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DEAN'S INTRODUCTION

For more than 140 years, the Faculty of Medicine of Cluj-Napoca has been contributing to improving the healthcare system, by training several generations of valuable physicians who are committed to their profession.
The faculty's name represents a brand of our city, and the way it is perceived by the community is the result of years of endeavour and commitment of our teachers, graduates and students alike.
Our fundamental values, excellence and care for the sick, asserted since the founding of the Faculty by its founders, have resisted history and time, being impregnated in our daily efforts and in the Faculty's development strategy.
Modern and dynamic faculty, the medical school of Cluj is distinguished from other medical schools by an attractive educational offer: four undergraduate study programs, thirteen 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.
Based on our graduates' professional mobility, the adaptation of medical education to the modern requirements of health services becomes a fundamental goal. In a globalized society, where fierce competition obliges us to practice very high standards, doctors training must follow two major coordinates: acquiring the professional expertise and necessary practical skills, and, at the same time, acquiring superior communication skills grafted on a perfect professional ethics.
We are all convinced of the need for continued progress, as well as of the existing competition between similar faculties in the modern education market. Competitive awareness will make a difference, a fundamental difference that will allow us to maintain a national leading position and to aspire to the most significant position in Eastern and Central Europe.
Being proud of our tradition and our present, confident in the future, we invite you to discover us.

Dean,
Professor Anca Dana Buzoianu, MD, PhD

A BRIEF HISTORY OF THE FACULTY OF MEDICINE

Founded in Cluj, 146 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 Haţieganu, 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 Babeş, 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 Bologa, 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 Haţieganu, 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 Chişu, Aurel Nana, Ion Chiricuţă, Constantin Velluda, Victor Preda, Ion Baciu, 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 Haţieganu. 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.

FACULTY STRUCTURE

I. ACADEMIC MANAGEMENT

The Senate

The highest governing body of “Iuliu Haţieganu” 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 Haţieganu" was elected in December 2015 for a four-year term and it is represented by the following teachers:

The direction of the University of Medicine and Pharmacy "Iuliu Haţieganu"

Prof. **Alexandru Irimie**, MD, PhD	- Rector
Prof. **Ştefan Ioan Florian**, MD, PhD	- President of the Senate
Prof. **Grigore Băciuţ**, MD, PhD	- Vice-Rector, resident and postgraduate students
Prof. **Ioan Coman**, MD, PhD	- Vice-Rector, Didactic Activities
Prof. **Siviu Albu**, MD, PhD	- Vice-Rector, Academic Development and University Administration
Prof. **Felicia Loghin**, MD, PhD	- Vice-Rector, Research and Scientific Activities
Prof. **Dan Dumitraşcu**, MD, PhD	- Vice-Rector, Quality Management and International Relations

The direction of the Faculty of Medicine

Prof. **Anca Dana Buzoianu**, MD, PhD	- Dean of the Medical Faculty
Prof. **Daniel Mureșan**, MD, PhD	- Vice-Dean, International Relations and Foreign Students' Issues
Prof. **Șoimița Suciu**, MD, PhD	- Vice-Dean, Teaching activities
Prof. **Carmen Mihu**, MD, PhD	- Vice-Dean, Evaluation and Quality Control
Prof. **Sorin Man**, MD, PhD	- Vice-Dean, Management, Accademic Development and Students' Issues
Prof. **Dana Pop**, MD, PhD	- Vice-Dean, Scientific and Evaluation activities

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

	Surgical Clinic I
	Surgical Clinic II
	Surgical Clinic III
	Surgical Clinic IV
	Surgical Clinic V
	Emergency Medicine
8. Surgical Specialties	Orthopedics, Traumatology and Pediatric Orthopedics
	Urology
	ENT
	Ophthalmology
	Radiology
	Medical Imaging
9. Mother and child	Obstetrics and Gynecology I
	Obstetrics and Gynecology II
	Neonatology
	Pediatrics I
	Pediatrics II
	Pediatrics III
	Surgery and Pediatric Orthopedics
	Nursing
10. Neurosciences	Neurology and Pediatric Neurology
	Psychiatry and Pediatric Psychiatry
	Neurosurgery
11. Oncology	Medical Oncology
	Oncology and Radiotherapy
	Hematology
	Oncologic Surgery and Oncologic Gynecology
12. Medical Education	Sport
	Medical Informatics and Biostatistics
	Medical Psychology
	Modern Languages
	Skills - Humanistic Sciences

THE STRUCTURE OF THE ACADEMIC YEAR 2019-2020

LINEAR TEACHING

MEDICINE – 1st – 3rd YEAR

1st SEMESTER

30th September 2019 – 20th December 2019	→	classes (12 weeks)
23rd December 2019 – 3rd January 2020	→	Christmas holiday (2 weeks)
6th January 2020 – 17th January 2020	→	classes (2 weeks)
20th January 2020 – 14th February 2020	→	exam session (4 weeks)
17th February 2020 – 21st February 2020	→	winter holiday (1 week)

2nd SEMESTER

24th February 2020 – 5th June 2020	→	classes (14 weeks)
20th April 2020 – 24th April 2020	→	Easter holiday (1 week)
8th June 2020 – 3rd July 2020	→	exam session (4 weeks)
13th July 2020 – 17th July 2020	→	re-examination session 1
20th July 2020 – 23rd July 2020	→	re-examination session 2

*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 06.07.2020 to 25.09.2020 and can start on any Monday of the mentioned period.

September 2020 = 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

30th September 2019 – 22nd November 2019	→	classes (8 weeks)
25th November 2019 – 29th November 2019	→	exam session (1 week)

2nd Module

2nd December 2019 – 20th December 2019	→	classes (3 weeks)
23rd December 2019 – 3rd January 2020	→	Christmas holiday (2 weeks)
6th January 2020 – 7th February 2020	→	classes (5 weeks)
10th February 2020 – 14th February 2020	→	exam session (1 week)
17th February 2020 – 21st February 2020	→	winter holiday (1 week)

2nd Semester

3rd Module

24th February 2020 – 17th April 2020	→	classes (8 weeks)
27th April 2020 – 30th April 2020	→	exam session (1 week)
20th Avril 2020 – 24th April 2020	→	Easter holiday (1 week)

4th Module

4th May 2020 – 26th June 2020	→	classes (8 weeks)
29th June 2020 – 3rd July 2020	→	exam session (1 week)

13th July 2020 – 17th July 2020	**→**	**re-examination session 1**
20th July 2020 – 23rd July 2020	**→**	**re-examination session 2**

July 2020	→ License Exam for the English and French study program
September 2020	→ License Exam for the Romanian study program

MASTER'S DEGREE

1st SEMESTER

30th September 2019 – 20th December 2019	→	classes (12 weeks)
23rd December 2019 – 3rd January 2020	→	Christmas holiday (2 weeks)
6th January 2020 – 17th January 2020	→	classes (2 weeks)
20th January 2020 – 14th February 2020	→	exam session (4 weeks)
17th February 2020 – 21st February 2020	→	winter holiday (1 week)

2nd SEMESTER

24th February 2020 – 5th June 2020	→	classes (14 weeks)
20th April 2020 – 24th April 2020	→	Easter holiday (1 week)
8th June 2020 – 3rd July 2020	→	exam session (4 weeks)
13th July 2020 – 17th July 2020	→	re-examination session (1 week)

September 2020 → dissertations session I (1 week)
February 2021 → dissertations session II (1 week)

EXAMINATIONS AND CONTESTS

24th September – 30th of September 2019 → enrollment and admission to master's studies
3rd February – 7th February 2020 → enrollment for the 2nd session of the License exam
10th February – 14th February 2020 → License Exam - 2nd session

OTHER EVENTS

2nd – 6th December 2019 → „University Days"
July 2020 → The 2020 Ceremony for the students' graduation

FACULTY OF MEDICINE – STUDENTS REGISTRATION PROCEDURES

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 implies filling in an application form within the first 15 days after the beginning of the academic year. Enrollment is based on the professional results obtained in the previous academic year and entails the achievement of the minimum number of credits (45 credits) necessary to validate the year of study.

Students in complementary year are enrolled in the year of study they have to repeat after paying their financial obligations for the complementary year.

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.

ECTS STUDENTS

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.
For the recognition of the Socrates-Erasmus mobility, the student must accumulate at least 25 ECTS credits for a period of 4-5 months and at least 50 ECTS credits for a period of 9 months spent in the host institution abroad. The credits obtained abroad must be related to subjects that the student should study at UMF “Iuliu Haţieganu” Cluj-Napoca during the academic year in which

he/she is enrolled and benefits from the mobility. It is possible to recognize at most two exams related to a higher academic year (not more than 15 credits in advance).

The ECTS grading scale

Examination and assessment results are generally expressed in marks. There are various grading systems in Europe, which is why an ECTS grading scale has been created to equate the marks students receive at the host university. This procedure also provides other information about the student's work, but does not replace the mark the student will get at the home university.

How does it work?

The main ECTS tools to facilitate academic recognition are:

- Information Package
- Learning Agreement
- Transcript of Records

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.

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 to complete his studies there or to collaborate with a third institution for his / her training. This is possible only if both institutions express their agreement and that the student accepts the conditions required for obtaining a diploma or for transferring.
The transcript of records provides a history of the student's academic achievements; that is why it is the document which helps partner institutions make decisions on the continuation of ECTS mobility studies 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% 3rd pass	45% - 54% -	55% - 69% 2nd/II	70% - 84% 2nd/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% (3rd)	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 Suspenso	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 kôzepes	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 Pekiyi

For further information on the ECTS system of credits and how it is applied in "Iuliu Haţieganu" 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. **Ioan Coman,** MD, PhD - Vice-Rector, Teaching and Educational Evaluation

Faculty of Medicine:
Assoc. Prof. **Șoimița Suciu**, MD, PhD - Vice-Dean, Teaching and Educational Activities

Vice-Rector Quality Assurance and International Relations:
Prof. **Dan L. Dumitraşcu**, MD, PhD

Language of instruction
The language of instruction at the "Iuliu Haţieganu" 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 Restaurant, located near the campus, on Victor Babeş Street, no. 13, offers diversified menus and has a capacity of 150 seats, being recently renovated.

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.

CURRICULUM

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 tothe 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 Haţieganu" 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 an 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 45 credits out of 60 credits allocated to one year of study. A total of 15 credits can be transferred to the following year of study. In order to validate a study year, the credits transferred from the previous years must not exceed 15 ECTS. In the calculation of credits obtained during a year of study, the credits obtained during that year of remaining credits are not included. Students have to pay a fee for the remaining credits, according to the Fees Appendix of the *Regulations Concerning Student Academic Activity.*
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.
   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.
9. 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.
10. 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 comission 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.
11. 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.

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 Haţieganu" 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 Haţieganu" University of Medicine and Pharmacy faculties (difference exams) **cannot exceed 15 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 grades
- 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 between 1-12 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 15 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 first 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 (2019-2020)

Course code	Discipline	Course hours	Practical course hours	Credits	Semester	Evaluation
MED11201EN	General Anatomy and Embryology. Topographic and Sectional Anatomy	56	140	12 (6+6)	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	4	I	E1
MED1105EN	Behavioral Sciences. Medical Sociology	14	14	3	I	E1
MED1106EN	Medical Bioethics and History of Medicine	14	7	2	I	V
MED1107EN	Bases of Medical Communication	14	14	3	I	V
MED1208EN	Elective Course	14	-	2	I	V
MED1209EN	Descriptive Biochemistry	28	28	5	II	E2
MED1210EN	Physiology	28	28	5	II	E2
MED1211EN	First Aid	14	14	3	II	V
MED1212EN	Medical Psychology	14	14	3	II	E2
MED1213EN	Problem Based Learning	-	28	3	II	C
MED1214EN	Romanian Language	-	56	2	II	C
MED12145EN	Sport*	-	28	*1	II	C
	Medical Practice	-	120	3	-	C

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

2nd YEAR (2019-2020)

Course code	Discipline	Course hours	Practical course hours	Credits	Semester	Evaluation
MED2101EN	Topographic and Sectional Applied Anatomy	28	56	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	56	56	8 (4+4)	I/II	E1, E2
MED21206EN	Medical Genetics	42	56	7 (3+4)	II	E2
MED2208EN	Medical Research Methodology	21	21	3	II	E2
MED2209EN	Primary Healthcare	14	14	2	II	V
MED21210EN	Modern/Romanian Language	-	56	2	II	C
MED21211EN	Sport*	-	28	1*	II	V
MED21212EN	Elective Course	14	-	2	II	V
	Medical Practice	-	120	3	-	C

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

3rd YEAR (2019-2020)

Course code	Discipline	Course hours	Practical course hours	Credits	Semester	Evaluation
MED31201EN	Medical Semiology*	84	154	12 (6+6)	I/II	E1, E2
MED3102 EN	Surgical Semiology	42	56	6	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	7 (4+3)	I/II	E1, E2
MED31206EN	Hygiene	42	42	7 (2+5)	I/II	V, E2
MED3107EN	Basic Practical Skills. Interprofesional education	7	21	2	I	V
MED3108EN	Elective Course	14	-	2	I	V
MED3208EN	Clinical Microbiology	14	14	2	II	V
MED3209EN	Immunology	14	14	2	II	V
	Romanian Language* (for foreign students)	-	*84	-	II	C
	Medical Practice	-	120	3	-	C

-* 7 hours course and 7 hours of practical work are compulsory for:

- Cardiology - Heart Institute - Romanian and French series;
- Cardiology Rehabilitation – English series;

- Romanian series 1 and 2 will do Surgery in the first semester and Clinical Microbiology respectively Immunology in the second semester.
- Romanian series 3 and 4 will do Surgery in the second semester and Clinical Microbiology respectively Immunology in the first semester.
-*Romanian language is compulsory for foreign 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 (2019-2020)

Course code	Discipline	Course hours	Practical course hours	Credits	Semester	Evaluation
MED4 1 01EN	Internal medicine. Gastroenterology	42	106	9	I	E1
MED4 1 02EN	Clinical Pharmacology	21	14	3	I	E1
MED4 1 03EN	Nephrology	21	21	3	I	E1
MED4 1 04EN	Hematology	21	21	3	I	E1
MED4 1 05EN	Clinical Biochemistry	14	7	2	I	E1
MED4 1 06EN	Ophthalmology	14	28	3	I	E1
MED4 1 07EN	Urology	14	28	3	I	E1
MED4 108EN	Endocrinology	14	21	2	I	E1
	Diabetes, Nutritional and Metabolic Diseases	14	14	2		
MED4 2 09EN	**Radiology. Locomotor system, excretory system and emergency	21	21	5	II	E2
	Medical Imaging	14	14			
MED4 2 10EN	Occupational Medicine and Professional diseases	14	28	3	II	E2
MED4 2 11EN	General Surgery	56	140	12	II	E2
	Oncologic Surgery	7	14			
	Cardiovascular and Thoracic Surgery*	14	21			
	Plastic Surgery	7	7			
MED4 2 12EN	Oral and Maxillofacial Surgery	14	14	2	II	E2
MED4 2 13EN	Orthopedics – Traumatology	14	28	3	II	E2
	Paediatric Orthopedics	7	7			
	Elective Course	14	-	2	II	V
	Medical Practice	-	120	3	-	C

- *Cardiovascular and Thoracic Surgery: 7 hours of lectures + 14 hours of practical work for Cardiovascular Surgery and 7 hours of lectures + 7 hours of practical work for Thoracic Surgery;
- Modules are organized in blocks of 8 weeks + 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;
- 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;

- ** Modules are organized in 7-week blocks and 1+2 weeks of examination period
- 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 (2019-2020)

Course code	Discipline	Course hours	Practical course hours	Credits	Semester	Evaluation
MED5 1 01EN	Internal Medicine. Cardiology	56	106	12	I	E1
	Interventional Cardiology	-	7			
	Pneumology	14	14	2		
MED5 1 02EN	Clinical Pharmacology	21	21	4	I	E1
MED5 1 03EN	Neurosciences	-	-	10	I	E1
	Adult Neurology	56	56			
	Pediatric Neurology	14	14			
	Neurosurgery	14	14			
MED5 2 04EN	Radiology. Respiratory, cardiovascular systems and neurology	14	14	2	II	E2
MED5 2 05EN	Pediatrics	70	160	12	II	E2
	Puericulture	14	14			
	Pediatric Surgery	7	21			
MED5 2 06EN	ENT – Otolaryngology	28	28	5	II	E2
MED5 2 07EN	Oncology	7	14	2	II	E2
	Radiotherapy	7	14	2		
MED5 2 08EN	Rheumatology	14	14	2	II	E2
	Medical Rehabilitation	14	14	2		
MED5 2 09EN	Elective Course	14	-	2	I	V
MED5 2 10EN	Preparation of the License Thesis *	-	56	2*	II	V
	Medical Practice	-	120	3	-	C

- *Modules are organized in blocks of 8 weeks + 1 week of examination session;
- 2 hours of internship/week – compulsory in the emergency service;
- Each group has the Cardiology Heart Institute on turns – 1 week during the Internal Medicine Clinical Internship
- **For Pediatrics Clinical internships, there are 3,5 hours /day; 20 hours of clinical internship are required in the emergency service.
- Modules are organized in blocks of 7 weeks + 2 weeks of examination session;
- Credits for the Preparation of the License Thesis are supplementary credits.

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

6th YEAR (2019-2020)

Course code	Discipline	Course hours	Practical course hours	Credits	Semester	Evaluation
MED6 1 01EN	Family Medicine	28	42	5	I	E1
MED6 1 02EN	Epidemiology	14	14	2	I	E1
MED6 1 03EN	Dermatology	28	28	4	I	E1
	Allergology	7	14	2		
MED6 1 04EN	Obstetrics-Gynecology	56	140	11	I	E1
	Neonatology	7	14			
MED6 1 05EN	Forensic Medicine	21	21	3	I	E1
MED6 2 10EN	Emergency Medicine	14	14	3	I	E1
MED6 2 07EN	Geriatrics	14	14	2	II	E2
MED6 2 08EN	Psychiatry	42	42	8	II	E2
	Pediatric Psychiatry	14	14			
MED6 2 09EN	Infectious Diseases	42	70	8	II	E2
MED6 2 09EN	Anesthesia and Intensive Care	21	21	3	II	E2
MED6 2 11EN	Training in the Practical Skills Center. Interprofessional education	7	21	2	II	V
MED6 2 12EN	Public Health and Management	28	14	3	II	E2
MED6 2 13EN	Malpractice and medical law. Medical deontology	14	-	2	II	V
MED6 2 14EN	Elective Course	14	-	2	II	V
	Preparation of the License Thesis *	-	56	2*	II	C

- 2 hours of internship/week - compulsory in the emergency service;
- Each group has the Cardiology Heart Institute on turns – 1 week during the Family Medicine Internship;
- ** Gynecology internships are of 3,5 hours/day; 20 hours of internship are compulsory within the emergency service;
- **Modules are organized in blocks of 7 weeks + 2 weeks examination session;
- Credits for the Preparation of the License Thesis are supplementary credits.

SYLLABUS – SUBJECTS DESCRIPTION

A. COMPULSORY COURSES

1st YEAR

GENERAL ANATOMY AND EMBRIOLOGY. TOPOGRAPHIC AND SECTIONAL ANATOMY

Field of Study	**Medicine**
Study program	**Medicine**
Course title	**General Anatomy and Embryology**
Course coordinator	**Lecturer Dr. Carmen Micu, MD. PhD,** **Lecturer Bartoş Dana Monica, MD. PhD**
Department	**Morphological Sciences**
Discipline	**Anatomy and Embryology**
Course code	**MED 1 1 01 EN**

Semester	Course type	Lectures	Practical activities		Lectures	Practical activities		Individual study	TOTAL	Credits	Evaluation
		hours/week			hours/semester						
		L	PA	CI		PA	CI				
I	Compulsory	2	5	-	28	70	-	52	150	6	Written + oral exam
II		2	5		28	70		52	150	6	

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

Pre-requisites: -

General objectives:

- Describe basic principles of embryology and general anatomical concepts.
- Develop a broad understanding of the structural organization of the human body at the macroscopic level.
- Develop a foundation for physical examination and functional assessment of the human organism.
- Describe the thoracic, abdomen and pelvis cavities and the viscera they contain.
- Describe the gross anatomy of skull, head and neck.
- Describe the three-dimensional interrelationships & the general principles of organs & blood & nerve supply.
- Provide anatomical basis for cross sectional and 3D digital imaging.

- Knowledge of topographic and sectional anatomical data with medical, surgical and imagistic relevance.

Specific objectives:

1. Musculo-Skeletal System and Joints

- Locate and identify the major components of the skeletal system and describe their functions.
- Put in anatomical position a bone.
- Describe the different types of bones and provide an example of each type.
- Identify the parts of a bone.
- Locate and name the muscle insertions on a bone.
- Identify and describe the different types of joints, explain their functions, and provide an example.
- Identify the types of muscle and describe how the muscular system's functions.
- Locate and identify a muscle in the body.
- Describe a muscle.
- Locate and identify the blood vessels and innervation that supply and innervate a muscle.
- Know the specific groups of muscles by layers.
- Describe and identify specific topographic areas.
- Identify and describe the major vessels, nervous plexuses and nerves at the level of the limbs, trunk and neck.

