's commitment to attend that elective course. At the same time, once elected, an optional course becomes mandatory.
5. To organize standardized optional courses (free for students), 60 students must be enrolled at least. The maximum number of students enrolled per course is 80/100.
6. Elective courses with 15 to 60 students will be charged.
7. After the registration deadline, students who are not enrolled will be automatically enrolled to the elective courses where there are still places.
8. At the exam, students will receive the mark PASS/FAIL.
9. Students willing to attend more than one elective course are allowed to do this depending on places left after the end of the period of enrollment and distribution of un-enrolled students.

10. Until the end of June 2023, the final list of students enrolled in each course will be made available to departments and students.
11. For the first year students (2023-2024), the enrollment for elective courses takes place in October 2023.

DEAN,
Prof. Șoimița Mihaela SUCIU, MD, PhD

ELECTIVE COURSES FREE OF CHARGE

MEDICINE STUDY PROGRAM IN ENGLISH

1st YEAR (2023- 2024)

No.	Course title	Course coordinator	Discipline
1	Advanced communication skills	Assoc. Prof. Codruța Popescu, MD, PhD	Humanistic sciences
2	Introduction to experimental surgery	Prof. George Dindelegan, MD, PhD	Surgery I
3	Healthy lifestyle in the prevention and control of chronic non-communicable diseases	Prof. Gabriela Roman, MD, PhD	Diabetes and nutritional diseases

2nd YEAR (2023 - 2024)

No.	Course title	Course coordinator	Discipline
1	The Use of Stem Cells in Cellular Therapy and Tissue Engineering	Prof. Carmen Mihaela Mihu, MD, PhD Assoc. Prof. Bianca Boșca, MD, PhD Lecturer Anne Marie Constantin, MD, PhD	Histology
2	Drugs and addictions	Prof. Anca Dana Buzoianu, MD, PhD Lecturer Sebastian Armean, MD, PhD	Pharmacology, toxicology and clinical pharmacology

3rd YEAR (2023 - 2024)

No.	Course title	Course coordinator	Discipline
1	Aesthetic surgery	Lecturer Maximilian Muntean, MD, PhD	Plastic and reconstructive surgery

2	Neurological examination in medical emergencies	Assoc. Prof. Adina Stan, MD, PhD	Neurology and Pediatric Neurology
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4th YEAR (2023 - 2024)

No.	Course title	Course coordinator	Discipline
1	Psychosomatic medicine	Prof. Dan Dumitrașcu, MD, PhD	Medical Clinic II
2	Basic techniques in general surgery	Assoc. Prof. Florin Graur , MD, PhD	Surgery III

5th YEAR (2023 - 2024)

No.	Course title	Course coordinator	Discipline
1	Ultrasonography in medical and surgical emergencies	Lecturer Mihai Socaciu, MD, PhD	Radiology and imaging. Nuclear medicine
2	Brief methodological guide for the thesis	Lecturer Tudor Călinici, MD, PhD	Medical Biostatistics and Informatics

6th YEAR (2023 - 2024)

No.	Course title	Course coordinator	Discipline
1	Medico-legal aspects of intrafamilial violence	Lecturer Ștefan Anițan, MD PhD	Forensic medicine
2	Techniques and manoeuvres in obstetrics and gynecology	Assoc. Prof. Răzvan Ciortea, MD, PhD Assoc. Prof. Andrei Măluțan, MD, PhD	Obstetrics and Gynecology II

OPTIONAL COURSES - with fee

No.	Course title	Course coordinator	Discipline/ Year of study
1.	Human physiology – body’s adaptation to common an uncommon conditions	Lecturer Daniela-Rodica Mitrea, MD, PhD	Physiology/ II
2.	Cardio-circulatory explorations	Lecturer Radu Roșu, MD, PhD	Cardiology-Recovery/ II
3.	Cardiology – Clinical and therapeutical review for the graduation exam	Assoc. Prof. Anca Daniela Farcaș, MD, PhD	Medical Clinic I/ V
4.	Obstetrical ultrasound – a window to the fetus	Assoc. Prof. Răzvan Ciortea, MD, PhD Assoc. Prof. Andrei Măluțan, MD, PhD	Obstetrics and Gynecology II/ VI

PEDAGOGIC MODULE

No.	Course title	Course coordinator	Discipline/ Year of study
1.	Medical pedagogy	Assoc. Prof. Horia Coman, MD, PhD	Medical Psychology/ II
2.	Teaching Methods	Prof. Valentin Muntean, MD, PhD	Surgical Clinic IV / IV, V, VI
3.	Pedagogical Practice	Prof. Valentin Muntean, MD, PhD	Surgical Clinic IV / IV, V, VI
4.	Educational Psychology	Assoc. Prof. Horia Coman, MD, PhD	Medical Psychology / IV, V, VI