2. Thorax

- Identify the major components of the thoracic cavity and describe their functions.
- Locate and identify the lung.
- Describe the features of the lung.
- Describe the features of the bronchial tree.
- Describe the vascularization and innervation of the lung.
- Describe the pleura.
- Describe the division of the mediastinum.
- Describe and identify the mediastinum components.
- Describe and identify specific topographic areas.
- Locate and identify the heart.
- Describe the features of the heart.
- Describe the vascularization and innervation of the heart.
- Describe the excitoconductory system.
- Describe the pericardium.
- Locate and identify the esophagus.
- Describe the features of the esophagus.
- Describe the vascularization and innervation of the esophagus.

- Identify and describe the major vessels, nervous plexuses and nerves in the thorax.

3. Digestive and urino-genital systems

- Identify the major components of the digestive and urino-genital systems and describe their functions.
- Describe the overall structure, sections and layers of the abdominal and pelvic cavity.
- Describe and identify the peritoneum.
- Locate and identify major structures of the digestive and urino-genital systems.
- Describe the structures of the digestive and urino-genital systems.
- Vascularization and innervation of the digestive and urino-genital systems.
- Identify and describe the major vessels, nervous plexuses and nerves in the abdomino-pelvic cavity.
- Describe and identify specific topographic areas.

4. Endocrine system

- Identify and describe the major components of the endocrine system and describe them.
- Describe the vascularization and innervation of the structures of the endocrine system.

Course content:

I Semester

1. The object of anatomy: the human being, introduction to the study of anatomy; definition, methods and means of study; orientation terms, anatomic terms (axes, planes, positions, anatomical terms); particularities of the biped; human body proportions; age stages and their characteristics; human morphotypes, races; gender differences after puberty.
2. Generalities of the skeletal system, the articular system and the muscular system.
3. Upper limb: topographic regions, vascularization, innervation.
4. Joints of the: vertebral spine, head and upper limb.
5. First week of development (fertilization, cleavage, segmentation, blastocyst formation, implantation and anomalies). 2nd week of development (bilaminar embryological disc). 3rd week of development (trilaminar embryological disc – intraembryonic mesoderm formation, notochord, trophoblast development).
6. Weeks 4th-8th of development (embryonic period). Derivatives of ectoderm, mesoderm, endoderm. Modeling the outer form of the embryonic body. Formation of primordial organs. Fetal period (L3-birth).

7. General organization of the trunk: walls, cavity, compartments. Mediastinum. Development of the walls of the trunk, of the coelom. Abnormalities.
8. Generalities of the respiratory system. Development of the respiratory system. Abnormalities.
9. Generalities of the cardiovascular system. Development of the cardiovascular system. Development of the heart. Abnormalities.
10. Blood supply and nerve supply of the thoracic walls and viscera.
11. Topography of anterolateral abdominal walls, vascularization, innervation.
12. Inferior limb: topographic regions, vascularization, innervation.
13. Joints of the inferior limb.
14. Clinical and radiologic anatomy of the thorax.

II Semester

15. Topographic regions of the head. Anatomo-clinical considerations.
16. Topographic regions of the neck. Anatomo-clinical considerations.
17. Innervation and vascularization of the head and neck.
18. Development of head and neck. Anomalies.
19. The endocrine system. The diffuse neuro-endocrine system. General presentation of the thyroid, parathyroid, suprarenal, parotid, submandibular and sublingual glands.
20. The oral cavity. The larynx. The nasal cavity. The paranasal sinuses.
21. General presentation of the abdomen: posterior wall, abdominal cavity.
22. General presentation of abdominal organs in situ; vascularization and innervation.
23. General presentation of abdominal organs in situ; vascularization and innervation - continuation.
24. Development of the digestive system. Anomalies.
25. General presentation of the urinary system. Development of the urinary system. Anomalies.
26. General presentation of the pelvis: walls, pelvic peritoneal cavity, pelvic subperitoneal space, pelvis subperitoneal space differentiated by sex.
27. General presentation of the genital system. Development of the genital system. Anomalies.
28. Recapitulation. Topographic sections.

Practical activities:

1. Osteology
2. Dissection of the chest wall and upper limb
3. Chest dissection
4. Dissection of the abdominal wall and lower limb
5. The bones of the head
6. Head and neck dissection

7. Abdominal dissection
8. Pelvis – perineum

Bibliography:

1. *Clinical Oriented Anatomy* – K. L. Moore, A.F. Dallay, A.M.R. Agur – 2014 Ed.
2. Langman's *Medical Embryology* – T.W. Sadler – 2015 Ed.

Evaluation – standardized exam

- Written exam 50%
- Practical exam 50%

BIOPHYSICS

Field of Study	**Medicine**
Study program	**Medicine**
Course title	**Biophysics**
Course coordinator	**Prof. Mihai Lucaciu, MD, PhD**
Department	**Molecular Sciences**
Discipline	**Medical Biophysics**
Course code	**MED 1 1 02 EN**

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

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

Pre-requisites: -

General objectives:

- Acquiring knowledge about the physical mechanisms and phenomena in biological systems.
- Using applications of physical methods in the qualitative, quantitative and functional analysis of biological systems.
- Understanding the biophysical aspects in different functions and structures of the human body, at different levels of organization, in normal and pathological situations; assimilating general concepts concerning the physical processes involved in the functioning of our body
- Understanding the functioning principles of the methods, devices and appliances used in medical research and practice.
- Acquiring certain abilities and minimum skills in the usage of appliances or in the execution of experiments.

Specific objectives:

- Acquiring knowledge about the superficial tension of fluids, viscosity, and capillarity, thermal and electric phenomena in the human body.
- Acquiring the ability to explain how the human body works as a thermodynamic system and to apply the principle of energy conservation to the calculation of the body's energetic balance.

- Being able to explain, in physical terms, the creation of the potential differences in the cellular membranes and the electric properties of the membranes.
- Acquiring knowledge about the physic-chemical phenomena on which the cellular transport mechanisms are based.
- The critical evaluation of results and the correct usage of the International System of Units and Measurements in medicine.
- Being able to apply modern biophysical methods to the study of the membrane and the cellular processes. Response to medication.
- Acquiring knowledge about the principles of physical methods used for the micro-and macroscopic study of biosystems; the impact of physical factors on the functioning of biosystems.
- Being able to use radiations for diagnosis and therapy, as well as knowing all about their side effects. Radiation dosimetry.
- Acquiring scientific knowledge about the influence that physical factors have on the human body, especially ionizing radiations. The cellular mechanisms of the live tissue interaction with electromagnetic radiations. Radioprotection.
- Being able to apply related physical principles to some methods of investigation. Being able to explain the relative advantages and disadvantages of these investigation methods. The biophysical basic features of a few non-invasive methods of diagnosis and treatment:
  - Clinical scintigraphy: radioactive and radiopharmaceutical tracers, static and dynamic examination.
  - Ultrasounds: production and reception, the Doppler effect, applications in medicine.
  - X-rays in medicine: radioscopy, radiography, CT scan, radiotherapy.
  - Physical principles of Magnetic Resonance Imaging (MRI) and applications.
  - LASER- principles and applications in medicine.
  - Light polarization and its applications in medicine.
- Understanding the basic physical features of the biological phenomena involved in medical disciplines: cellular biology, physiology, pathophysiology, cardiology, neurophysiology, ophthalmology, radio diagnostic and medical imaging, nuclear medicine, oncologic radiotherapy, physiotherapy etc.
- Developing the ability to assimilate and define the necessary methodology for structuring a biological or clinical study, based on data provided by an experiment; processing and analyzing experimental results that will allow the elaboration of a scientific paper (report, article).
- Getting familiarized with the physical principles that grant the functioning of modern medical appliances, with the purpose of offering our graduates

the possibility to activate in domains where high-tech devices for non-destructive medical investigations and therapy are used.

Course content:

Bioenergetics (6 hours)

Thermodynamic systems, states and processes

Equilibrium states and steady states. State functions. Gas law. Energy, the internal energy.

The first law of thermodynamics.

Enthalpy. The laws of thermochemistry. Hess' law. Standard enthalpy of combustion of foodstuffs.

Entropy. The second law of thermodynamics. Statistic interpretation of the third law of thermodynamics. Entropy and disorder. Entropy and biology.

Termodynamic potentials

Free energy. Helmholtz free energy, Gibbs free energy. The direction of spontaneity and the criteria for equilibrium. The chemical potential.

The standard free energy and the free energy of reactions occurring in metabolic pathways. The equilibrium constant. Factors deciding in spontaneity of reactions in living systems. Free energy of sequential (tandem) reactions.

High-energy phosphate bonds. Standard free energy of hydrolysis of ATP, conditions affecting free energy of hydrolysis of ATP.

Oxidation-reduction reactions.

Electrode reduction potentials, standard half cell potentials. Electrochemical conversion of energy. First type half cells and concentration cells. The pH. Oxidative phosphorylation and electron transport. Photophosphorylation. The chemiosmotic-coupling hypothesis.

Molecular phenomena in liquid state (4 hours)

Liquid state Vaporisation and condensation. The phase diagram

Colligative properties of solutions. Osmosis; osmotic pressure; cells as osmometers; Starling effect. Edema formation. Dialysis and ultra filtration.

Fluid mechanics hydrostatic pressure, Bernoulli's law. Law of Poiseuille. Application to blood flow. Viscosity, blood viscosity.

Surface tension surface tension at interfaces. Surfactants. Laplace law. Medival applications

Molecular biophysics (6 hours)

Atom models.

Rutherford-Bohr atom. Spectral series. Bohr-Sommerfeld atom. Quantum numbers. Elementary approach to quantum mechanics: wave function, uncertainty principle,. Atomic orbitals. The periodic table.

Chemical binding.
Electronegativity. Hybridisation of molecular orbitals. Covalent binding; molecular orbitals; molecular energy levels. The dipolar moment. Metallic binding. Ionic binding. *Physical binding*
Hydrogen bonding and water structure; hydrophobic interactions; ionic interactions; dipolar (van der Waals) interactions.
Biological macromolecules.
Levels of structure of biological macromolecules. Properties of water. Physical properties of polypeptides. Proteins
Techniques for the study of biological molecules
Optical techniques, hydrodynamic techniques, X-ray crystallography

Transport processes (4 hours)
Biomembranes
Structure and functions of biomembranes. Membrane models. Composition. Lipids . Properties of lipids.
Passive transport.
Diffusion. Free-diffusion equations; diffusion coefficient. Diffusion through membranes; permeability coefficients of cell membranes. Overton's rule
Facilitated diffusion.
Transport through channels. Channel types.
Active transport in living systems.
Na-K-ATP and other active transport systems.

Basic physics of membrane potentials (4 hours)
The Nernst potential.
The Donnan equilibrium and potential. The diffusion potential. Goldman equation. The sodium-potassium pump.
Action potential
The resting membrane potential. Events that cause the action potentials. Pases of the action potential. The Na and K channels. Propagation of the action potentials. Synaptic transmission of nervous impulse.

Radiation biophysics (4 hours)
The primary interactions of ionizing radiation with substance.
The nature of radiations. Chemical and biological effects of non-ionizing radiation Effects of ionizing radiation on molecules: direct action; indirect action.
Application of radiations in medicine:
X ray radiography. Computed tomography
Radioisotopes as tracers. Scinthigraphy. Positron emission tomography (PET)
Actions of ionizing radiation on living cells.
Survival curves and target theory. Radiation hazard and protection.

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. Ronto G.,Tarjan I. (Eds.): *An Introduction to Biophysics with Medical Orientation*, Akademiai Kiado, Budapest, 1994 (This textbook is available for loan at the Central Library of the University of Medicine and Pharmacy)
2. Glaser R. *Biophysics*, Springer, Berlin, 1996
3. Yeargers EK., *Basic Biophysics for Biology*, CRC Press, Boca Raton, 1992

Evaluation – standardized exam:

- Written exam 70%
- Practical exam 30%

CELL AND MOLECULAR BIOLOGY

Field of Study	**Medicine**
Study program	**Medicine**
Course title	**Cell and Molecular Biology**
Course coordinator	**Assoc. Professor Adrian Florea, MD PhD**
	Senior Lecturer Lucian Frenţescu, MD PhD
Department	**Molecular Sciences**
Discipline	**Cell and Molecular Biology**
Course code	**MED 1 1 03 EN**

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: -

General objectives:

- teaching of the fundamental theoretical notions of Cell and Molecular Biology necessary for a physician
- laboratory practical skills' training necessary in the following years as well as in the medical practice.

Specific objectives:

- gaining the skills necessary to understand the medical applications of the concepts taught, taking into account that we are in the age of cell and molecular medicine
- teaching the technique of light microscope use
- microscope's images interpretation emphasizing medical applications
- basic notions of the techniques of cell and molecular biology such as the cell fractioning by differential centrifugation, DNA extraction and separation by electrophoresis, and chromatography of membrane lipids.

Course content:

1. Introduction to Cell and Molecular Biology.
2. General Notions about Cells.
3. Molecular Basis of the Chemical Organization of the Cell.
4. Cytoplasm Matrix.
5. Molecular Basis of the Cell Motility.

6. Molecular Biology of the Cell Membranes.
7. Nucleus.
8. Eukaryotic Chromosomes: Aspects of Cell and Molecular Biology with Medical Applications.
9. Cell Division.
10. Endoplasmic Reticulum.
11. Golgi apparatus.
12. Cell Secretion.
13. Lysosomes.
14. Peroxysomes.
15. Mitochondria.
16. Extracellular Matrix and Cell Adhesion.
17. Cell Recognition.
18. Cell Aging and Cell Death.
19. Central Dogma of Molecular Biology and Medical Applications.
20. Cancer Cell and Oncogenes.

Practical activities:

1. The optical microscope. Observation of cellular movements
2. Special techniques of optical microscopy with applications in medicine: immersion examination, dark background microscopy
3. Special techniques of optical microscopy with applications in medicine: phase contrast microscopy, fluorescence microscopy
4. Highlighting cellular components through specific (histochemical) stains and observing pigment inclusions
5. The study of cell division
6. Study of cellular organisms under the optical microscope
7. Obtaining isolated cells
8. Cell fractionation by differential centrifugation
9. DNA study: isolation, ultraviolet (UV) spectrophotometry and dosing
10. Separation of DNA fragments by agarose gel electrophoresis. Understanding of Polymerase Chain Reaction
11. Study of mitochondria: determination of oxygen consumption and oxidative phosphorylation
12. Extraction of lipids from membranes and separation of fractions by thin layer chromatography
13. Transmission electron microscopy applied in the study of the cell
14. Scanning electron microscopy. Electron microscopy images.

Mandatory bibliography:

1. Lecture notes;
2. Gheorghe Benga, *Introducere în Biologie Celularã şi Moleculară*, Ed. Medicalã Universitarã, Cluj-Napoca, 2005.

Supplementary bibliography:

3. Bruce Alberts, Alexander Johnson, Julian Lewis, David Morgan, Martin Raff, Keith Roberts, Peter Walter. *Molecular biology of the cell*, sixth edition, Garland Publishing, Inc., New York, 2016;

4. Lodish H., Berk A., Kaiser C.A., Krieger M., Scott M.P., Bretscher A., Ploegh H., Matsudaira P., *Molecular Cell Biology*, 6th edition, W.H. Freeman, New York, 2007;

5. Maillet Marc, *Biologie Cellulaire*, Ed. Masson, 7eme edition, 1995

Evaluation – standardized exam

- Written exam 70%
- Practical exam 30%

MEDICAL INFORMATICS AND BIOSTATISTICS

Field of Study	**Medicine**
Study program	**Medicine**
Course title	**Medical Informatics and Biostatistics**
Course coordinator	**Prof. Sorana D. Bolboacă, Ph.D. Habil.**
Department	**Medical Education**
Discipline	**Medical Informatics and Biostatistics**
Course code	**MED 1 1 04 EN**

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	-	58	100	4	Written + Practical Exam

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

Pre-requisites: -

General objectives:

The aim of the course is to help students to gain basic information about information technologies with applications in dentistry and medicine (birotics, databases, working in networks, storing data, searching information) as well as basic methods of statistics. In addition, students will learn about current technologies and methods in computer science and biostatistics and their impacts on health care practice and research.

Specific objectives:

A. Theoretical knowledge (What they need to know):

- Elements of information theory.
- Data structures. Models and systems for information management.
- Software applications for medical birotics.
- Probabilities and their medical applications.
- Descriptive and inferential statistics and their medical applications.

B. Skills (What they know to do):

- Microsoft Work processing.
- Medical data. Collecting data; data management with Microsoft Excel.
- Descriptive statistics with Microsoft Excel.
- Data communication using Microsoft PowerPoint and Microsoft Word.

- Data analysis: descriptive statistics.
- Data analysis: graphical representations.
- Data analysis: tests on means, test on frequencies, correlation and regression analysis.

Course content:

Course 1.

- Introduction in Medical Informatics and Biostatistics.
- Course objectives.
- About Medical Informatics & Statistics.

Course 2.

- Fundamental concepts
- Basic elements of information theory
- Information's quantity. Coding information.
- Internet and the access to medical information.

Course 3.

- Introduction in statistics.
    - Definitions
    - Stages of Scientific Knowledge
    - Population
    - Sample and sampling methods
    - Type of variables and medical data.

Course 4.

- Descriptive statistics:
    - Measures of centrality
    - Measures of dispersion

Course 5.

- Descriptive statistics:
    - Measures of localization
    - Measures of symmetry
- Summarizing data with tables and graphs

Course 6.

- Probabilities
    - Introduction
    - Odds and ratio
    - Properties
    - Medical applications

Course 7.

- Repetitive events
- Random variables
- Conditional probabilities

Course 8.

- Probability distributions.
- Point estimators and confidence intervals
  - Confidence intervals for means
  - Confidence intervals for frequencies

Course 9.

- Testing statistical hypotheses: general steps
- Testing normal distribution of data

Course 10.

- Test for quantitative variables:
  - Z test to compare a sample mean with a population mean
  - Z test to compare two samples means
  - Student-t test for independent samples (equal / unequal variances).
  - Student-t test for dependent samples.
  - Three or more means: ANOVA test

Course 11.

- Tests on qualitative variables
  - 2×2 & r×n tables: contingency tables
  - Tests of associations
    - Chi-square test (uncorrected or with Yates correction)
    - Fisher exact test
    - Matched Pair Test: McNewman's Test
  - Tests of proportion

Course 12.

- Correlation and regression analysis
  - Types of regression analysis according with outcome variable
  - Correlation analysis (Pearson's correlation coefficient, Spearman's rank correlation coefficients)
  - Simple and multiple linear regression analysis by examples

Course 13.

- Non-parametric tests
  - Mann–Whitney
  - Wilcoxon signed-rank
  - Kruskal-Wallis
  - Friedman
- Parametric vs. non-parametric tests: choosing the proper statistical test

Course 14.

- Medical statistics by examples.
- Review and subjects for the theoretical exam by examples.

Practical activities:

1. Introduction. Regulations. Best practices for using the computer network.
2. Writing medical documents
3. Presentation of medical information
4. Medical data collection. Calculation of the values of the dependent variables
5. Presentation of medical data using graphs
6. Calculation of descriptive statistical parameters for quantitative variables
7. Making frequency tables using advanced analysis tools
8. Analysis of the contingency table
9. Descriptive statistical synthesis
10. Statistical inference using the confidence interval
11. Statistical inference for quantitative variables
12. Statistical inference for qualitative variables
13. Summarize statistical inference

Bibliography

1. Rosner B. *Fundamentals of Biostatistics*. 8th ed. Boston, MA: 2015.
2. Riffenburgh RH. Statistics in Medicine. Academic Press, 2012.
3. Mackridge A, Rowe P. *A Practical Approach to Using Statistics in Health Research: From Planning to Reporting*. 2018, ISBN: 978-1-119-38357-4.

Evaluation – standardized exam

- Theoretical exam 70%
- Practical exam 30%

BIOETHICS AND HISTORY OF MEDICINE

Field of Study	**Medicine**
Study program	**Medicine**
Course title	**Bioethics and History of Medicine**
Course coordinator	**Prof. Cristian Bârsu, MD. PhD**
	Assistant Professor Horaţiu Traian Crişan, Ph. D
Department	**Medical Education**
Discipline	**Skills - Humanistic Sciences**
Course code	**MED 1 1 06 EN**

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	0,5	-	7 7	7	-	45	66	2	Written + Practical Exam

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

Pre-requisites: -

General objectives:

I. for History of Medicine

After the course the student will be able to:

- learn the most important milestones in the history of medical specialties;
- explain the basics of the history of medicine with other students;
- provide famous examples of medical humanism;
- evaluate the importance of the history of medicine as a basic element of the medicinal - medicinal and medicinal - pharmacist relationship;
- present a general point of view on multiculturalism in medicine.

II. for Bioethics

- Assimilating fundamental notions in the field of bioethics and history of medicine with the purpose of identifying the ethical issues in medicine and the healthcare system.
- Justifying ethical decisions that could be taken in these situations.
- Applying ethical norms from the main documents in the field and the scientific literature.

Specific objectives:

I.for the History of Medicine

After the course the student will be able to:

● make the notional framework necessary to integrate the notions acquired in various disciplines;
● describe the main aspects and significances of the evolution of certain branches of general medicine throughout the centuries.

II. for Bioethics
● Distinguishing between describing and evaluating a particular situation and delimiting the ethical themes.
● Reflecting on the cases presented.
● Assimilating the main approaches in bioethics.

Course content:
History of Medicine
1.Generalities in the history of medicine
1. 1. Educational objectives.
1. 2. History of medicine as a sphere of interference.
2. The European dimension of Romanian medicine
3. The Cluj School of Medicine
3. 1. Definitive and first aspects to the medicine of Cluj.
3. 2. The most important teachers in the past of this medical school.
4. Overview of the history of anatomy
4. 1. Anatomy in Antiquity.
4. 2. Anatomy in the Middle Ages.
4. 3. Anatomy at the Renaissance.
5. Pages in the history of physiology
5. 1. Precursors of physiology.
5. 2. Physiology in the Renaissance, in the 17th century and in the 18th century.
6. History of histology in the 17th and 18th centuries
6. 1. The prelude of histology in the 17th century.
6. 2. Histology in the 18th century.
7. Moments of the history of classical medical ethics
7. 1. The oath of Hippocrates.
7. 2. The prayer of Maimonides.
7. 3. Medical ethics of modern times.

Bioethics
Introductory notions: definitions, history and foundations of bioethics.
1. 1. Terminology: ethics, morals, bioethics.
1. 2. Definitions of bioethics
1. 3. The birth of the term „bioethics"
1. 4. The purpose of bioethics
2. The principles of medical bioethics
2. 1. The principle of autonomy

2. 2. The principle of non-maleficence (primum non nocere)
2. 3. The principle of beneficence
2. 4. The principle of justice
3. The concept of „person" and its relevance in bioethics
3. 1. The concept of person. Definitions and meanings
3. 2. Main approaches in bioethics
3. 3. Reasons for which certain human beings are not regarded as „persons"
4. The issue of informed consent
4.1. The consent of the informed patient.
4. 2. Accomplishing consent.
4. 3. Exceptions from the rule of informed consent.
4. 4. Advanced directives as limits to accomplishing informed consent.
5. Bioethical aspects of organ transplant
5. 1. The principles of organ removal and transplantation
5. 2. Controversial aspects of organ removal and transplantation
5. 3. Types of transplantation:autotransplantation,allotransplantation, xenotransplantation
5. 4. The legal constraints in medical practice and Romanian legislation
6. Death. Euthanasia. Assisted suicide
6. 1. Definition and „meaning of death"
6.2.Distinctions among euthanasia, assisted suicide, therapeutic abandonment,
therapeutic fierceness.
6. 3. Is the „right to die" guaranteed?
6. 4. Ethical aspects of legalizing euthanasia and medically assisted suicide
7. Assisted reproduction technologies
7.1. Definition and traits
7.2. Legal and ethical aspects regarding the identity of the embryo
7.3. The tutelage of the embryo's rights
7.4. Ethical aspects regarding assisted reproduction technologies

Practical activities:
Bioethics
1. Introduction. The principles of medical ethics
2. The notions of confidentiality and the disclosure of the truth as professional obligations
3. Criteria for establishing decision-making capacity
4. Refusal of treatments and application of advance directives
5. Relevant criteria in the allocation of limited medical resources Organ transplantation ethics
6. The principles of double effect in end-of-life situations
7. Professional responsibilities in the context of appealing to medically assisted reproduction methods.

References for History of Medicine:

1. Jackson M. (editor). *A Global History of Medicine*, Oxford University Press, Oxford, 2018.
2. Jauhar S. *Heart. A History*, Farrar, Straus and Giroux [Publ. House], New York, 2018.
3. Robinson V. *Medicine in the 17th and 18th century*, Kessinger Publishing, Whitefish, Montana.
4. Stolz J. L. *Medicine from cave dwellers to millennials*, Telemachaus Press, Ohio, 2018.

References for Bioethics:

1. Beauchamp Tom, Childress James F., *Principles of Biomedical Ethics*, New York, Oxford University Press, 2013.
2. Jonsen Albert R., Siegler Mark, Winslade William J. *Clinical Ethics: A Practical Approach to Ethical Decisions in Clinical Medicine*, McGraw-Hill Education, 8th edition, 2015.
3. Lo Bernard, *Resolving Ethical Dilemmas: A Guide for Clinicians*, 5th Edition, Lippincott, William and Wilkins, 2013.
4. Singer Peter and Viens A. M. (ed.), *The Cambridge Textbook of Bioethics*, Cambridge University Press, Cambridge, 2008.
5. Harris John. *The Value of Life. An Introduction to Medical Ethics*, Routledge, London, 2001.
6. Steinbock Bonnie (ed). *The Oxford Handbook of Bioetics*, Oxford University Press, New York, 2007.
7. Gert Bernard, Culver Charles M., Clouser K. *Bioethics. A systematic approach*, Oxford University Press, Oxford, 2006.

Evaluation:

- Theoretical exam 80%
- Practical exam 20%

BASIC MEDICAL COMMUNICATION

Field of Study	**Medicine**
Study program	**Medicine**
Course title	**Basic Medical Communication**
Course coordinator	**Assoc. Prof. Codruţa Alina Popescu, MD PhD**
Department	**Medical Education**
Discipline	**Skills - Humanistic Sciences**
Course code	**MED 1 1 07 EN**

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	-	47	75	3	Written + practical Exam

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

Pre-requisites: -

General objectives:
The aim of this course is to develop the communication skills that will enable the students to communicate effectively and sensitively with patients and their relatives.

Specific objectives:
At the end of the course the student should be able to:

- Demonstrate competency in communication skill
- Conduct comprehensive and focused interviews
- Establish a therapeutic doctor – patient relationship and communicate verbally and non-verbally in a manner that facilitates good patient care.
- Deal with sensitive psychosocial issues such as sexuality
- Work with patients in challenging situations such as breaking bad news and conflict management such as the angry patient

Course content:
Lecture1. Medical communication -Introduction, Communication theories
Lecture 2. Non-verbal communication-1
Lecture 3. Non-verbal communication-2
Lecture 4. Verbal communication & tools for clinical interview
Lecture 5. Clinical interview
Lecture 6. Medical and relational information processing

Lecture 7. Cognitive models of health behaviour
Lecture 8. Public health communication, health literacy
Lecture 9. Breaking bad news
Lecture 10. Communicating with children
Lecture 11. Communicating with a patient family
Lecture 12. Communicating with old patients
Lecture 13. Communicating with special needs patients
Lecture 14. Communicating about death and dying

Practical activities:
1. Presentation of students
2. Use of simple words
3. Professional behavior in the medical consultation
4. The importance of understanding the patient's point of view
5. Oral presentation - analysis of a public health campaign aimed at destigmatizing mental illness (team activity)
6. Oral presentation - analysis of a public health campaign aimed at destigmatizing mental illness (team activity)
7. Observation sheet: the personal and social history of the patient
8. Clinical interview
9. Communicating bad news, good practice models
10. Managing angry patients
11. How to discuss sexuality with patients
12. Feed-back

References:
Mandatory readings:

- Lloyd, M, Bor, Robert (2009-03-01). *Communication Skills for Medicine*. Elsevier Health. Kindle Edition.
- McCorry, Laurie Kelly; Mason, Jeff (2012-07-25). *Communication Skills for the Healthcare Professional.* Lippincot (Wolters Kluwer Health). Kindle Edition.

Optional readings:

- Cashman, S, Greene, J, Hearfield, H. (2011-11-20). *History Taking: Key Role Play for OSCEs*, Doctors Academy Publications. Kindle Edition.
- Kurtz S. *Teaching and Learning Communication Skills in Medicine*, Radcliffe Publishing, 2005 Kindle Edition.
- Lambert, V. Long, T. Kelleher, D. (2012-10-01). *Communication Skills For Children's Nurses* McGraw Hill International. Kindle Edition.
- Leavitt J., Leavitt F. *Improving Medical Outcomes: The Psychology of Doctor-Patient Visits*, Rowman & Littlefield , 2011

- Tate P, *Effective Consulting, The Five Key Task*. DVD, Haymarket Medical Media. ISBN 9-566-45609-3.
- Tate P, *Effective Consulting 2, Interpersonal skills for CSA*. DVD, Haymarket Medical Media, ISBN 978095664561-6.

Evaluation

- Theoretical exam 50%
- Practical exam 50%

DESCRIPTIVE BIOCHEMISTRY

Study domain:	**Medicine**
Study programe:	**Medicine**
Course:	**Descriptive Biochemistry**
Course entitled:	**Lecturer Tiberiu Nistor, PhD**
Department:	**Molecular Sciences**
Discipline:	**Medical Biochemistry**
Course code:	**MED 1 2 09 EN**

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	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 understanding the structure of the macromolecular compounds and biochemical processes in living organisms.
- The students need to be prepared for the correct interpretation of the biochemical analysis and for establishing connections allowing the understanding of physiological and pathological processes at a molecular level.

Specific objectives:

The knowledge of basic biochemical principles important in medicine:

- The structure and function of amino-acids and proteins important in the human body
- Receptors' structure and action mechanism
- Enzymes as catalysts of metabolic processes in living organisms and their medical implications
- Vitamins and coenzymes: structure, role and deficiency
- Nucleic acids: structure, role, transmission and expression of genetic information

Course content:

1. Introduction in biochemistry
   Water – the major component of the cell
   Acids and bases: general aspects
   Henderson – Hasselbalch equation
2. Amino acids:
   - Structure and importance
   - Properties of amino acids
3. Structure of proteins:
   - Primary structure of proteins
   - Secondary structure of proteins
   - Tertiary structure of proteins
   - Quaternary structure of proteins
4. Types of proteins:
   - Myoglobin
   - Hemoglobin
   - Immunoglobulins
   - Collagen
   - Elastin
5. Receptors:
   - General aspects
   - Types of receptors and their characteristics
6. Enzymes:
   - General aspects
   - Classification of enzymes
   - Structure of enzymes
   - Enzyme specificity
   - Enzyme kinetics
   - Types of enzyme inhibition
   - Control of enzyme activity
   - Isoenzymes
7. Vitamins and coenzymes:
   - Water soluble vitamins:
     - Vitamin B_1
     - Vitamin B_2
     - Niacin
     - Biotin
     - Pantothenic acid
     - Vitamin B_6
     - Folic acid
     - Vitamin B_{12}
     - Vitamin C
   - Fat soluble vitamins:

- Vitamin A
- Vitamin D
- Vitamin K
- Vitamin E

8. Nucleic acids:
   - General aspects
   - Nitrogenous bases
   - Nucleosides
   - Nucleotides
   - Structure and types of DNA
   - Structure and types of RNA
9. Storage and expression of genetic information:
   - DNA replication
   - DNA transcription (RNA synthesis)
   - Genetic code
   - RNA translation (Protein synthesis)

Practical activities:

1. Equipment used in the biochemistry laboratory
2. pH meter. Buffer solutions, isoelectric pH
3. Titration of acids and amino acids
4. Spectrophotometric dosing methods
5. Dosage of total serum proteins
6. Denaturation of proteins
7. Chromatographic methods of analysis
8. Affinity chromatography
9. Ion exchange chromatography
10. Thin layer chromatography
11. Serum protein electrophoresis
12. Determination of kinetic parameters of enzymes
13. Determination of the inhibition constant in the case of competitive and non-competitive inhibition
14. Determination of enzymatic activity. The influence of pH on enzymatic activity

Mandatory reference:

Tiberiu Nistor – *Basics in Descriptive Biochemistry*, 2015

Other references:

1. Michael L. Bishop, Janet L. Duben-Engelkirk, Edward P. Fody – *Clinical Chemistry*, second edition, 1992
2. Robert K. Murray, Daryl K. Granner, Peter A. Mayes, Victor W. Rodwell – *Harper's Illustrated Biochemistry*, twenty-sixth edition, 2003

3. Pamela C. Champe, Richard A. Harvey, Denise R. Ferrier – *Biochemistry*, Lippincott's Illustrated Reviews, 2005
4. David L. Nelson, Michael M. Cox – *Lehninger-Principles of Biochemistry*, fourth edition, New York, 2005
5. Thomas M. Devlin – *Textbook of Biochemistry with Clinical Correlations*, sixth edition, 2006

Evaluation:

- Theoretical exam 75%
- Practical exam 25%

PHYSIOLOGY

Field of Study	**Medicine**
Study program	**Medicine**
Course title	**Physiology, 1st year**
Course coordinator	**Prof. Șoimița Suciu, MD, PhD**
Department	**Functional Sciences**
Discipline	**Physiology**
Course code	**MED 1 2 10 EN**

Semester	Course type	Lectures	Practical activity		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:

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

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. 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 osmotic pressure on the red blood cell volume
2. Neuronal simulations: excitability threshold, summation. Neuronal simulations: driving speed, the effect of anesthetics
3. Muscle simulations: motor plate and muscle fatigue. Muscle simulations, shaking, tetanus
4. Electromyogram (BIOPAC)
5. Microscopic examination of saliva. Salivary pH. Identification of the salivary mucin. Identification of salivary KSCN. Identification of salivary phosphates
6. Identification of calcium in saliva. Salivary amylase dosing. Thermolability of salivary amylase
7. The influence of pH on the activity of salivary amylase. Gastric acid dosing
8. Pneumogram (BIOPAC)
9. Respiratory simulations: surfactant
10. Respiratory simulations: pleural emptying
11. Respiratory simulations: the diameter of the airways
12. Spirometry
13. Preparation of the practical exam. Analysis reports.

References:

1. Barrett K.E., Barman Susan M., Boitano Scott, Brooks Heddwen L. Ganongs- *Review of Medical Physiology*, 23rd Edition, USA, 2010.
2. Boron W.F., Boulpaep E.L. *Medical physiology*, Elsevier Saunders, 2005.
3. Boron W.F, Boulpaep E.L. *Medical physiology*, Elsevier Saunders, 2012.
4. Boron WF, Boulpaep EL. *Medical Physiology*, Elsevier, 2017.

5. Ganong WF. *Review of Medical Physiology*, McGraw-Hill Education, 2016.
6. Guyton AC, Hall JE. *Textbook of Medical Physiology*, Elsevier, 2016
7. Mitrea D.R. Human *Physiology - Laboratory tests*. Sibiu, Techno Media, 2006. ISBN (10) 973-7865-24-3. ISBN (13) 978-973-7865-24-3
8. Mitrea D.R., Orăsan R.I. *Elementary Human Physiology*. Sibiu, Techno Media, 2009. ISBN 978-606-8030-57-9
9. Silbernagl S. Despopoulos A. *Color Atlas of Physiology*, 7th Edition, Thieme Publishers Stuttgard, 2015

Evaluation:

- Theoretical exam 80%
- Practical exam 20%

FIRST AID

Field of study:	**Medicine**
Study program:	**Medicine**
Course title:	**Medical First Aid**
Course coordinator:	**Lecturer Vasian Horatiu, MD, PhD**
	Lecturer Sebastian Tranca
Department:	**Surgery**
Discipline:	**AIT II**
Course code:	**MED 1 2 11 EN**

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	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 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. Subcutaneous and intramuscular injection technique
6. Providing first aid in case of heat shock or hypothermia, insect stings
7. Recap. Teamwork scenarios during resuscitation maneuvers

References:

1. European Resuscitation Council Guidelines for Resuscitation 2015.
2. Hagău N. Medical First aid. First year course for medicine and dental students. Iuliu Haţieganu University Medical Publishing House, 2016
3. www.emedicine.com/emerg/index.shtml

Evaluation:

- Written exam 50%
- Practical exam 50%

BEHAVIORAL SCIENCES AND MEDICAL SOCIOLOGY

Field of Study	**Medicine**
Study program	**Medicine**
Course title	**Behavioral Sciences and medical sociology**
Course coordinator	**Lecturer Bogdan Nemeş, MD, PhD**
Department	**Medical Education**
Discipline	**Clinical Psychology**
Course code	**MED 1 1 11 EN**

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	-	47	75	3	Written exam

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

Pre-requisites: -

General objectives:

- To acquire basic knowledge, attitudes and skills required for the assessment, understanding and changing human behaviors

Specific objectives:

- To acquire basic knowledge, attitudes and skills required for the clinical assessment of cognitive functioning
- To acquire basic knowledge, attitudes and skills required for the clinical assessment of affectivity
- To acquire basic knowledge, attitudes and skills required for clinical assessment of personality
- To acquire basic knowledge, attitudes and skills required for clinical assessment of at-risk behaviors
- To acquire basic knowledge, attitudes and skills required for clinical assessment of attitudes
- To acquire basic knowledge, attitudes and skills required for behavioral changes based on theories of learning
- To acquire basic knowledge, attitudes and skills required for adapting attitudes to the stage of psychological development of the patient

Course content:

Lecture 1. Introduction – Mental processes

- Introduction
- General objectives of the discipline
- Specific objectives of the discipline
- Lectures content
- Requirements for participation
- Assessment process

- Mental processes
    - Definition
    - Classification
- Human cognitive system

Lecture 2. Sensation, perception

- Sensation
    - Definition
    - Stages of sensation
        - Accesory structures
        - Transduction
        - Transmission
        - Representation

1. Attention and memory
2. Thought and language
3. Emotions and motivation
4. Personality
5. Instinctual behavior
6. Learned behavior
7. Neurophysiological basis of behavior
8. Normal and abnormal human behavior
9. Stress and coping
10. Social psychology
11. Health psychology
12. Theoretical principles of counseling in medical practice

Practical activities:

1. Introduction
2. Sensation and perception
3. Attention and memory
4. Testing intelligence
5. Emotional intelligence
6. Motivation for change. Motivational interview
7. Personality assessment
8. The neurobiological basis of behavior
9. Eating, maternal instinct and aggression

10. Disorders of sexual instinct - Paraphilia
11. Applying learning mechanisms to change human behavior
12. Changing attitudes
13. Developmental problems in childhood
14. Developmental problems in adolescence and adult life

Bibliography:

1. Coman H, Nemeș B. *Behavioral Sciences*. Cluj-Napoca: Presa Universitară Clujeană; 2014. ISBN 978-973-595-652-3
2. Fadem B. *High-Yeld Behavioral Science*. 2nd ed. Baltimore: Lippincott Williams & Wilkins; 2001. ISBN 0-7817-3084-8
3. Daugherty SR, editor. USMLE Step 1. *Behavioral Sciences Notes*. Washington, DC: Kaplan Medical; 2002.

Evaluation: standardized exam

- Written exam 100%

PROBLEM BASED LEARNING

Field of Study	**Medicine**
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	**MED 1 2 13 RO**

Semester	Courses type	Lectures	Practical activities		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: Anatomy, Physiology, Biochemistry, Cell Biology, Medical Psychology, Bioethics

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
- Colloqui 100%

ROMANIAN LANGUAGE

Field of study:	**Medicine**
Study program:	**Medicine**
Course title:	**Romanian language**
Course coordinator:	**Assist. Cristina Gogâță, PhD**
	Assist. Ana Aşkar, PhD student
	Anca Hassoun, PhD
	Adriana Stan, PhD
	Assist. Denisa Tout, PhD student
	Assist. Anca Ursa, PhD
Department:	**Medical Education**
Discipline:	**Modern Languages Applied to Medicine**
Course code:	**MED 1 2 14 EN**

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	-	2	-	-	28	-	2	30	2	-
II			2			28		2	30		Exam

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

Pre-requisites: -

General objectives:

- integrating the four communication skills (listening, reading, speaking, writing);
- developing skills in academic and medical language;
- developing team-work skills using pair and group-work;
- interdisciplinarity: raising ethical awareness of students' future profession.

Specific objectives:

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

- introduce and speak about themselves;
- ask for and give information in everyday situations;
- express preferences, agreement and disagreement;
- speak about their daily routine;
- name the body parts;
- describe pain;
- speak about their family.

Course contents:

1. The alphabet, sounds and groups of sounds specific to Romanian language, stress and intonation. Romanian geography and famous Romanian people.
2. Countries, capitals, nationalities, greetings. Personal pronouns in the Nominative case, politeness pronouns, the verbs *to be* and *to have*, the numbers from 1 to 10. Personal presentation.
3. Asking for and giving directions (taxi/ university/ train station/ airport), expressing time, speaking about the schedule. The date, the hour, the weather, daily/ weekly schedule. The cardinal numerals. Describing the weather back home.
4.Professions and specific objects. The noun (gender and number), *how much? / how many*?
5. Thanking, asking for permission, expressing agreement. Relaxation, daily activities. The verb (1st and 4th conjugation), frequency adverbs. The weekly schedule.
6. Client-seller dialogue. Fruits and vegetables, expressing quantity, the menu. The definite and indefinite article, quantity adverbs (*a lot, a little, all*), collective numerals (*both*). Irregular verbs, the verb *to like*, frequency adverbs. The shopping list.
7. Dialogue with the travel agent, orientation, reading a map, expressing opinion. Means of transport, holidays (activities and tourist attractions), important institutions and buildings. The verb (2nd and 3rd conjugation), prepositions and time adverbs. The postcard, the poster.
8. Shopping, making recommendations, expressing likes / dislikes, payment options. Outfits, types of fabric, colours, physical characteristics of a person, qualities, faults, emotions, idiomatic expressions with colours. The adjective (1-4 forms). Describing a person (physical appearance, behaviour).
9. Tourist destinations, renting a house, daily schedule. Types of places, types of rooms in a house, furniture items, appliances, daily schedule. Prepositions expressing spatial relations, verbs in the reflexive voice. Renting announcements, letter to the family.
10. Speaking about a past experience, about the life and work of a famous person, about childhood memories, the holiday schedule. Stages of life/of a relationship, expressing time, domestic animals, activities associated with holidays. Verbs in the past tense simple, reflexive verbs, the verb *to like*, adverbs (*then, afterwards*, etc.).
11. At the doctor's, doctor-patient interview, expressing opinion. Sports, physical exercises, the human body (external organs). The verbs *to be hurt / to be bothered by / to be annoyed by*.
12. At the doctor's, doctor-patient interview, giving advice, forbidding, expressing wishes, speaking about what one knows/doesn't know to do.

Medical professions, specific objects, professional responsibilities. Verbs in the subjunctive mode. Writing a diary page.
13. The society and the future, expressing condition. Words expressing future, future plans. The literary future / the popular future. Personal future plans, the contents of a magazine.

Practical activities:
1. Introduction. Assessment of the initial level of the students, identification of the main language problems by analyzing and interpreting an initial test
2. Recapitulation of the main elements of grammar, especially those related to the proper use of verbal tenses, vocabulary, intonation and structures according to the register (formal / specialized, informal / non-specialized, neutral) required by the communication situation
3. Familiarize students with the techniques of approaching a written or spoken text in order to optimize comprehension and interaction according to the main objectives of the activity (active reading techniques, active listening, identification of keywords and main ideas)
4. Familiarize students with the specialized bibliography: manuals and dictionaries of medical English, relevant websites and online study tools
5. Basic medical vocabulary: the main parts of the human body, skeleton and internal organs
6. Terminology specific to the general organization of the human body - systems and functions
7. Basic medical vocabulary: medical instruments
8. Expression of opinion. Conventional and alternative medicine - advantages and disadvantages. Familiarize students with the specific language elements for the debate of controversial topics; for example. expressing an opinion, agreement and disagreement (verbally and in writing)
9. Basic medical vocabulary: symptoms, conditions, diseases; exercises to transform the language register
10. Watching an artistic film on a medical topic (eg about the career of a famous doctor) and taking notes to answer questions about the content of the film
11. The debate of the subject presented in the artistic film previously watched, based on the answers to the questions formulated in the worksheet and the quotations extracted from the film
12. Writing an argumentative essay starting from a quote from the previously watched film. Structure of the argumentative essay.
13. Basic medical vocabulary: medical specialties and specialists. Pronunciation of medical terms. Debate: the qualities of a specialist doctor
14. Identification and recognition of the components of a medical term (root, prefixes, suffixes). Latin and Greek medical etymology

15. Doctor-patient dialogue: anamnesis. Types of questions. Intonation. The stages of anamnesis
16. Doctor-patient dialogue. How to give instructions. Completion of the patient record after listening to a doctor-patient dialogue, during the anamnesis
17. Doctor-patient dialogue. Formulation of relevant questions, techniques for scoring information obtained from the patient (identification of keywords, specific abbreviations, acronyms)
18. Doctor-patient dialogue. Adequacy of medical language (terminology, explanations) at patient comprehension level. Role playing games
19. Summary, verification and recording of information obtained from the patient / family members.
20. Complete the patient record following the anamnesis, using specific abbreviations and acronyms
21. Systematic presentation of a condition: onset, localization, duration, factors that relieve or aggravate the pain using specialized medical terms (formal register)
22. Watching a documentary film on a medical topic (eg healthy eating) and taking notes to answer questions about the content of the documentary
23. Debate of the subject presented in the documentary film previously watched, based on the answers to the questions formulated in the worksheet
24. Writing a curriculum vitae in the studied foreign language, using the Europass model
25. Writing a letter of motivation for obtaining a scholarship or internship abroad
26. Recapitulation through medical vocabulary exercises

References:

1. Andreica, A., Băgiag, A., Tomoiagă, A., Coiug, A., Gogâţă, C. *Limba română pentru debutanţi. Nivel A1*, Editura Medicală Universitară „Iuliu Haţieganu“, Cluj-Napoca, 2017.
2. Andreica, A., Băgiag, A., Tomoiagă, A., Coiug, A., Gogâţă, C. *Bazele limbii române. Nivel A1.2*, Cuj-Napoca, Editura Medicală Universitară “Iuliu Haţieganu“ Cluj-Napoca, 2018.
3. Bejan, D. *Gramatica limbii române*. IIIème Edition, Cluj, Ed. Echinox, 2001.
4. Kohn, D. *Puls. Limba română pentru străini*. Iaşi, Ed. Polirom, 2009.
5. Platon, E., Sonea, I., Vîlcu, D. *Manual de limba română ca limbă străină (RLS). A1-A2*. Cluj-Napoca, Casa Cărţii de Ştiinţă, 2012.
6. Pop, L. *Româna cu sau fără profesor.* 5th Edition, Cluj-Napoca, Ed. Echinox, 2003.

Evaluation:

- Exam 100%

PHYSICAL EDUCATION

Field of study:	**Medicine**
Study program:	**Medicine**
Course title:	**Physical Education and Sport – Ist year**
Course coordinator:	**Associate professor, PhD Mihai Ludovic Kiss** **Lecturer PhD, Cornelia Popovici** **Lecturer PhD, Ciprian Kollos** **University Assistant Sergiu David**
Department:	**Medical Education**
Discipline:	**Physical Education**
Course code:	**MED 12 14 EN**

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	-	1	-	-	14	-	-	14	1*	-
II		-	1	-	-	14	-	-	14		Colloquy

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:

M. Kiss, *Caiet de lucrări practice: Culturism - Fitness*, 2013
C. Popovici, *Îndreptar de lucrări practico-metodice*, 2013
M. Kiss, C. Popovici, *Caiet de lucrări practice: Dans de societate*, 2017
C. Popovici, M. Kiss, *Îndreptar de lucrări practico-metodice, Gimnastică aerobică*, 2017
M. Kiss, C. Kollos, *Caiet de lucrări practice: Baschet*, 2017
Bocu T. *Activitatea fizică în viaţa omului contemporan*. Editura Casa Cărţii de Ştiinţă 2007.

Evaluation

- Colloquy 100%

MEDICAL PSYCHOLOGY

Field of study:	**Medicine**
Study program:	**Medicine**
Course title:	**Medical Psychology**
Course coordinator:	**Lecturer Bogdan Nemeş, PhD**
Department:	**Medical Education**
Discipline:	**Medical Psychology**
Course code:	**MED 2 1 07 EN**

Semester	Courses Type	Lectures	Practical activities		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 exam

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

Pre-requisites: -

General objectives:

- Developing practical skills for a therapeutical relationship
- Learning how to communicate with the patient
- Gaining basic psychological knowledge

Specific objectives:

- Mental state examination
- Assessing personality in medical practice
- Identifying the psychological aspects related to illness
- Assisting the patient for adjusting to illness
- Learnng methods of encreasing therpeutic compliance
- Life style counseling
- Identifying risk behaviors

Course content:

1. Introduction in Medical Psychology. Concept, definition and importance in medical field.
2. Normality and Abnormality. Criterias for normality and abnormality. Health and Diseases. Differences between disease/sickness and illness.
3. Mental functions. (cognitive, affective and conative functions).
4. Doctor-Patient relationship. Doctor's and patient's status and roles.
5. Doctor-Patient communication. Verbal versus non verbal communication. Empathy.

6. Therapeutic compliance and non compliance.
7. Iatrogenies. Definition, classification (farmacological, psychological, paraclinical and hospitalisation iatrogenies).
8. Stress and coping strategies. Stress and illness.
9. Elements of psycho oncology. Psychological, behavioral and social factors implicated in cancer.
10. Pain psychology. Definition, classification and pain physiology. Acute and chronic pain psychology. Theories of pain.
11. Suicide, parasuicide and deliberate harm. Definition. Phases in suicidal process.
12. Crisis and crisis intervention. Types of crises. Crisis characteristics. Interventional algorithme.
13. Placebo medication.
14. Introduction in psychotherapies. Classification. Principles of different types of psychotherapy.

Bibliography:

1. Cozman D, Nemeș B. Medical Psychology. Cluj-Napoca: Presa Universitară Clujeană; 2014. ISBN 978-973-595-651-6
2. Cosman D. Suicidology. Cluj-Napoca: Presa Universitară Clujeană; 2013. ISBN 978-973-595-601-1

Evaluation: standardized exam

- Written exam 100%

2nd YEAR

TOPOGRAPHIC AND SECTIONAL APPLIED ANATOMY

Field of Study	**Medicine**
Study program	**Medicine**
Course title	**Clinical, topographic and sectional anatomy**
Course coordinator	**Lecturer Dr. Carmen Micu, MD, PhD**
	Lecturer Dr. Bartoș Dana, MD, PhD
Department	**Morphological Sciences**
Discipline	**Anatomy and Embryology**
Course code	**MED 2 1 01 EN**

Semester	Course type	Lectures	Practical activities		Lectures	Practical activities		Individual studies	TOTAL	Credits	Evaluation
		hours / week			hours / semester						
		L	PA	CI	L	PA	CI				
I	Compulsory	2	4	-	28	56	-	66	150	6	Written + Oral exam

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

Pre-requisites: -

General objectives:

- Describe the gross anatomy of the Central Nervous System.
- Describe the gross anatomy of the Endocrine System.
- Describe the three-dimensional interrelationships of organs & blood & nerve supply.
- Provide anatomical basis for cross sectional and 3D digital imaging.
- Knowledge of topographic and sectional anatomical data with medical, surgical and imagistic relevance.

Specific objectives:

- Identify and describe the major components of the sense organs (eye, ear, nose) and describe them.
- Describe the vascularization and innervation of the structures of the sense organs (eye, ear, nose).
- Identify and describe the major components of the Central Nervous System.
- Describe the vascularization of the brain.
- Describe the meninges.
- Describe the ascending and descending pathways.

- Recognize structures in cross-sections.
- Describe and identify specific topographic areas.

Course content:

1. Generalities of the anatomy and the development of the central nervous system.
2. Spinal and cerebral meninges. Subarachnoid cisterns. Cerebrospinal fluid. Spinal cord: external configuration, relationships, vascularization. Brain vascularization.
3. Spinal cord. Microscopic structure. Spinal nerve and ganglion. The gray, white and reticulated substance.
4. The brainstem I.
5. The brainstem II.
6. Cerebellum. Diencephalon I (thalamus, metathalamus, epithalamus).
7. Diencephalon II (basal nuclei, subthalamic region, hypothalamus).
8. Telencephalon I.
9. Telencephalon II.
10. Cerebral ventricles.
11. Synthesis of the main pathways.
12. Eyeball and orbit. The optical pathway.
13. External, medium, internal ear. The acoustic and vestibular pathway.
14. Sectional Anatomy of the Central Nervous System. Drawings with sections at different levels of CNS.

Practical activities:

1. Central nervous system
2. Sense organs
3. Topographic anatomy

Bibliography:

1. *Clinical Neuroanatomy* – Richard Snell – 2010 Ed.
2. *Clinical Oriented Anatomy* – K. L. Moore, A.F. Dallay, A.M.R. Agur – 2014 Ed.

Evaluation - standardized exam:

- Written exam 50%
- Practical exam 50%

METABOLIC BIOCHEMISTRY

Field of study:	**Medicine**
Study program:	**Medicine**
Course title:	**Metabolic Biochemistry**
Course coordinator:	**Prof. dr. Crăciun Alexandra, MD, PhD**
Department:	**Molecular Sciences**
Discipline:	**Medical Biochemistry**
Course code:	**MED 2 1 02 EN**

Semester	Course Type	Lectures	Practical activities		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: Fundamentals of descriptive biochemistry

General objectives:

- Students must learn the major metabolic pathways important in their future activity in order to understand the etiopathogenesis of different diseases in the human body.
- Students need to be prepared for a correct interpretation of biochemical analysis and for establishing connections which allows them the understanding of physiological and pathological processes at a molecular level.

Specific goals:

The knowledge of basic biochemical principles which are important in medicine:

- Major metabolic pathways' structure and deficiency of carbohydrates
- Major metabolic pathways' structure and deficiency of lipids
- Major metabolic pathways' structure and deficiency of amino acids
- Major metabolic pathways' structure and deficiency of nucleotides

Course content:

1. Metabolism – general aspects
2. Carbohydrate metabolism:
   - Digestion and absorption of carbohydrates
   - Classification and structure of carbohydrates

- Glycolysis
- Alternate fates of pyruvate
- Gluconeogenesis
- Tricarboxylic acid cycle
- Pentose phosphate pathway
- Glucuronic acid pathway
- Fructose metabolism
- Galactose metabolism
- Glycogen metabolism
- Glycosaminoglycans and glycoproteins

3. Lipid metabolism:
   - Digestion, absorption and transport of lipids
   - Classification and structure of lipids
   - Oxidation of fatty acids
   - Synthesis of fatty acids
   - Synthesis and degradation of triglycerides
   - Synthesis and degradation of complex lipids. Lipid storage diseases
   - Metabolism and importance of ketone bodies
   - Cholesterol – importance, synthesis and regulation
   - Synthesis and importance of bile acids
   - Steroid hormones – classification, synthesis, role
   - Eicosanoids
4. Amino acid metabolism:
   - Digestion of proteins and absorption of amino acids
   - General catabolic reactions of amino acids:
   - Metabolism of ammonia
   - Urea cycle
   - Amino acids that form pyruvate
   - Amino acids that form acetyl-CoA or acetoacetyl-CoA
   - Metabolism of phenylalanine and tyrosine
   - Metabolism of creatine and creatinine
   - Synthesis and degradation of heme. Medical importance
5. Metabolism of purine and pyrimidine nucleotides:
   - Synthesis of purine nucleotides
   - Degradation of purine nucleotides
   - Synthesis of pyrimidine nucleotides
   - Degradation of pyrimidine nucleotides

Practical activities:

1. Collection and conservation of biological samples. Analysis of biological fluids
2. Dosage of serum glucose. Glucose tolerance test
3. Dosage of serum urea

4. Dosage of uric acid
5. Dosage of serum creatinine
6. Bilirubin formation and metabolism. Dosage of bilirubin
7. Classification and dosing of total serum lipids. Serum lipid electrophoresis
8. Dosage of cholesterol, triglycerides and serum phospholipids
9. Disproteinemia test. Determination of total serum proteins
10. Absorption spectra of hemoglobin. Hemoglobin dosage
11. Determination of the enzymatic activity of transaminases, phosphatases, CGT, alpha-amylase
12. Biochemical analysis of urine. Complete urine examination
13. Urinary pathological components
14. Identification of the components of the urinary sediment.

References:

Nistor T., *Basics in metabolic biochemistry*, Ed. Casa Cartii de Stiinta, Cluj-Napoca, 2010, 131 pagini, ISBN 978-973-133-868-2

Evaluation - standardized exam

- Theoretical exam 75%
- Practical exam 25%

HISTOLOGY

Field of study:	**Medicine**
Study program:	**Medicine**
Course title:	**Histology- Organs**
Course coordinator:	**Professor Maria Crisan, MD, PhD**
	Lecturer Anne Marie Constantin, MD, PhD
	Lecturer Bianca Bocşa, MD, PhD
Department:	**Morphological Sciences**
Discipline:	**Histology**
Course code:	**MED 2 12 03 EN**

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	2	2	-	28	28	-	44	100	4	Writte+ practical exam
II	Compulsory	2	2	-	28	28	-	44	100	4	Writte+ 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 (Second year)

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: Hemopoesis: Erythropoesis, Granulocitopoesis. Monocytopoesis, Platelet formation. Clinical correlations.

11 Immune system III: *Lymphatic tissue*. General considerations. Lymphocyes Lymphopoesis 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 Nervos System *Peripheral nervous system*: spinal and vegetative ganglia. ***Central nervous system***: spinal cord, cerebral cortex, cerebellar cortex. Clinical correlations.

2ND SEMESTER (Second year)

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 glandhistological 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. The microscopic preparation. The technique of obtaining the microscopic extemporaneous preparation and its practical utility. The technique of performing the permanent microscopic preparation: harvesting, fixing, inclusion in different media - paraffin and cellidine. Histological staining. Common and specific methods: hematoxylin - eosin, Van Gieson trichrome, Masson trichrome, resorcin-fuxin, ferric hematoxylin, trichrome, Mallory, silver nitrate impregnation. Histochemical methods for detecting nucleic acids, fats, proteins, glycogen and glycosaminoglycans.

2. Epithelial covering tissues. Simple squamous epithelium (mesothelium on the surface of the spine), simple cylindrical, keratinized and non-keratinized stratified squamous, cylindrical pseudostratified ciliated epithelium, urothelium. H.E. coloring and special colorings.

3. Glandular epithelial tissues. Exocrine glandular epithelia: simple tubular gland, tubulo-acinoid gland, tubulo-alveolar gland. Endocrine glandular epithelia: arrangement of cords and follicles. H.E. coloring and special colorings.

4. Conjunctive tissues I. Mucosal, lax, tendon - (longitudinal section) and tendon as organ (in cross section) connective tissue. Unordered dense connective tissue, fibrolamellar. Elastic tissue - from the yellow ligament - longitudinal and transverse section. H.E. coloring and special colorings.

5. Connective tissues II. Reticular connective tissue. Brown and white adipose tissue in H.E. and Sudan black. Test.
6. Connective tissues III. Cartilaginous tissue. Hyaline and elastic cartilaginous tissue. H.E. coloring and special colorings. Endochondral ossification. H.E. coloring.
7. Connective tissues IV. Bone tissue. Smooth dry compacted bone tissue, decalcified compact bone tissue, decalcified sponge bone tissue. H.E. coloring and special colorings.
8. Muscular tissues. Skeletal striated muscle longitudinal section, muscle as organ - cross section. H.E. coloring, Heidenheim ferric hematoxylin. Cardiac muscle - longitudinal and cross section, H.E. coloring.
9. Nervous tissue. Neurofibrils, nerve fibers, nerve as organ. H.E. coloring and special colorings (osmic acid, impregnated with silver nitrate)
10. Cardio-vascular system. Smooth muscle H.E. coloring. Elastic artery (aorta), muscular artery, veins, capillaries, lymphatic vessels, vascular-nerve bundle. H.E. coloring and special colorings.
11. Blades review. Test.
12. Hemoimmune system: thymus, hematogenous red marrow - H.E. coloring. Blades review
13. Hemoimmune system: lymphoganglion, spleen - H.E. coloring. Blades review.

2ND SEMESTER

1. The central nervous system. Spinal cord, cerebellum, brain. Spinal ganglion and vegetative ganglion. H.E. coloring and special colorings.
2. The digestive system. Lip, tongue, taste buds. H.E. coloring and special colorings.
3. The digestive system. Esophagus, stomach, salivary glands: parotid, submaxillary and sublingual. longitudinal and transverse sections. H.E. coloring and special colorings.
4 The digestive system. Duodenum, jejunum, ileum, large intestine, appendix. H.E. coloring and special coloring.
5. The digestive system. Liver, gallbladder, pancreas. H.E. coloring and special colorings.
6. Respiratory system. Trachea, bronchi, lung, epiglottis. H.E. coloring and special coloring.
7. The urinary system. Kidneys, ureter, bladder. H.E. coloring and special colorings.
8. The endocrine system. Pituitary, epiphyseal. H.E. coloring and special colorings. Revision of preparations.
9. Endocrine system: Adrenal, thyroid, parathyroid. H.E. coloring and special colorings.

10. Male genital tract. Testicle, epididymis, deferential canal, prostate. H.E. coloring and special colorings. Revision of preparations.
11. Female genital tract. Ovar, uterus, uterine trumpet. H.E. coloring and special colorings.
12. Female genital tract: Placenta month III, placenta to term. Breast gland at rest, breast gland in lactation. H.E coloring and special coloring.
13. Sensory organs and skin: Epidermis, dermis, hair, sebaceous glands and sweat. Retina, cornea. H.E. coloring. Revision of preparations.

Mandatory bibliography:

1. *General Histology: Tissues*. Maria Crisan, Carmen Mihaela Mihu, Carmen Melincovici, Bianca Bosca, Anne Marie Constantin, Andrei Coneac, Ioana Moldovan. Editura Medicala Universitara "Iuliu Haţieganu", Cluj-Napoca, 2013 ISBN 978-973-693-554-1
2. *General Histology: Organs*. Maria Crisan, Carmen Mihaela Mihu, Carmen Melincovici, Bianca Bosca, Anne Marie Constantin, Andrei Coneac, Ioana Moldovan, Hana Decean. Editura Medicala Universitara "Iuliu Haţieganu", Cluj-Napoca, 2015
3. *General Histology. Evaluation exercises*. Editors: Constantin Anne-Marie, Boşca Adina Bianca. Authors: Constantin Anne-Marie, Boşca Adina Bianca, Mihu Carmen, Crişan Maria, Şuşman Sergiu, Şovrea Alina, Mărginean Mariana, Melincovici Carmen, Jianu Mihaela, Moldovan Ioana, Coneac Andrei. Contributors: Lavinia Mocan Rada Sufleţel Editura Medicală Universitară "Iuliu Haţieganu" Cluj-Napoca 2018 ISBN 978-973-693-867-2
4. *Special Histology. Evaluation exercises*. Editors: Boşca Adina Bianca, Constantin Anne-Marie. Authors: Boşca Adina Bianca, Constantin Anne-Marie, Mihu Carmen, Crişan Maria, Şuşman Sergiu, Şovrea Alina, Mărginean Mariana, Melincovici Carmen, Jianu Mihaela, Moldovan Ioana, Coneac Andrei. Contributors: Lavinia Mocan Rada Sufleţel "Iuliu Haţieganu" Publishing House, Cluj-Napoca, 2018 ISBN 978-973-693-875-7
5. Ross MH, Kaye GJ, Pawlina W. *Histology a Text and Atlas*, 6th edition, Lipincott Williams & Wilkins. 2011.

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

Evaluation - standardized exam:

- Written exam 60%
- Practical exam 40%

PHYSIOLOGY

Field of study:	**Medicine**
Study program:	**Medicine**
Course title:	**Physiology**
Course coordinator:	**Lecturer Daniela Mitrea, MD, PhD**
Department:	**Functional Sciences**
Discipline:	**Physiology**
Course code:	**MED 2 12 04 EN**

Sem.	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	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:

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

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. Haematocrit. Blood volume.
2. Blood properties. Acid –base balance. Plasma proteins
3. Erythrocytes. Erythrocytes properties. OAB blood groups. Rh blood types. Post-transfusion accidents.
4. Iron metabolism. Erythropoiesis.
5. Leucocytes. Granulocytes properties.
6. Immunity.
7. Platelets. Maintaining function of the fluid-coagulant balance. Haemostasis and blood clotting. Fibrinolysis.
8. Heart physiology. Cardiac muscle. Myocardium properties.
9. Cardiac cycle. Peripheral manifestations of the heart activity. Phonocardiogram. Electrical activity of the heart. Electrocardiogram. Vectorcardiography.
10. Heart activity manifestations: mechanical, acoustical, volume phenomenon.
11. Heart performance and the determinant factors. Systolic and diastolic parameters of the heart activity. Heart regulation through extrinsic and intrinsic mechanisms.
12. Blood pressure in the circulatory system. Physiological properties of the vascular system. Arterial pressure. Neural and humoral regulation of the arterial pressure. Arterial pulse
13. Microcirculation. Capillary circulation –morphofunctional particularities. Capillary transport across the wall- determinant factors. Local regulation mechanisms.
14. Morphofunctional characteristic of the venous system. Lymphatic system. Neural and humoral regulation of the heart and vessels activity.
15. Kidneys functions in homeostasis. Kidney structure. Mechanisms of urine formation. Clearance principle. Tubular-glomerular feed-back
16. Nephron physiology. Glomerular filtration. Tubule reabsorption and secretion.
17. Mechanisms of renal cleansing. Nitrates excretion. Mechanism of urine dilution and concentration. Diuresis. Renal function regulation. Micturition.
18. Introduction in endocrine glands physiology: endocrine gland classification; hormone biochemistry; hormone storage and secretion; hormones' receptors; hormones action mechanisms; hormone concentration in blood. Hormone secretion regulation
19. Hypophysis physiology
20. Thyroid gland physiology.
21. Suprarenal glands physiology. Endocrine pancreas physiology.
22. Parathyroid glands physiology.
23. Gonads physiology

24. Somesthesis. Somesthesis areas.
25. Pain. Pain receptors. Pain pathways. Pain types.
26. Reflexes. Reflexes classification. Somatic reflexes. Spinal shock. Cerebellum. Cortical control of motility: primary motor area, secondary (premotor) area, supplementary motor area. Pyramidal tracts. Extrapyramidal tracts
27. Thalamus; thalamus functions. Hypothalamus. Limbic system. Memory
28. Thermoregulation: body's temperature (normal values), physiological variations of the central temperature. Thermic balance: thermogenesis, thermolysis. Nervous regulation of the body's temperature: thermoregulatory centres. Body's adaptation to warm environment. Body's adaptation to cold environment.

Practical activities:
1. Hemoglobin compounds (blood spectroscopy). Identification of hemoglobin
2. Red blood cell count. Counting reticulocytes
3. Sedimentation rate of red blood cells. Blood and plasma density
4. Dosage of standard bicarbonate. Globular resistance
5. Electrophoretic fractions of serum proteins. Measurement of hematocrit. Influence of red blood cell volume on hematocrit values
6. Blood groups in the OAB system. Rh factor
7. Leukocyte count. Leukocyte array
8. Coagulation time. The bleeding time
9. Platelet count. The heparin tolerance test
10. Electrocardiogram
11. Adaptation of the cardiovascular system under the conditions of the Valsalva phenomenon. Determination of maximum oxygen consumption
12. Blood pressure. Blood pressure measurement. Adaptation of the cardiovascular system to the effort
15. Urinary clearance
16. Urine summary examination
17. Oral glucose tolerance test (OGTT)
18. Insulin convulsions in mice. Hypocalcemic tetanus
19. Endocrine diagnosis of pregnancy
20. Electroencephalogram
21. Electrooculogram (EOG)
22. Exploring the vestibular analyzer. Vestibular evidence
23. Somesthesia
24. Osteotendinous and skin reflexes. The laws of medullary reflexes
25. Visual Analyzer
26. Hearing Analyzer.

References:

Barrett K.E., Barman Susan M., Boitano Scott, Brooks Heddwen L. Ganongs- *Review of Medical Physiology*, 23rd Edition, USA, 2010.
Boron W.F., Boulpaep E.L. *Medical physiology*, Elsevier Saunders, 2005.
Boron W.F, Boulpaep E.L. *Medical physiology*, Elsevier Saunders, 2012.
Boron WF, Boulpaep EL. *Medical Physiology*, Elsevier, 2017.
Ganong WF. *Review of Medical Physiology*, McGraw-Hill Education, 2016.
Guyton AC, Hall JE. *Textbook of Medical Physiology*, Elsevier, 2016
Mitrea D.R. Human *Physiology - Laboratory tests*. Sibiu, Techno Media, 2006. ISBN (10) 973-7865-24-3. ISBN (13) 978-973-7865-24-3
Mitrea D.R., Orăsan R.I. *Elementary Human Physiology*. Sibiu, Techno Media, 2009. ISBN 978-606-8030-57-9
Mitrea D.R. Human *Physiology: Blood, Heart, Circulatory System*. Sibiu, Techno Media, 2015. ISBN 978-606-616-151-0
Silbernagl S. Despopoulos A. Color *Atlas of Physiology*, 7th Edition, Thieme Publishers Stuttgard, 2015

Evaluation - standardized exam:

- Written exam 70%
- Practical exam 30%

GENERAL MICROBIOLOGY

Field of study:	**Medicine**
Study programe:	**Medicine**
Course title:	**Microbiology**
Course coordinator:	**Assist. Prof. Carmen Costache, MD, PhD**
Department:	**Molecular Sciences**
Discipline:	**Microbiology**
Course code:	**MED 2 12 05 EN**

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	2	2	-	28	28	-	44	100	4	Written+ practical exam
II	Compulsory	2	2	-	28	28	-	44	100	4	Written+ practical exam

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

Pre-requisites: -

General objectives:

- Acquisition of elementary notions of general microbiology
- The study of micro-genes (Bacteria, Viruses) and their different properties in relation to the human organism.
- Knowledge of bacterial and viral genes and the importance of microorganisms as etiological agents of different infectious clinical entities, with emphasis on their pathogenic factors.

Specific objectives:

- Assimilation of basic knowledge of fundamental and medical microbiology.
- Knowledge of etiology, pathogenesis and laboratory diagnosis of bacterial, viral infections.
- Applying these notions in the basic fields of Medicine: classical and molecular diagnosis of infectious diseases, medical research, epidemiology of infections.
- Knowing the methods and techniques used to detect and identify micro-organisms.
- Preparing students to perform minimum laboratory techniques for a general medical practitioner.

Course content:

COURSE Sem. I

Bacteriology

1. The microorganisms world. Definition. History. Classification. Taxonomy. Microorganism's particularities. Differences between the eukaryotic and the prokaryotic cells. Medical important phylogenic groups.

Bacterial morphology

2. 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).

Bacterial physiology - Bacterial metabolism

5. Environmental chemical and physical factors' influence on bacterial growth and division.

6. Bacterial multiplication - bacterial growth and division. The bacterial growth curve.

Physiologic phases of the bacterial cell. Bacterial adaptation to stress.

Bacterial genetics (Evolution and adaptation in the bacterial world)

7. 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. Updates in mutational evolution of bacteria resistance genes.

   The genetic material transfer between bacteria: donor – recipient. Transformation and transfection. Conjugation. Phages transduction and conversion. Spread of pathogenicity genes and antibiotic resistance in the bacterial world.

Bacterial pathogenicity

10. The Koch-Henle postulates; the "exogenous genome" diseases. Contamination, infection, disease. Pathogenicity and virulence. Multifactorial pathogenicity (strategies), stadial pathogenesis
11. Bacterial pathogenicity factors. Bacterial toxins – exotoxins and endotoxins.

12. Human body respons to infection. Bacterial mechanism to escape defence mechanisms.

Antibacterial chemotherapy

13. Generalities about antibiotic drugs. Definition, therapeutic triangle; pharmacodynamics (MIC, MBC). The bacteriostatic and the bactericidal effects. The spectrum of action. Antibiotic families, mechanisms of action: β-lactam drugs, Glycopeptides, Amino glycosides – aminociclitols
14. Tetracyclins, the MLS group, Phenicols, Quinolones, Rifampycines, Nitro-derivates, Sulphonamides, Diaminopirimnidines, Polymixins. Bacterial resistance to antibiotics: natural and acquired resistance. Molecules, genes, resistance phenotype: the SIR concept. Multiple resistances, selection of hospital antibiotic multiple resistant strains.

COURSE 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

Practical activities:

Semester 1

1. Norms of protection in the Microbiology Laboratory. Presentation of the laboratory. Asepsy, antisepsis. Sterilization and disinfection methods. The necessary equipment
2. Harvesting of pathological products
3. Microscopic preparations: native preparation, smears: technique
4. Highlighting microorganisms in native preparations, simple stains, Gram stain.
5. Gram coloring principle. The importance of microscopic preparations in the identification of bacteria based on the morphotinctorial properties
6. Ziehl Neelsen coloring: principle, working technique, microorganisms highlighting. Special colors: for spores, capsule, butter, silver impregnation, Giemsa
7. Culture media: sowing; techniques; identification of bacteria based on culture properties
8. Serological reactions. Applicability of serological reactions in the diagnosis of infections (identification of bacteria, detection of bacterial antigens and specific antibodies).
9. Serological reactions: The reaction of agglutination, precipitation, principle, technique, interpretation
10. Bacterial genetics: conventional techniques and molecular biology (PCR)
11. Testing the sensitivity of bacteria to antibiotics: dilution method: principle, technique, interpretation of antibiogram
12. Infectious Diseases Diagnosis Scheme

Semester 2

1. Laboratory diagnosis in infections produced by representatives of the *Staphylococcus, Strevtococcus, Enterococcus* genera
2. Laboratory diagnosis in diphtheria and other infections produced by representatives of the *Corynebacterium* genus. Laboratory diagnosis of tuberculosis and other infections caused by representatives of the *Mycobacterium* genus
3. Laboratory diagnosis in infections produced by representatives of the *Bacillus* genus. Laboratory diagnosis of infections caused by representatives of the *Clostridium* genus (tetanus, botulism, gas gangrene) and unsporified anaerobic bacteria
4. Laboratory diagnosis in infections produced by representatives of the *Haemophilus, Neisseria, Bordetella, Brucella* genera

5. Laboratory diagnosis of infections caused by pathogenic enterobacteria (salmonellosis, bacillary dysentery)
6. Laboratory diagnosis of infections caused by commensal enterobacteria (*E.coli* and other enterobacteria)
7. Laboratory diagnosis in infections produced by representatives of the *Pseudomonas, Vibrio, Helicobacter, Campylobacter* genera. Laboratory diagnosis of infections produced by representatives of the *Treponema, Leptospira, Borrellia* genera
8. Laboratory diagnosis in infections produced by the representatives of the *Rickettsia, Chlamydia, Mycoplasma* genera
9. Laboratory diagnosis in virology - principles. Virus cultivation; virus identification
10. Laboratory diagnosis of influenza. Laboratory diagnosis of infections caused by *Paramyxoviridae*
11. Laboratory diagnosis in hepatitis
12. Laboratory diagnosis of HIV infection.

References:

1. Lia Monica Junie, Traducator: Carmen Costache, *Basic bacteriology and virology,* Editura UMF "Iuliu Haţieganu", ISBN 978-973-693-422-3, 2011, 210 pg.
2. Carmen Costache, Lia Monica Junie, Ioana Colosi, *Medical bacteriology and medical virology,* Ed. a 3-a, rev. Editura Universitară "Iuliu Haţieganu", ISBN 978-973-693-760-6, 2017, 209 pg.
3. Course support.

Evaluation - standardized exam:

- Written exam 70%
- Practical exam 30%

MEDICAL GENETICS

Field of study:	**Medicine**
Study program:	**Medicine**
Course title:	**Medical Genetics**
Course coordinator:	**Lecturer Rodica Elena Cornean, MD, PhD**
	Lecturer Cătană Andreea, MD, PhD
	Lecturer Dronca Eleonora, MD, PhD
Department:	**Molecular Sciences**
Discipline:	**Medical Genetics**
Course Code	**MED 2 12 06 EN**

Sem.	Course type	Lectures	Practical activities		Lectures	Practical activities		Individual study	TOTAL	Credits	Evaluation
		hours / week			ore / sem.						
		L	PA	CI	L	PA	CI				
I	Compulsory	1	2	-	14	28	-	56	98	3	-
II		2	2	-	28	28	-	56	112	4	Written + practical exam

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

Pre-requisit:

1. Understanding the normal molecular mechanisms that determine and regulate the structures and functions, general and specific, of cells
2. Understanding the pathological molecular mechanisms that modify the structures and functions, general and specific, of the cells
3. Recognition and operation skills with molecular markers having diagnostic and prognostic value in various pathological situations.

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. The role and importance of medical genetics in education and medical practice. The human genome.

2. The structure of the genes. Expression of hereditary information. Regulation of gene expression

3. Variability of hereditary information. Gene mutations.

4. Storing and transmitting information.

5. Polygenic and multifactorial heredity in human pathology.

6. Epigenetics

7. Genetics of human populations.

8. Chromosomal abnormalities and associated pathology.

9. Mitochondrial pathology

10. Developmental genetics.Developmental defects.

11. Teratogenicity. Teratogenic factors. Classification of teratogens

12. Normal and pathological sexualization.

13. Immunogenetics and immunopathology

14. Oncogenetics.

15. Nutrigenetics and nutrigenomics

16. Pharmacogenetics.

17. Genetics and genomics with applications in medical clinical practice

18. Principles of prophylaxis of diseases with genetic component.

19. Principles of therapy in genetic pathology.

20. Genomic medicine.

21. Bioethics in medical genetics.

Practical activities:

1. Human chromosome morphology
2. The analysis of human chromosomes. (1) Prenatal citogenetic diagnosis
3. The analysis of human chromosomes. (2) Postnatal citogenetic 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 anaysis 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. Study guide for laboratory practice, second year students, general medicine, U.M.F. Iuliu Haţieganu Cluj-Napoca, 2015 **-** Coordonator - Ioan Victor Pop.
2. Emerys's Elements of Medical Genetics, 15th edition, Elsevier
3. Thompson and Thompson, medical genetics, 2018 (Robert L. Nussbaum)
4. www.orphanet.com
5. www.omim.com
6. www.pharmgkb.com
7. www.ensembl.org

Evaluation:

- Written exam 70%
- Practical exam 30%

MEDICAL RESEARCH METHODOLOGY

Field of study:	**Medicine**
Study program:	**Medicine**
Course title:	**Medical Research Methodology**
Course coordinator:	**Assoc. Prof. Dr. Horaţiu Colosi, MD, PhD**
Department:	**Medical Education**
Discipline:	**Medical Informatics and Biostatistics**
Course code:	**MED 2 2 0 8 EN**

Semester	Course type	Lectures	Practical activities		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	-	40	82	3	Written+ practical exam

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

Pre-requisites: Medical Informatics and Biostatistics

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
2. Basic methodology of medical research
   - Phases of a research
   - Data collection
   - Sample-sampling
   - Estimation and confidence intervals
   - The research protocol
3. Study validity and bias in medical studies
   - Selection bias
   - Measurement and information bias
   - Confounding
4. Clinical studies
   - Prognostic studies
5. Clinical studies
   - Survival analysis
6. Clinical studies
   - Diagnostic studies
7. Clinical studies
   - The assessment of a therapeutic attitude

8. Clinical studies
    - The description of a health phenomenon
    - Meta-analysis Therapeutic studies
9. Choosing a statistical method
    - Data types
    - Comparing two groups
    - Independent and paired samples
    - Relation between two variables
    - Statistical methods for multiple variables
10. 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
11. 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
12. 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
13. Ethics of medical research
    - Ethical principles, Clinical ethics committees
    - Ethical rules regarding participation in research
    - Fraud in medical research
14. Modeling and simulation in medical research
    - Principles of modeling and simulation
    - Domains and examples of modeling and simulation in biomedical sciences.

Practical activities:

1. Labor protection. Introduction

Bibliographic study - citing references for scientific materials found through bibliographic documentation, according to Vancouver style
2. Bibliographic study - bibliographic documentation, bibliographic record
3. Highlighting some risk or prognostic factors 1. Case-control study: case study (study protocol, data analysis and description, interpretation and discussion of results)
4. Highlighting some risk factors or prognostics 2. Cohort study: case study (study protocol, data analysis and description, interpretation and discussion of results)
5. Evaluation of the existence, size and meaning of the influence of risk and prognostic factors: Correlations and regressions: case study (study protocol, data analysis and description, interpretation and discussion of results)
6. Survival assessment - Survival data analysis: case study (study protocol, data analysis and description, interpretation and discussion of results)
7. Evaluation of a diagnostic procedure: case study (study protocol, data analysis and description, interpretation and discussion of results)
8. Evaluation of a therapeutic attitude: case study (study protocol, data analysis and description, interpretation and discussion of results)
9. Identification of systematic errors in a study
10. Choosing the statistical method
11. Medical writing (oral communication of the results of the scientific research): practical work of scientific style design of the presentation of a research in the form of slides
12. Medical writing (written communication of the results of scientific research) case study (critical assessment of medical writing of an original article)
13. Evaluation of study validity. Interpreting the results of medical studies. Practice of Evidence Based Medicine (EBM).
14. Recapitulative research scenarios.

References:

Practical activities of medical research methodology for students of the Faculty of Medicine [online] 2002-2019. Available from URL: http://www.info.umfcluj. com/

Evaluation:

- Written exam 70%
- Practical exam 30%

PRIMARY HEALTH CARE

Field of study:	**Medicine**
Study program:	**Medicine**
Course title:	**Primary Health Care**
Course coordinator:	**Assoc. Prof. Amanda Radulescu, MD, PhD**
Department:	**Community Medicine**
Discipline:	**Epidemiology**
Course code:	**MED 2 2 09 EN**

Sem.	Course type	Lectures	Practical activities		Lectures	Practical activities		Individual study	TOTAL	Credits	Evaluare
		hours / week			hours / semester						
		L	PA	CI	C	LP	St				
II	Compulsory	1	1	-	14	14	-	32	60	2	Written exam

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

Pre-requisites: -

General objectives:

- explain the principles of disease causation and the frequency measures of the health-related events,

- encourage the application of epidemiology in health promotion and disease prevention,

- understand the concept of good clinical practice based on clinical epidemiology.

Specific objectives:

- Introduction in community medicine
- Health and determinants of health
- Epidemiology - a science with practical approach: uses, methods applied in Primary Health Care
- Application of epidemiology in public health: epidemiological surveillance, epidemiological investigation, epidemiological analysis, epidemiological evaluation
- Descriptive epidemiology – indicators and indices
- Epidemiological studies
- Screening in secondary prevention
- Causality
- Clinical epidemiology
- Principles and methods used in the prevention and control of diseases
- Fundamentals in the epidemiology of infectious diseases.

Course content:

1. The concept of community medicine, individual and community health, classification of health determinants, population health objectives and components, and the professional basis involved in achieving these goals.
2. The steps of epidemiological reasoning applicable in the study of the population health problems. The objectives of epidemiology and the practical application areas: surveillance, investigation, analysis and evaluation applicable in community medicine.
3. The role and objectives of the epidemiological surveillance as a fundamental component in establishing health policies with public health programmatic intervention hierarchy.
4. Epidemiological investigation, the goals and steps responding to medical and public alert.
5. The epidemiological analysis - principles, analytical epidemiological studies planning. Distorting factors and the means to control in epidemiological research. Epidemiological evaluation, meta-analysis - principles and objectives.
6. The characterization of endogenous and exogenous infectious agents, the complex response to infection with the meaning of the protective barriers, non-specific innate and adaptive immune response. The chain of infection, infectious disease natural history with the qualitative and quantitative expressions.
7. The definition and prioritization criteria for causality in the epidemiology of infectious and chronic diseases. Validity of the epidemiological research, correlation between quality of evidence and strength of recommendations in clinical practice.
8. Clinical epidemiology and the practical significance of observations towards the individual and community health care. The health-related events studied in clinical epidemiology: assessment of the boundaries between abnormal and normal, diagnosis, prognosis and treatment, efficiency and effectiveness of health care interventions.
9. Primary prevention with population and high-risk approaches. Secondary prevention and justification of the screening activities. Tertiary prevention.
10. Primary Health Care (PHC) – as a fundamental concept aimed to support and promote population health. Definition, components and PHC integration in the primary care towards all communities with the direct participation of their members. PHC prospects in the XXI century.

Practical activities:

1. Definition and calculation of the most frequently used epidemiological frequency indicators - incidence, prevalence and mortality
2. Defining the gross and specific rates of morbidity and mortality
3. Basic principles and standardization methods for optimizing geographical and temporal comparisons
4. Descriptive observational epidemiological studies: principles, evaluation of advantages and disadvantages
5. Analytical observational epidemiological studies: principles, evaluation of advantages and disadvantages
6. Interventional epidemiological studies: principles, evaluation of advantages and disadvantages
7. Evaluation of the causal relation as a model of epidemiological research, by carrying out observational analytical studies
8. Defining the main stages of epidemiological research in the study of causality
9. Principles of application of a screening program, ensuring the validity and accuracy of the test applied
10. Mass screening test for secondary prophylaxis
11. Defining WHO criteria for applying a screening test at population level and illustrating the dependence of screening test parameters on the prevalence of the condition of interest
12. Role and ranking of studies necessary for the descriptive and causal evaluation of colorectal and lung cancer
13. Defining detection strategies within population programs, benefits and limits
14. Critical reading of medical articles. Defining the applicability of published information for optimizing medical practice
15. Defining the criteria and steps used to assess the validity of a medical article
16. Use of medical literature in making clinical decisions consistent with evidence-based medicine
17. Identification of the factors that limit the generalization of the study results
18. Transposition of the results of medical research into clinical practice, to ensure an optimal clinical decision, based on evidence.

References:

Available online:

1. Jekel's *Epidemiology, Biostatistics, Preventive Medicine, and Public Health,* 4th edition by David L. Katz, Joann G. Elmore, Dorothea M.G. Wild, and Sean C. Lucan. 2014. https://studentconsult.inkling.com/.

2. *Epidemiology*, 5th edition by Leon Gordis 2014 https://studentconsult.inkling.com/
3. R Bonita, R Beaglehole, T Kjellström. *Basic epidemiology*. 2nd edition World Health Organization 2006.
4. *whqlibdoc.who.int/publications/2006/9241547073_eng.pdf.*
5. R. Brian Haynes, David L. Sackett, Gordon H. Guyatt, and Peter Tugwell. *Clinical Epidemiology: How to Do Clinical Practice.* 3rd ed. 2006. https://disciplinas.stoa.usp.br/mod/resource/view.php?id=197029

Available at the university library:

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 GR. *Essentials of epidemiology in public health.* 2014. ISBN-10: 1284028917.
8. Gordis L. *Epidemiology*. 2014. ISBN 9781455742516.
9. Fletcher RH, Fletcher SW, Fletcher GS. *Clinical epidemiology* 2012 ISBN-10: 1451144474.

Other references:

10. Fletcher RH, Fletcher SW. *Clinical Epidemiology – the Essentials* 5th Ed., Lippincott Williams &Wilkins, 2014. ISBN ISBN-13: 978-1451144475.
11. Hennekens C.H., Buring J.E. *Epidemiology in Medicine*. 1st ed. Library of Congress 1987. ISBN-13: 978-0316356367.
12. Giesecke J. *Modern Infectious Diseases Epidemiology*. Oxford University Press, Inc., New York 1994.
13. Merrill R. *Introduction to Epidemiology* 6th Ed. Ed. Jones & Bartlett Learning. 2013. ISBN 9781449665487.
14. Hebel JR, McCarter R. *Study guide to Epidemiology and Biostatistics* 7th Ed. Ed. Jones & Bartlett Learning. 2012. ISBN9781449604752.
15. Nelson KE, Williams C. *Infectious Disease Epidemiology Theory and Practice* 3rd Ed. Ed. Jones & Bartlett Learning. 2014. ISBN 9781449683795.
16. Kasper DL, Fauci AS. *Harrison's Infectious Diseases*. 3rd Ed. 2017 McGraw-Hill Education. ISBN: 9781259835971.
17. Original articles to be discussed during practical works.

Evaluation:

- Written exam 60%
- Practical exam 40%

ROMANIAN LANGUAGE

Study field:	**Medicine**
Study program:	**Medicine**
Course title:	**Romanian language**
Course coordinator:	**Assist. Anca Ursa, PhD**
	Assist. Ana Aşkar, PhD student
	Assist. Stefana Duncea, PhD
	Assist. Cristina Gogâţă, PhD
	Assist. Denisa Tout, PhD student
Department:	**Medical Education**
Discipline:	**Modern Languages**
Course code:	**MED 2 2 09 EN**

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	-	2	-	-	28	-	2	30	2	Colloqui
II			2			28		2	30		

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

Pre-requisites: -

General objectives:

- integrating the four communication skills (listening, reading, speaking, writing);
- developing skills in academic and medical language;
- developing team-work skills using pair and group-work;
- Interdisciplinarity: raising ethical awareness of students' future profession.

Specific objectives:

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

- make an inventory of the medical instruments;
- use all the forms of the verb *a-l durea* and conjugate it in all the verb tenses;
- give advice and make recommendations for a patient;
- take a medical history;
- speak about how medicines should be taken;
- speak about common diseases.

Course contents:

1. My family. Grammar: Nouns in the genitive case. Possessive adjectives and pronouns. Speaking/Writing: Describing a room/a person. Speaking/Writing about family.
2. The human body. Grammar: The number of nouns. Speaking/Writing: Describing the human body. Explaining how an anatomic system functions.
3. The structure of a hospital. Grammar: Verbs in the imperative mode. Speaking/Writing: Who works in a hospital? Main responsibilities of the medical staff. The cooking recipe.
4. Health insurances. Grammar: Verbs in the Subjunctive mode. Speaking/Writing: The Romanian health insurance system. The health insurance system in my country. Expressing opinion.
5. The medical consultation. Grammar: Demonstrative pronouns and adjectives (*this-these*; *that-those*). Speaking/Writing: History taking.
6. At the pharmacy. Grammar: Verbs in the conditional mode. Speaking/Writing: Patient-pharmacist dialogue.
7. Children at the doctor's. Grammar: Demonstrative pronouns and adjectives (*the same; the other one*). Diminutives. Speaking/Writing: Expressing opinion on mandatory vaccination. Describing the vaccination scheme in Romania/ students' own country.
8. The springtime lethargy. Grammar: The ordinal and the adverbial numeral. Speaking/Writing: Simple dialogue based on common symptoms. History taking.
9. The common cold and the flu. Grammar: Verbs with pronouns. Negative pronouns and adverbs. Speaking/Writing: The history taking. Comparing two illnesses.
10. Food poisoning. Grammar: Nouns in the genitive case. Possessive adjectives and pronouns. (Revision). Speaking/Writing: The digestive system. History taking.
11. Diarrhoea and constipation. Grammar: Comparison degrees in adjectives and adverbs. Speaking/Writing: Common illnesses. The history taking.

References:

1. Bejan, D. *Gramatica limbii române*. 3rd Edition, Cluj, Ed. Echinox, 2001.
2. Coiug, A, Andreica, A, Băgiag, A, Tomoiagă, A, Gogâţă, C. *Limba română. Comunicare de bază în mediul spitalicesc.* Cluj-Napoca, Editura Medicală Universitară « Iuliu Haţieganu », 2018.
3. Gogâţă, 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 Haţieganu », 2018.
4. Kohn, D., Puls. *Limba română pentru străini*. Iaşi, Ed. Polirom, 2009.
5. Larousse *Dicţionar de Medicină*. Bucureşti, Ed. Univers Enciclopedic, 1998.

6. Mandelbrojt-Sweeney, M*., Limba română pentru medici şi asistente*. Iaşi, Ed. Polirom, 2006.
7. Platon, E., Sonea, I., Vîlcu, D. *Manual de limba română ca limbă străină* (RLS). A1-A2. Cluj-Napoca, Casa Cărţii de Ştiinţă, 2012.
8. Pop, *L. Româna cu sau fără profesor*. Vème Edition, Cluj-Napoca, Ed. Echinox, 2003.

Evaluation:

- Exam 100%

PHYSICAL EDUCATION

Field of study:	**Medicine**
Study program:	**Medicine**
Course title:	**Physical Education and Sport**
Course coordinator:	**Lecturer Popovici Cornelia, PhD**
Department:	**Medical Education**
Discipline:	**Physical Education**
Course code:	**MED 21211 EN**

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	-	1	-	-	14	-	-	14	-	-
II		-	1	-	-	14	-	-	14	1*	Verification

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:

- M. Kiss, *Caiet de lucrări practice: Culturism - Fitness*, 2013
- C. Popovici, *Îndreptar de lucrări practico-metodice*, 2013
- M. Kiss, C. Popovici, *Caiet de lucrări practice: Dans de societate*, 2017
- C. Popovici, M. Kiss, *Îndreptar de lucrări practico-metodice, Gimnastică aerobică*, 2017
- M. Kiss, C. Kollos, *Caiet de lucrări practice: Baschet*, 2017
- Bocu T. *Activitatea fizică în viaţa omului contemporan*. Editura Casa Cărţii de Ştiinţă 2007

Evaluation :

- Verification 100%

3rd YEAR

MEDICAL SEMIOLOGY

Field of study:	**Medicine**
Study program:	**Medicine**
Course title:	**Semiology and Internal Medicine**
Course coordinator	**Lecturer Cristina Hoţoleanu, MD, PhD**
Departament:	**Internal Medicine**
Discipline:	**Medical Clinic II, Medical Clinic V**
Course code:	**MED 3 12 01 EN**

Sem.	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	3	-	5	42	-	70	38	150	6	Written and practical exam
II		3	-	6	42	-	84	24	150	6	

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

Pre-requisites:

- Physiology
- knowledge of Anatomy, Physiology and Histology to allow the introduction into the study of medical semiology

General objectives:

To understand the approach to the patient, consisting into anamnesis (history taking), physical exam and main complementary examinations required to identify a syndrome/disease.

Specific objectives:

To be able to apply the steps and principles of the anamnesis, to perform the correct physical exam of the patient, to correlate the information obtained from clinical data and main complementary examination.

Course content:

1st semester

1. Introduction. Definition of Semiology; objectives. History taking (Anamnesis): principles, steps
2. History taking: identifying data, age, sex, reason for admission, history of the current illness, past history (physiological and pathological

data) family history, social history, review of the systems. Semiological description of the pain

3. General physical exam. Steps, tools (inspection, palpation, percussion, auscultation). Psychiatric assessment: disorder of mood, affectivity, thinking, sensibility and perception; syncope, coma
4. General physical exam. Posture, balance and gait, speech, motor and sensory nervous system
5. General physical exam. Facies in different diseases. Eye, ear, nose- main pathological aspects. Neck- thyroid ex.
6. General physical exam. Skin and mucosa: color changes. Primary and secondary lesions.Vascular lesions. Elasticity. Hydration state- turgor
7. General physical exam. Edema. Collateral circulation. Lymph nodes. Body temperature: fever/hyperthermia, hypothermia
8. Respiratory system. Relevant data from history taking and general physical exam for respiratory diseases. Main symptoms: dyspnea, cough, hemoptysis, chest pain. Physical exam of the lungs
9. Respiratory system. Consolidation sdr; pneumonia, bronchopneumonia, pulmonary infarction, lung abscess, lung fibrosis. Atelectasis: with/without obstruction
10. Respiratory system: tracheal sdr and broncho-obstructive sdr; asthma, chronic bronchitis
11. Respiratory system. Hyperinflation- pulmonary emphysema, COPD. Cavitary sdr.
12. Respiratory system. Pleural sdr, mediastinal sdr, resp failure
13. Renal system. Anamnesis; pain, micturition disorders and physical exam of the kidneys. Nephritic sdr. Nephrotic sdr. Glomerulonephritis.
14. Renal system. Tubulointerstitial sdr pyelonephritis; vascular sdr; renal failure (acute/chronic).

2nd semester

1. The approach to the cardiac patient. History taking- relevant aspects for cardiovascular diseases. Cardiac physical exam: inspection, palpation, auscultation
2. Heart valve disease. Mitral stenosis and regurgitation; prolapse of the mitral valve. Aortic regurgitation and stenosis
3. Coronary artery disease. Definition, classification. Angina: stable and unstable forms. Acute coronary syndrome; acute myocardial infarction
4. Myocardial syndromes: Definition, classification. Dilatative, restrictive and hypertrophic cardiomyopathy; myocarditis
   Pericardial syndrome: acute and chronic pericarditis; tamponade
   Endocardial syndrome- endocarditis

5,6. Arrhythmias and conduction disorders (Sp.Cl.Recuperare): 2 lectures

7. Heart failure. Classification. Peripheral artery disease PAD. Venous diseases (deep vein thrombosis, superficial thrombophlebitis, chronic venous insufficiency)
   *pres. Hypertension, ECG, other complementary examinations in cardiovascular diseases (Holter ECG, stress tests, echocardiography, chest x-rays, coronarography, MRI, tilt test)
8. The approach to the patient with digestive pathology. History taking and changes at the general physical exam in digestive diseases. Mouth, pharynx and esophagus (semiological approach). Esophageal syndrome; GERD
9. The abdomen. Abdominal topography; main symptoms; physical exam of the abdomen. Peptic ulcer disease.
10. Bowel semiology. Appendicitis. Peritoneal syndrome.
11. Liver and gall bladder semiology: History taking and physical exam in liver diseases. Portal encephalopathy. Percussion, palpation, auscultation of the liver. Gall bladder palpation; hydrops. Portal hypertension. Ascites. Jaundice and cholestasis. Hepatic tests
12. Pancreas semiology: acute and chronic pancreatitis; diabetes mellitus
    * pres Gastrointestinal tract hemorrhage. Complementary examinations in gastrointestinal diseases
13. Red blood cells disorders: anemia, polyglobulia. Spleen pathology: splenomegaly, including hyperspenism
14. White blood cells disorders: leucocytosis, leukopenia, leukemias, lymphoma. Main hemorrhagic syndromes.

Practical activities:

1. Generalities, welcome
2. Anamnesis in the salon
3. Constitutional type, somatic development
4. Dynamic disturbances, walking
5. Attitude
6. Eye changes
7. Semiology of the skull, ears, nose
8. Thyroid semiology
9. Semiology plywood
10. Nutrition status
11. Collateral circulation
12. The osteoarticular system
13. Respiratory system: inspection, palpation
14. Respiratory system: percussion, auscultation
15. Sputum examination
16. Pleural puncture, pleural fluid examination
17. Imaging explorations of the respiratory system

18. Functional pulmonary exploration
19. Respiratory system test
20. Urinary tract objective examination
21. Urine examination
22. Paraclinical urinary tract examinations
23. General objective examination in cardiac patients
24. Inspection, palpation, percussion of the heart
25. Semiology of blood pressure and pulse
26. Paraclinic heart (Rx) exploration
27. Objective examination of the arterial system
28. Objective examination of venous system
29. ECG presentation
30. Oral cavity
31. Objective examination of the abdomen
32. Examination of the ascites fluid
33. The coprological examination
34. Paraclinical investigations in digestive tract pathology
35. Functional exploration of the liver
36. Blood smear, medulograma.

References:

Compulsory:

Lectures - handouts/electronic format.

Optional:

Bates B. *Guide To Physical Examination And History Taking*. Lippincott Williams & Wilkins. 1999;

Talley N, O'Connor S. *Clinical examination. A systematic guide to physical diagnosis.* 5th Ed. 2007;

Douglas G, Nicol F, Robertson C. *Macleod's clinical examination*. 13th Ed. 2013.

Evaluation - standardized exam:

- Written exam 50%
- Practical exam 50%

SURGICAL SEMIOLOGY

Field of study:	**Medicine**
Study program:	**Medicine**
Course title:	**Surgical semiology**
Course coordinator:	**Prof. Achimaș-Cadariu Patriciu, MD, PhD**
Department:	**Oncology**
Discipline:	**General Surgery**
Course code:	**MED 3 1 02 EN**

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	6	Written+ practical exam

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

Pre-requisites: Anatomy, Physiology, General Morphopathology

General objectives:

- Learning the concepts and principles of Surgical propedeutics and semiology; an introduction to the fundamental concepts of surgical pathology.
- Correlating the topics of Surgical propedeutics, semiology and pathology with the concepts and topics taught in 3rd year introductive clinical courses : Pathophysiology, Medical Semiology and Immunopathology
- Introducing concepts of therapeutic behaviour and paraclinical exams that are necessary in order to understand the elements of Surgical pathology
- Observing and offering examples of concepts such as Surgical semiology and pathology through case studies and „Problem-based-learning" exercises.
- Acquiring a clinically-oriented medical and surgical vocabulary.

Specific objectives:

Learning some basic principles and concepts regarding the surgical specialties

- learning the correct principles of asepsy and antisepsy
- learning all characteristics of specific and non-specific infections, that are surgically treatable

- learning the methods of treating and healing wounds of the cutaneous traumas of the hand, burns and frostbites or of abdominal and thoracic traumas.
- clinical recognition of hernias and their differentiation from eviscerations; surgical treatment
- implementing specific notions of the tumoral pathology: cutaneous and of the soft tissues
- learning the clinical features of the vascular pathology (artherial, venous and limphatic) and of its surgical treatment
- recognizing different clinical features in the pathology of the mammary and the thyroid gland; differentiated diagnosis and treatment
- introduction to the laparoscopic surgery and the surgery of transplants.

Course content:

1. Introduction to general surgery. Wound healing. Principles of wound treatment
2. Goiter/Thyroid nodule. Thyroid cancer. Diseases of the parathyroid. Diseases of adrenal glands. Scrotal and inguinal swellings. Hernias of the abdomen. Incision hernias.
3. Skin and soft tissue infections. Infections of the hand. Surgical site infections
4. Postoperative fever. SIRS and septic shock. Skin and soft tissues trauma.

REVIEW AND EVALUATION 1

5. Soft tissues trauma/Polytrauma. Hemorrhage and hypovolemia. Transfusion.
6. Shock.
7. Local anesthesia. Perioperative analgesia. Postoperative complications.
8. Control of the hydro-electrolytic and acido-basic balance of the surgical patient. Nutrition.

REVIEW AND EVALUATION 2

9. Acute peripheral ischemia. Chronic peripheral ischemia. Limb amputations.
10. Ulcers and necrosis of the foot. Pain and congestion of the foot. Diabetic foot.
11. Diseases of the veins and lymphatic vessels. Venous thrombosis.

Practical activities:

1. Surgery Section. The operating block. Ambulatory surgery. Treatment of wounds
2. Examination of the head and neck. Surgical patient history. Patient and family information
3. Clinical examination in hernias and abdominal events. The minor patient. Informed consent
4. Asepsy and antisepsis. Clinical examination of the surgical patient - the 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 of patient data.
7. The investigation plan. Paraclinical examinations. Inform the patient about the therapeutic options
8. Clinical examination in polytrauma. The patient with disorders of the state of consciousness
9. Surgical instruments. Laparoscopic instrumentation. Electrosurgery, radiofrequency, cryosurgery
10. Malpractice. Anesthetic and surgical risk assessment. Communication of bad news. Confidentiality
10. FNAC TruCut / ClearCut Biopsy. Incisional and excisional biopsy
11. Clinical examination of the limbs. Preoperative preparation in the surgical patient.

References:

1. *Essentials of General Surgery*. Peter F. Lawrence Ed., Wolters Kluwer Health/ Lippincott Williams and Wilkins, Fifth Edition, Baltimore, 2013
2. *Surgical Recall*. Lorne H. Blackbourne Ed., Wolters Kluwer Health/ Lippincott Williams and Wilkins, Sixth Edition, Baltimore, 2012

Evaluation:

- Written exam 50%
- Pracical exam 50%

PATHOPHYSIOLOGY

Field of study:	**Medicine**
Study program:	**Medicine**
Course title:	**General Pathophysiology**
Course coordinator:	**Prof. Pârvu Alina Elena, MD, PhD,**
	Assoc. Prof. Bulboacă Adriana Elena, MD, PhD
Department:	**Functional Sciences**
Discipline:	**Pathophysiology**
Course code:	**MED 3 12 03 EN**

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	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

General objectives:

- to able to make the pathophysiology map of a case
- to know the diagnosis algorithm for each disease

Specific objectives:

- to be able to analyze case data
- to find the possible pathophysiological mechanisms
- to select the tests needed for the pathophysiological diagnosis
- to discuss the results and formulate the pathophysiological diagnosis

Course content:

1. Disease definition and classification, pathogenesis
2. Inflammation and thermoregulatory mechanism pathophyisiology
3. Proteins metabolism disorders pathophysiology
4. Lipids metabolism disorders pathophysiology
5. Carbohydrate metabolism disorders pathophysiology
6. Haemostatic disorders pathophysiology – bleeding syndromes
7. Haemostatic disorders pathophysiology – thrombotic syndromes

8. Red blood cell disorders pathophysiology
9. Respiratory system disorders pathophysiology I
10. Respiratory system disorders pathophysiology II
11. Fluids-electrolytes pathophysiology
12. Acid-base disorders pathophysiology
13. Renal system disorders pathophysiology I
14. Renal system disorders pathophysiology II
15. Cardiovascular system disorders pathophysiology I
16. Cardiovascular system disorders pathophysiology II
17. Cardiovascular system disorders pathophysiology III
18. Cardiovascular system disorders pathophysiology IV
19. Digestive system disorders pathophysiology I
20. Digestive system disorders pathophysiology II
21. Digestive system disorders pathophysiology III
22. Digestive system disorders pathophysiology IV
23. Endocrine disorders pathophysiology I
24. Endocrine disorders pathophysiology II
25. Endocrine disorders pathophysiology III
26. Nervous system pathophysiology I
27. Nervous system pathophysiology II
28. Nervous system pathophysiology III

References:

1. Shayman, Renal Pathophysiology, Lippincott's *Pathophysiology Series,* 1995.
2. Grippi M., *Pulmonary Pathophysiology*, Lippincott's Pathophysiology Series, 1995.
3. Kaufman Chirstian, Mc Kee Patrik A., *Essentials Of Pathophysiology,* Curchill Livingstone, 1996.
4. Schiffman F.J., *Hematologic Pathophysiology*, Lippincott's Pathophysiology Series, 1998.
5. Burns Mary V., *Pathophysiology*, Appleton & Lange, Stamford, Conneticut, 1998.
6. Lauer Kathy, Brozenec Sally, *Pathophysiology,* Springhouse Pennsylvania, 1999.
7. Nowak Thomas J., A. Gordon Handford, *Essentials Of Pathophysiology*, Mc Graw-Hill, Second Edition, 1999.
8. Braunwald, Fauci, Kasper, Hauser, Longo, Jameson, Harrisons's Principles Of Internal Medicine, 15th Edition, Mc Graw Hill, 2001.
9. Pârvu Alina Elena - General *Pathophysiology* Ed. Med. Univ. "Iuliu Haţieganu" Cluj-Napoca, 2003
10. Pârvu Alina Elena - *Systemic Pathophysiology* Vol.I. Ed. Med. Univ. "Iuliu Haţieganu" Cluj-Napoca, 2004

11. Bulboaca Adriana, Parvu Alina Elena, *Pathophysiology For Dental Medicine*, Echinox, Cluj Napoca, 2009
12. Silbernagl Stefan, Lang Florian, *Color Atlas Of Pathophysiology*, Thieme Publishing Group, 2010
13. Pârvu Alina Elena, Bulboacă Adriana, Bărăcan Adrian, *Pathophysiology. Handouts For Medical Students*, Volume 1, Ed Echinox, 2010.
14. Stevenson Frazier, *Crash Course (Us): Renal System: With Student Consult Access*, 2005
15. Christopher O'Callaghan - *The Renal System At A Glance*, 2006
16. Jameson J. Larry, Loscalzo Joseph, *Harrison's Nephrology And Acid-Base Disorders*, 2010
17. Joseph M. Henderson, *Gastrointestinal Pathophysiology*, Lippincott's Pathophysiology Series, 1996.
18. Grippi M., *Pulmonary Pathophysiology*, Lippincott's Pathophysiology Series, 1995.

Other Recommended Sources:

1. Hammer Gary D., Mcphee Stephen J., *Pathophysiology Of Disease: An Introduction To Clinical Medicine*, 7th Ed. Mcgraw-Hill Education - Europe, 2014.
2. Mccance Kathryn L., Huether Sue E., *Pathophysiology: The Biologic Basis for Disease in Adults and Children*, Elsevier Health Sciences, 2009.
3. Juzar Ali, Warren Summer and Michael Levitzky, *Pulmonary Pathophysiology: A Clinical Approach*, Third Edition, Lange Medical Book, Mcgraw-Hill Medical, 2009.
4. Bunn Howard Franklin, Aster Jon C., *Pathophysiology Of Blood Disorders*, Lange Medical Books, Mcgraw-Hill Medical, 2011.
5. West John B., Pulmonary *Pathophysiology: The Essentials* Lippincott Williams & Wilkins; Eighth Edition (February 8, 2012)
6. Hoffbrand Victor, Moss Paul, *Essential Haematology*, Wiley-Blackwell; 6 Edition (March 22, 2011)
7. Rennke Helmut, Denker Bradley M. *Renal Pathophysiology*, 2013
8. Eaton Douglas And Pooler John, Vander's *Renal Physiology*, 7th Edition (Lange Physiology Series), Mcgraw-Hill Medical, 2009.
9. Rennke Helmut G., Denker Bradley M., *Renal Pathophysiology: The Essentials*, Lippincott Williams And Wilkins, 2009
10. Mcphee Stephen J., Hammer Gary D., *Pathophysiology Of Disease: An Introduction To Clinical Medicin*e, Mcgraw-Hill Education - Europe, 2009.
11. Barret Kim E., *Gastrointestinal Physiology* (Lange Physiology Series), Mcgraw-Hill Medical, 2005.
12. Rennke Helmut G., Denker Bradley M., *Renal Pathophysiology: The Essentials*, Lippincott Williams And Wilkins, 2009

13. Patricia Molina, *Endocrine Physiology*, Third Edition (Lange Physiology Series), Mcgraw-Hill Medical, 3 Edition, 2009.
19. Leonard S. Lilly, *Pathophysiology Of Heart Disease: A Collaborative Project Of Medical Students And Faculty*, Fifth Edition, Lww, 2010.

Evaluation - Standardized Exam:

Written exam	50%
Practical exam	50%

PATHOLOGICAL ANATOMY

Field of study:	**Medicine**
Study program:	**Medicine**
Course title:	**Pathology: General Pathology / Systemic Pathology**
Course coordinator:	**Assoc. Prof. Doinița Crișan, MD, PhD**
	Assist. Prof. Dan Gheban, MD, PhD
Department:	**Morphological Sciences**
Discipline:	**Pathological Anatomy**
Course code:	**MED 3 12 04 EN**

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	-	28	28	-	51	107	4	Theoretical + practical exam
II		3	3		42	42		72	156	5	Theoretical + practical exam

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

Pre-requisites: Histology

General objectives:

- To acquire general notions of pathology - macroscopic and microscopic features of basic pathological processes (fluid derangements, metabolic disorders, inflammation and neoplasia) and to correlate them with data presented in other specialties, referring to the etiology, pathogenesis, diagnosis, evolution, and complications of the diseases.
- Based on the material studied in the first semester, students will acquire notions of pathological changes of the main diseases of organ systems and their integration in the context of the knowledge acquired in other specialties (pathophysiology, medical and surgical semiology, pharmacology, etc.).

Specific objectives:

At the end of the semester, students must be able to:
- use specific terms of pathology
- recognize macroscopic lesions: on pictures, surgical specimens, autopsy 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

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, malabsorbtion 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 chance, 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:

1. Circulatory disorders

- Macroscopy, microscopy: Congestia. Acute stasis. Chronic stasis. Bleeding (external, internal, externalized). The effects of ischemia. Recent thrombosis. Old thrombosis. Embolia (forms of embolism, types of emboli). Recent heart attack. The old heart attack. White heart attack. Red heart attack. Disseminated intravascular coagulation. Shock. Edema (forms of edema, acute pulmonary edema). Disorders of lymphatic circulation

2. Metabolism disorders

- Macroscopy, microscopy: Hypertrophy. Hyperplasia. Atrophy. Metaplasia. Hydropic degeneration. Fatty. Cell death: apoptosis, necrosis (necrosis types)
- Macroscopy, microscopy: Myxoid degeneration. Elastopatii. Sclerosis / fibrosis. Amyloidosis. Hyalinosis. Tezaurismoze. Hipomelanoze. Hipermelanize. Iron accumulations. Wilson's disease. Jaundice. Dystrophic qualification. Metastatic calcification. Lithiasis. Keratin dystrophies

3. Inflammation and healing

- Macroscopy, microscopy: Acute inflammation: serous, fibrinous, purulent, hemorrhagic, necrotizing.
- Macroscopy, microscopy: Chronic bacterial inflammation (tuberculous granuloma, syphilitic gum, rhinoscleroma, actinomycosis). Chronic fungal inflammation (candidiasis, aspergilloma). Chronic parasitic inflammation (toxoplasmosis). Viral inflammation. Healing: regeneration, repair

4. Tumors

- Macroscopy, microscopy: General features of benign and malignant tumors. Benign epithelial tumors: adenoma, papilloma. Malignant epithelial tumors: squamous cell carcinoma, basal cell carcinoma, adenocarcinoma
- Macroscopy, microscopy: Pseudotumoral mesenchymal lesions: keloid, hypertrophic scar, fibromatosis, nodular fasciitis. Benign mesenchymal tumors: lipoma, fibrous histiocytoma, leiomyoma, rhabdomyoma, hemangiomas, lymphangiomas, schwannomas, neurofibromas, neurofibromatosis. Malignant mesenchymal tumors: fibrosarcoma, liposarcoma, dermatofibrosarcoma protuberans, rhabdomyosarcoma, leiomyosarcoma, malignant nerve sheath tumor, synovial sarcoma. Melanocyte needs. Melanoma

5. Pathology of the respiratory system

- Macroscopy / Microscopy: Upper respiratory tract: malformations, nasal papilloma, vocal nodule, laryngeal papilloma, laryngeal carcinoma, Lung: malformations, diffuse alveolar injury and adult-type respiratory distress, alveolar collapse, pulmonary and pulmonary hyperphysema, bronchial pulmonary and hyperinfection, , bronchial asthma. Pulmonary infections:

Lobar pneumonia, bronchopneumonia, interstitial penumonia. Fibrous pneumonia. Anthracosis. Silicosis. Lung cancer: squamous cell carcinoma, small cell neuroendocrine carcinoma, adenocarcinoma. Pleural collections. Pleural mesothelioma

6. Pathology of the cardiovascular system

- Macroscopy, microscopy: Cardiac malformations. The rheumatic node. Rheumatic carditis. Infectious endocarditis. Non-infectious endocarditis. Degenerative valves. Myocarditis. Myocardial ischemic lesions. Cardiomyopathies. Heart tumors: atrial myxoma. Pericardial collections. Vasculitis (Horton's disease, Takayasu's disease, obliterating thrombangitis, nodular polyarthritis, Wegener's granulomatosis, hypersensitivity vasculitis). Atherosclerosis. Complications of atherosclerosis. Aneurysms. Varicose veins

7. Pathology of the digestive tract

- Macroscopy, microscopy: Esophageal malformations. Esophageal varices. Esophagitis. Barrett's esophagus. Esophageal cancer: squamous cell carcinoma, adenocarcinoma. Gastric malformations. Pyloric stenosis. Acute gastritis. Chronic gastritis. Chronic peptic ulcer. Gastric polyps. Gastric cancer. The fun Meckel. Infectious enterocolitis. Celiac disease. Congenital megacolon. Necrotizing enterocolitis. Pseudomembranous colitis. Inflammatory bowel disease (Crohn's disease, ulcerative colitis - RCH). Gastrointestinal polyps / polyps. Colon carcinoma. Carcinoid tumors. GIST. Gastrointestinal tract lymphomas. appendicitis

8. Pathology of the digestive tract

- Macroscopy, microscopy: Liver: malformations, liver vascular diseases. Hepatitis (acute, chronic). Liver cirrhosis. Hepatic tumors and pseudotumor lesions. Liver cancer: hepatocellular carcinoma, cholangiocarcinoma. Liver metastases. Gallbladder: malformations, cholecystitis, carcinoma. Pancreas: malformations, cystic fibrosis, pancreatitis (acute, chronic), ductal pancreatic cancer. Endocrine pancreatic tumors. Diabetes

9. Pathology of the urinary tract

- Macroscopy, microscopy: Renal, bladder and urinary tract malformations. Cystic kidney disease (congenital, acquired). Glomerulonephritis. Interstitial nephropathy. Acute tubular necrosis. Nefroangioscleroza. Hydronephrosis. Renal cancer: Wilms tumor. Renal cell carcinoma. Acute and chronic cystitis. Urothelial tumors of the bladder

10. Pathology of the male genital tract

- Macroscopy, microscopy: Penile malformations. The squamous cell carcinoma. Cryptorchidism. Testicular teratomas. Seminoma. Benign prostatic hyperplasia. Prostate carcinoma

11. Pathology of the female genital tract

- Macroscopy, microscopy: Cervical polyp. Cervical carcinoma: 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 (hisdatiform mole, choriocarcinoma). Breast gland: malformations, mastitis, fibrocystic transformation, ductal hyperplasia, ductal papillomas. Benign tumors: fibroadenoma. Breast carcinoma. Thyroid tumor

12. Pathology of the osteoarticular system

- Macroscopy, microscopy: Osteonecrosis. Acute osteomyelitis. Chronic (non-specific, tuberculous) osteomyelitis. Fibrous dysplasia of the bone. Benign tumors: osteoma, osteoid osteoma, osteoblastoma, chondroma. Giant cell tumor of the bone. Malignant tumors: osteosarcoma, chondrosarcoma, Ewing's sarcoma. Infectious arthritis. Rheumatoid arthritis. Osteoaertrita. Gout

13. Pathology of leukocytes and lymphoganglionary system

- Macroscopy, microscopy: Acute lymphadenitis. Reactive changes (follicular hyperplasia, sinus histiocytosis). Non-Hodgkin's lymphoma. Multiple myeloma, plasmocytoma. Hodgkin's lymphoma. Langerhans cell histiocytosis

14. Pathology of the endocrine system

- Macroscopy, microscopy: Thyroid: Hashimoto's thyroiditis, geese (diffuse, nodular, Graves-Basedow's disease), tumors (adenoma, papillary carcinoma, follicular carcinoma, medullary carcinoma). Adrenal: cortico-adrenal (hyperplasia / adenoma, carcinoma), medullary-suprarenal (pheochromocytoma, neuroblastoma)

15. Pathology of the nervous system

- Macroscopy, microscopy: Malformations. Meningitis. Cerebral abscess. Primary tumors: astrocytomas, glioblastoma, oligodendroglioma, medulloblastoma, meningioma. Brain metastases.

References:

1. The handout of the course – revised every year
2. 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/

Evaluation - standardized exam:

- Written theory exam 70%
- Practical exam 30%

PHARMACOLOGY

Field of study:	**Medicine**
Study program:	**Medicine**
Course title:	**Pharmacology**
Course coordinator:	**Lecturer Corina Bocsan, MD, PhD**
Department:	**Functional Sciences**
Discipline:	**Pharmacology, Toxicology and Clinical Pharmacology**
Course code:	**MED 3 12 05 EN**

Sem.	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	1	-	28	14	-	58	100	4	Written + practical exam
II		1	1		28	14		33	75	3	Written + practical exam

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

Pre-requisites:
- To know the physiology of signaling by endogenous molecules
- Essential knowledge of microbiology
- Knowledge of physiological mechanisms

General objectives:
General characteristics of drugs, national and international regulation, pharmacokinetics, pharmacodynamics, pharmacoeconomics and pharmacoepidemiology; drugs with role in basic functions of the body; chemotherapy.

Specific objectives:
- Major criteria of efficacy in drug treatment and risk-beneficial analysis
- Basic elements of pharmacokinetic-pharmacodynamic model
- Selection criteria of drugs based on therapeutic objectives
- Basic principles and treatment guidelines in antibiotic therapy, antiviral and other specific drug therapy

Course content:

1. General Pharmacology. General Pharmacokinetics. General Pharmacodynamics. Pharmacovigilance.
2. Neurotransmitters and chemical modulators. Cholinergic autonomic system. Adrenergic autonomic system. Serotonin. Serotonin antagonists. Histamine. Histamine antagonists. Amino acids as mediators. Plasma kinins. Purinergic nervous system (Adenosine and ATP). Eicosanoids (prostaglandins, prostacyclins, tromboxans, leucotrienes). PAF. Endothelial vascular agents.
3. Steroid hormones. Thyroid hormones. Proteic hormones. Diabetes treatment. Oral antidiabetics. Insulins.
4. Chemotherapeutic agents in infectious diseases. Guidelines for antibiotic use. Antibacterial agents. Antiviral agents. Antifungal agents. Antiprotozoar agents.
5. Local and general anesthetics. Nonsteroidal anti-inflammatory drugs, Opioids.

Practical activities:

1. General information about the drug. Sources of information on drugs. ATC classification of drugs. Original and generic medicines
2. Pharmaceutical forms. Classification of pharmaceutical forms according to the state of aggregation
3. Pharmacokinetics. Pharmacokinetic parameters. Importance of knowledge of pharmacokinetic parameters Calculation formulas for pharmacokinetic parameters. Practical applications for the calculation of the main pharmacokinetic parameters
4. Dosage
5. Medical prescription. Exercises for writing typical recipes. Medication history
6. Compliance with treatment (exercises to increase compliance using scenarios for administration of insulin and glucocorticoids)
7. Pharmacovigilance
8. Anti-infectious therapy
9. Treatment of pain. Non-steroidal anti-inflammatory drugs. Opioid analgesics. Local and general anesthetics.

References:

1. Karen Whalen PharmD – Lippincott Illustrated Reviews: *Pharmacology-Seventh*, North American Edition, 2018
2. Katzung BG. – *Basic and Clinical Pharmacology* (14th ed.) Mc Graw Hill 2017
3. Rang HP, Dale MM et al. *Pharmacology* 8th ed., Elsevier Churchill Livingstone, 2015

4. Goodman and Gilamn's *Manual of Pharmacology and Therapeutics*, 13 th ed, Mc Graw Hill Publishing, 2017
5. Colman Rebecca, Somogiy Ron. *The Toronto Notes for Medical Students* 2008
6. Anca Dana Buzoianu – *Farmacologie*, vol I, Ed. Medicală Universitară „Iuliu Haţieganu" Cluj-Napoca, 2017

Evaluation - standardized exam:

- Written exam 70%
- Practical exam 30%

HYGIENE

Field of study: **Medicine**
Study program: **Medicine**
Course title: **Hygiene**
Course coordinator: **Professor Monica Popa, MD, PhD**
Department: **Community Medicine**
Discipline: **Hygiene**
Course code: **MED 3 12 06 EN**

Semester	Course Type	Lectures	Practical activities		Lectures	Practical activities		Individual study	TOTAL	Credit	Evaluation
		hours/week			hours/sem.						
		L	PA	CI	C	PA	CI				
I	Compulsory	1	1	-	14	14	-	32	60	2	Ongoing evaluation
II		2	2	-	28	28	-	69	125	5	Written + practical exam

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

Pre-requisites: -

General objectives:

- Understanding the influence of the environment and environmental agents on human health
- Exposure sources recognition relating to common environmental agents and conditions
- Knowledge and skills in finding and using information about environmental diseases
- Understanding the concept of environmental risk and its application to groups and individuals
- Developing implementation strategies for intervention and environmental manipulation

Specific objectives:

- Identification of environmental current hazards and their correct classification (physical, chemical, biological, irradiation hazards)
- A critical approach upon the complex relationship between environmental pollution and the health of those exposed to establish a possible link exposure - health effect.

- Specific skills to elicit an appropriately detailed environmental exposure history
- Identification of recommendations at individual/ population level to minimize the risk upon health
- Solid knowledge of human nutrition (in terms of diet, food and human health)
- Selection and application of proper techniques / methods used in hygiene (anthropometric measurements, questionnaires, statistical analyses, laboratory methods)
- Synthesis and interpretation of the nutritional status data for population groups and sub-groups.
- Identification of the most proper preventive / interventional strategies for specific nutritional problems in a population.

Course content:

I. Environmental hygiene

1. The basic requirements of a healthy environment. The relationship between global ecological change and health.
2. The basic characteristics of chemical, physical, biological, mechanical and psychosocial hazards.
3. The basic mechanisms through which environmental pollutants/contaminants act upon human health.
4. Basic method in the assessment and control of physical, chemical, biological hazards.
5. Data collection concerning the recognition, assessment, management and control of environmental hazards.
6. Knowledge and application of preventive / interventional strategies in communities at risk or potentially affected.
7. Air/water/soil pollution related to human health: major sources of environmental pollution, quality criteria for environmental factors & their importance as determinants of health.
8. The acute/chronic health effects of air pollution.
9. Water quality, sanitation and health. The nature and extent of waterborne diseases.
10. Human settlements as ecosystems: health problems related to urbanization, housing and health, indoor pollution - exposure and control, waste management.

II. Food hygiene and nutrition

1. Basis knowledge in interpretation and application of nutritive demands in healthy humans and food requirements at different population groups. The health impacts of nutritional deficiencies.
2. Demonstration of nutrients' changes during different stages of life cycle.

3. Adequate selection and application of nutritional status evaluation methods for early identification of nutritional problems in target populations.
4. Knowledge of the factors that are limiting the foodstuffs 'availability, quality & security.
5. Identification of chemical/biological hazards given by the consumption of contaminated foodstuffs or due to improper cooking techniques, and the determination of health risks for consumers. Food poisoning and foodborne infections.
6. The determination of adequate preventive/interventional measures, consecutive to simple risk assessments in collectivities. The impact of HACCP system on food safety.
7. Demonstrating ability skills for carrying out and dissemination of educational measures in the domain of food and nutrition at target populations

III. Scholar hygiene

1. Knowledge and application of growth and physical development investigation methods during childhood and adolescence at the level of primary health assistance.
2. Analysis and interpretation of physical development data related to scholar ergonomy.
3. Demonstrating ability skills in organization and development of medical control of physical development in scholar collectivities.

Practical activities:

1. Hygiene conditions in units with food profile. 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 nutrition: nutritional and hygiene aspects, risks to human health, case studies
4. Meat, fish and eggs in human nutrition: nutritional and hygienic aspects, risks to human health, case studies
5. Cereals, fats and canned foods in human nutrition: nutritional and hygiene aspects, risks on human health, case studies
6. Methods of evaluating food consumption in medical practice
7. Practical notions of nutrition in different population groups
8. Risk analysis at critical control points (HACCP) in medical-sanitary units. Waters used in medical-sanitary units.
9. Surveillance and control of microbial contamination of air and surfaces in sanitary units
10. Antiseptic and disinfectant substances used to ensure hygienic and sanitary conditions

11. Residues from medical activity
12. Hygiene of medical personnel
13. Internal Pollution - "Sick Building Syndrome"
14. Fundamental conditions of hygiene of the living space
15. Environmental history
16. Chemical indicators of water potability and health risk
17. Assessment of physical development - component of the examination of the balance of health status in children and young people. Interpretation of physical development data
18. Prevention of health risks for young people
19. Health education in schools.

References:

1. Popa Monica – *Environmental Hygiene - Textbook for Medical Students*, Ed. Med. Univ. „Iuliu Haţieganu" Cluj-Napoca, 2016.
2. Popa Monica – *Food Hygiene - Textbook for Medical Students*, Ed. Med. Univ. „Iuliu Haţieganu" Cluj-Napoca, 2016.
3. Popa Monica – *Environmental Hygiene – Practical Guide for Medical Students*, Ed. Med. Univ. „Iuliu Haţieganu" Cluj-Napoca, 2018
4. Năsui Bogdana - *Food Hygiene and Nutrition – Practical Guide for Medical Students*, Editura Medicala Universitara „Iuliu Haţieganu", 2015,
5. D. Bender – *Introduction to Nutrition and Metabolism* CRC Press, 2008
6. W. Ott, A. Steinemann, L. Wallace - *Exposure analysis*, CRC Press, 2006

Evaluation:

- Written exam 60 %
- Practical exam 40 %

BASIC PRACTICAL SKILLS. INTERPROFESSIONAL EDUCATION

Field of study:	**Medicine**
Study program:	**Medicine**
Course title:	**Basic practical skills**
Course coordinator:	**Assoc. Prof. Dr. Gherman Claudia, MD, PhD**
Department:	**Medical Education**
Discipline:	**Skills – Humanistic Sciences**
Course code:	**MED 3 1 07 EN**

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	-	35	63	2	Verification

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

Pre-requisite: -

General objectives:

The aim of this course is learning and exercising advanced clinical labours 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 firs 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

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. *OSCE Stations for Medical Finals*. Adam Feather, Ashling Lillis, Tony Joy, John S P. Lumle, Pastest, 2012.
2. *OSCE Cases with Mark Schemes*. Tamara North, Dr., Jeremy F. Lynch, Aneesha Verma, Anshan Publishers, 2012.
3. *Surgery, OSCE and Data Interpretation*. Nadeem Nadeem, Holly Holly, Nadeem Hasan, Holly Sitsapesan Taylor & Francis Group, 29 mar. 2013.
4. Boet S, Granry JC, Savoldelli G. *La simulation en santé - De la théorie à la pratique*. Ed. Springer-Verlag Paris, 2013.
5. 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 100%

CLINICAL MICROBIOLOGY

Field of study:	**Medicine**
Study program:	**Medicine**
Course title:	**Clinical Microbiology**
Course coordinator:	**Lecturer Carmen Costache, MD, PhD**
Department:	**Molecular Medicine**
Discipline:	**Microbiology**
Course code:	**MED 3 2 08 EN**

Semester	Course type	Lectures	Practical activities		Lectures	Practical activities		Individual study	TOTAL	Credits	Evaluation
		hours/week			hours/semester						
		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: Microbiology – 2nd year

General objectives:

- Acquiring the basic notions of parasitology and medical mycology
- Study of parasites and fungi and their different properties in relation with the human organism.
- Knowledge of parasitic and fungal genuses and their importance as etiological agents of different infectious clinical entities, with emphasis on their pathogenic factors.

Specific objectives:

- Assimilation of basic knowledge of parasitology and medical mycology
- Knowledge of aetiology, pathogenesis and laboratory diagnosis of infections caused by parasites and fungi
- Applying these concepts in the basic fields of Medicine: the classic and molecular diagnosis of infections produced by microorganisms, medical research and epidemiology of infections.
- Knowing the methods and techniques used to detect and identify parasites and fungi
- Preparing students to perform minimum laboratory techniques for a general medical practitioner.

Course content:

1. 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 (2h).
2. 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 (2 h).
3. Flatworms: *Fasciola hepatica, Hymenolepis nana, Diphylobotrium latum, Taenia saginata, Taenia solium, Echinococcus granulossus, Echinococcus multilocularis* general characteristics and epidemiology; morphology; human contamination; biological cycle and pathogenesis; produced infections (clinical aspects); etiological diagnosis; treatment; prophylaxis (2 h).
4. Intestinal protozoa: *Giardia intestinalis, Entamoeba hystolitica, Cryptosporidium, Isospora belli* - general characteristics and epidemiology; morphology; human contamination; biological cycle and pathogenesis; produced infections (clinical aspects); etiological diagnosis; treatment; prophylaxis (2 h).
5. 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 (2 h).
6. 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* (2 h).
7. Mycology: general characteristics, morphology. Clinic aspects of fungal infections and antifungal therapy*: Aspergillus, Mucormycosis, dermatophytes* (2 h).

Practical activities:

1. Nemathelminthes: *Ascaris lumbricoides, Trichuris trichura, Enterobius vermicularis*
- general characteristics
- morphology of adult worms, eggs

2. Nemathelminthes: *Trichinella spiralis, Ancylostoma duodenalis, Strongyloides stercoralis*
- general characteristics

- morphology of adult worms, eggs, larvae

3. Plathelmints: *Fasciola hepatica, Hymenolepis nana, Diphyliobotrium latum*

- general characteristics
- morphology of adult worms, eggs

4. Plathelmints: *Tapeworm, Tapeworm solium, Echinococcus granulosus, Echinococcus multilocularis*

- morphology of adult worms, eggs, larvae

5. Laboratory diagnosis in parasitosis produced by protozoa *Giardia, Blastocystic hominis, Cryptosporium, Trichomonas vaginalis, Toxoplasma gondii*

6. Laboratory diagnosis of *Candida, Cryptococcus, Pneumocystis jiroveci* fungal infections

7. Laboratory diagnosis of infections caused by *Aspergillus, Mucoral, dermatophytic fungi.*

References:

1. Karen C. Carroll, Janet S. Butel, Stephen A. Morse - *Jawetz, Melnik Adelberg's Medical Microbiology* – 27th edition, McGraw-Hill Profeşional Ed., 2016 ISBN 978-0071824989
2. Carmen Costache, Ioana Alina Colosi – *Microbiologie clinică – Parazitologie şi Micologie* - Editura Medicală Universitară "Iuliu Haţieganu", Cluj Napoca, 2018 ISBN 978-973-693-857-3
3. PPP presented to students by the lecturer

Evaluation:

- Written exam 70%
- Practical exam 30%

IMMUNOLOGY

Field of study:	**Medicine**
Study program:	**Medicine**
Course title:	**Immunology**
Course coordinator:	**Prof. Dr. Diana Deleanu, MD, PhD**
Department:	**Functional Sciences**
Discipline:	**Immunology and Allergology**
Course code:	**MED 3 2 09 EN**

Semester	Course Type	Lectures	Practical activities		Lectures	Practical activities		Individual study	TOTAL	Credit	Evaluation
		hours/week			hours/sem.						
		L	PA	CI	L	PA	CI				
II	Compulsory	1	1	-	14	14	-	8	36	2	Verification

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

Pre-requisites: Histology, Physiology, Microbiology

General objectives:
Knowledge of immune response physiology.
Knowledge of pathological mechanisms of immune mediated diseases.
Knowledge of basic notions regarding immune response modulation through therapeutic interventions.

Specific objectives:
Ability of proper use of specialty terms.
Knowledge of immune cells and their functions. Mechanisms of immune responses. Knowledge of immune response components: the complement system, cytokines, adhesion molecules, receptors, immunoglobulin.
Study of immune defense mechanisms.
Knowledge of methods of evaluation of immune response. Ability to recommend, explain and interpret immunological laboratory tests.
Understand aspects regarding immune related pathology and treatment options.

Course content:
Introductive notions in Immunology. History of Immunology. Innate immune response. Acquired immune response. Immune organs and immune cells. Cellular cooperation. Immune check-points. Major histo-compatibility complex.

Antigens. Antibodies. The Complement system.
Cytokines. Chemokines. Immune receptors. Cell adhesion molecules. Apoptosis. Hypersensitivities.
Autoimmunity.
Transplant immunology. Tumor immunology.
Immunodeficiency.
Immunotherapy.

Practical activities:
1. Knowledge of the elements of the immune system. In vitro investigation methods (ELISA, FACS, immunohistochemistry, etc.)
2. Knowledge of the elements of the immune system. Techniques (including MoAb)
3. Knowledge of the modalities of immunological diagnosis. Immune investigations and their interpretation
4. Knowledge of the modalities of immunological diagnosis. Cytokines, adhesion molecules, complement, Ab, AutoAb
5. Knowledge of the modalities of immunological diagnosis. In vivo investigations (skin testing)
6. Knowledge of the modalities of immunological diagnosis. Immune investigations and their interpretation. In vivo investigations. Case presentations
7. Immunodeficiencies - case presentations. Corroboration of information from the clinical examination with the patient's history and relevant laboratory elements for dissimilar states
8. Immunodeficiencies - case presentations. Therapies and problems raised by replacement treatments
9. Hypersensitivity - case presentations. Immunological and allergic evaluation: Total IgE, specific IgE, Immunogram
10. Autoimmune diseases - case presentations; types of autoantibodies, identification in the laboratory of dissimilar states
11. Transplant - conditions to perform (compatibility, immunosuppression). Case presentations
12. Cancers - markers, monitoring, immunotherapy. Case presentations
13. Immunomodulation / immunotherapy - case presentations. Biological therapies (IGIV, Monoclonal antibodies, vaccines), cases of neoplasms, allergies with immunotherapy, immunodeficiencies with IGIV are discussed
14. Immunomodulation / immunotherapy - case presentations. Tolerance induction therapy.

References:

Cristea V, Monica Crișan (sub red.). *Curs de Imunologie – Facultatea de Medicină.* Ed a-IVa, Ed. Medicală Universitară „Iuliu Haţieganu”, Cluj-Napoca, 2011,2013

Roitt's. *Essential Immunology*. 2014

Abbas *Basic Immunology*. 2015

Evaluation:

- Written exam 66%
- Practical exam 34%

ROMANIAN LANGUAGE

Study field:	**Medicine**
Study program:	**Medicine**
Course title:	**Romanian language**
Course coordinator:	**Assist. Anca Ursa, PhD**
	Lecturer Alina Andreica, PhD
	Assist. Ştefana Duncea, PhD
	Adriana Stan, PhD
	Assist. Denisa Tout, PhD student
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	-	2	44	-	Written+oral+ongoing assessment
II			3			42		2	44		

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

Pre-requisites: -

General objectives:

- integrating the four communication skills (listening, reading, speaking, writing);
- developing skills in academic and medical language;
- developing team-work skills using pair and group-work;
- interdisciplinarity: raising ethical awareness of students' future profession.

Specific objectives:

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

- take part in discussions on diets;
- describe symptoms;
- speak about medicines;
- give explanations on medical conditions;
- take a medical history.

Course contents:

1. Diseases, wounds, pains. Pronouns in the Accusative and in the Dative cases. Verbs with reflexive pronouns in the Dative case. The dialogue

between doctor, patient and family members. Emails in the doctor-patient interaction.

2. At the hospital: places and people. Prepositions for the Genitive case. Verbs in the imperfect tense. The monologue – describing and comparing. The request form.
3. History taking. Interrogative and relative pronouns. The medical interview. Taking notes during history taking.
4. The clinical examination. Verbs in the imperative mood. Giving explanations. The examination sheet.
5. Paraclinical investigations and history taking. Derivative adjectives. Prepositions. Giving explanations and making hypotheses. The ultrasound exam fact sheet.
6. Internal medicine: cardiology and pulmonology. The genitive article and the possessive pronouns. Expressing prohibition and obligation. The letter of referral.
7. Internal medicine: gastroenterology and nephrology. Demonstratives. Expressing association and opposition. Dialogue between doctors. Giving advice. The debate. The informal letter with medical advice. The medical report.
8. Internal medicine: rheumatology and orthopaedics. Verbs in the supine mood. Verbs in the past tense of the conditional mood. Teacher-student dialogue. The argumentation.
9. Ophthalmology and ENT. Verbs in the gerund mood. Adverbial phrases. Making a case presentation. Expressing permission. The medical blog.
10. Dermatology and allergology. The negative pronouns. The order in time. Expressing apologies. Case reports.
11. Neurology and psychiatry. Verbs in the passive voice. Giving information on a mental act/an ability. The synthetic medical record.
12. The Romanian patient: intercultural aspects. The doctor-patient interaction in the ER. Making a monologue: fighting clichés and labels. Writing based on pictures.

References:

1. 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.
2. Biriș, G*., Limbaj medical. Anatomie. Curs pentru studenții străini din anul pregătitor*. București, Editura Universității din București, 2015.
3. Castelotti, V., Moore, D., *Representations sociales des langues et enseignements, Guide linguistique pour l'élaboration des politiques linguistiques éducatives en Europe - De la diversité linguistique à*

l'éducation plurilingue. Etude de référence, Conseil de l'Europe, Strasbourg, 2002.
4. Common European framework of reference for languages: Learning, teaching, assessment. Companion Volume with new descriptors. Provisional edition, September 2017.
5. *Caiet de abilități practice pentru studenții Facultății de Medicină UMF „Iuliu Haţieganu" Cluj-Napoca*. Coordonator Valentin Muntean. Cluj-Napoca, Editura Medicală Universitară „Iuliu Haţieganu", 2012.
6. 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.
7. *Larousse Dicţionar de Medicină*. Bucureşti, Editura Univers Enciclopedic, 1998.
8. McCarter, S., *Oxford English for Careers. Medicine*, 1 and 2. Oxford University Press, 2009, 2010.
9. Mandelbrojt-Sweeney, M., *Limba română pentru medici şi asistente*. Iaşi, Ed. Polirom, 2006.
10. Pavel, E., *English for Medical Students.* Cluj-Napoca, Casa Cărții de știință, 2016.
11. Platon, E., Sonea, I., Vîlcu, D. *Manual de limba română ca limbă străină (RLS). A1-A2*. Cluj-Napoca, Casa Cărţii de Ştiinţă, 2012.

Evaluation:

- Written test 33%
- Oral assessment 33%
- Students' activity during the practical course 33%

4th YEAR

INTERNAL MEDICINE – GASTROENTEROLOGY

Field of study:	**Medicine**
Study program:	**Medicine**
Course title:	**Internal Medicine**
Course coordinator:	**Lecturer Ofelia Mosteanu, MD, PhD**
Department:	**Internal Medicine**
Discipline:	**Medical Clinic III**
Course code:	**MED 4 1 01 EN**

Semester	Courses type	Lectures	Practical activities		Lectures	Practical activities		Individual study	TOTAL	Credit	Evaluation
		hours/week			hours/semester						
		L	PA	CI	L	PA	CI				
I	Compulsory	6	-	15	42	-	106	102	250	9	Written+ practical exam

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

Pre-requisites:

- Biochemistry, Physiology, Pathophysiology, General Morphopathology, Semiology III
- Semiological approach of the clinical case (anamnesis, eg objective, synthesis of clinical data, positive and differential clinical diagnosis), formulation of a clinical diagnosis of stage
- Interpretation of the results of the complementary examinations
- Principles and rules of therapeutic prescription. Criteria for monitoring the evolution under treatment.

General objectives:

- To provide theoretical support and cultivate the skills, aptitudes and attitudes essential to the practice of medicine, in the field of the pathology of internal organs**.**

Specific objectives:

- To have the approach of the patient with a pathology of the digestive system:

  • notions of epidemiology, etiopathogeny, pathology, positive diagnosis, differential diagnosis, complications, evolution, prognosis and individualized medical therapy

- skills and abilities that students must have after the crossover of the module of internal medicine and gastroenterology and learning the concepts of digestive and metabolic pathology:
  • The practice of mandatory steps, leading to the formulation of the diagnosis: history, clinical examination, interpretation of clinical data (formulation of the clinical diagnosis), indication and interpretation of the explorations, motivation and formulation of the final diagnosis;
  • Practical realization of treatment plan, knowledge of treatment monitoring criteria;
  • Communication skills with the patient.

Course content:
Chapters:
1. Pathology of the digestive tract
2. Hepatic and biliary pathology
3. Pathology of the pancreas
4. Metabolic pathology (porphyria)

Sections:
1. Pathology of the digestive tract: Pathology of the esophagus. Gastric and duodenal ulcer. Pathology of the operated stomach. Zollinger-Ellison syndrome. Benign and malignant gastric tumors. Malabsorption syndrome. Enteropathies. Inflammatory intestinal diseases. Hemorrhagic rectocolitis. Crohn's disease. Benign and malignant tumors of the colon. Functional gastrointestinal pathology (functional dyspepsia, constipation, irritable bowel syndrome).
2. Hepatic and biliary pathology: Hepatobiliary pathology syndromes (jaundice, cholestasis, ascites, portal hypertension, hepato-portal encephalopathy, gastrointestinal bleeding of oesophageal variceal origin). Diseases of the cholecyst and the biliary tree. Chronic hepatitis (etiopathogenesis, diagnosis, therapeutic approach). Chronic viral hepatitis. Autoimmune hepatitis. Chronic hepatopathies of toxic and / or metabolic etiology. Ethanolic hepatopathies. Non-alcoholic steatohepatitis. Hepatic cirrhosis (etiopathogenesis, diagnosis, complications, therapeutic approach, particular etiological forms: primary biliary cirrhosis, cirrhosis secondary to genetic alterations in the metabolism of copper and iron). Biliary and hepatic tumor pathology
3. Pancreas: Acute pancreatitis. Chronic pancreatitis Tumor pathology of the exocrine and endocrine pancreas.
4. Metabolic pathology: Porphyria.

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:

1. Possibilities of exploration of the esophagus
2. Diagnostic and therapeutic superior digestive endosocopy
3. Exploration of the small intestine. Videocapsula. Spiral enteroscopy
4. Diagnostic and therapeutic inferior digestive endosocopy
5. Diagnostic and interventional abdominal ultrasound
6. Diagnostic and therapeutic echoendoscopy
7. ERCP - diagnostic and therapeutic cholangiopancreatography.

References:

1. Chen YA, Tran C. *Toronto Notes 2016*. Ed. Toronto Notes for Medical Students 2016.
2. Tantau M, Sparchez Z, Seicean A. *Gastroenterologie. Hepatologie. Manual pentru studenti*. Ed. Medicală Universitară "Iuliu Haţieganu" Cluj-Napoca, 2017
3. Longo DL (eds). *Harrison's Principles of Internal Medicine*, editia 19, Ed. McGraw-Hill 2015.
4. Feldman M, Friedam SL, Sleisengen MH. Sleisengers and Fordtrans *Gastrointestinal and Liver Diseases*. 7th Edition. Elsevier Science, 2002
5. Podolsky DK (eds). YAMADA'S *Textbook of Gastroenterologgy*. 6th Edition. Wiley Backwel, 2016
6. *Ghiduri ale societatilor de specialitate* (nationale/internationale)

Evaluation:

- Written exam 50%
- Practical exam 50%

CLINICAL PHARMACOLOGY

Field of study:	**Medicine**
Study program:	**Medicine**
Course title:	**Clinical Pharmacology**
Course coordinator:	**Lecturer Corina Bocșan, MD, PhD**
Department:	**Functional Sciences**
Discipline:	**Pharmacology, Toxicology and Clinical Pharmacology**
Course code:	**MED 4 1 02 EN**

Semester	Courses type	Lectures	Practical activities		Lectures	Practical activities		Individual study	TOTAL	Credits	Evaluation
		hours/week			hours/sem.						
		L	PA	CI	L	PA	CI				
I	Compulsory	1,5	1	-	21	14	-	40	75	3	Written + practical exam

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

Pre-requisites:

- General pharmacology 3rd year, Physiology, Pathophysiology, Methodology of scientific research
- Analysis of pharmacokinetic parameters, correct writing of therapeutic prescriptions, critical analysis and interpretation of clinical studies.

General objectives:

- the information core consists in supplement of general pharmacology knowledge (basic) with the systems and special pharmacology.
- the students from medicine must have the ability of learned drugs, must be capable to apply the knowledge in clinical practice, thinking in clinical context according to all the criteria that they have in choosing one drug.

Specific objectives:

To know some basic principles in clinical pharmacology

- The pharmacokinetic principles and how to monitor pharmacological treatment
- To prevent and to manage the adverse reactions induced by drugs and drugs interactions
- Some pharmacogenetics aspects and the variability of therapeutic response
- Age and sex as variables of therapeutic response

- The specific aspects regarding the prescription in elderly, in pediatric patients, in pregnancy and during lactation
- The specific aspects regarding the prescription in patients with hepatic and renal failure
- The principles of treatment in acute intoxications
- To prevent the prescription errors

Course content:

1. Introduction in clinical pharmacology. Clinical trials. Inform consent in clinical trials.
2. Drugs used in gastrointestinal diseases
    - Drugs used in peptic ulcers. Antisecretory drugs. Drugs that protect gastric mucosa. Therapy of Helicobacter pylori infection. Recommendations for peptic ulcer treatment
    - Prokinetic drugs.
    - Drugs used in nausea and vomiting
    - Antispasmodic drugs.
    - Antidiarrheal agents
    - Constipation therapy
    - Pancreatic substituents
    - Treatment of inflammatory bowel diseases
    - Treatment of gall bladder diseases
    - Therapy of hepatic diseases. Antiviral drugs used in chronic viral hepatitis
3. Drugs used in haematological diseases
    - Agents used in anemias. Hematopoietic growth factors
    - Drugs used in disorders of coagulation. Anticoagulant drugs. Antiplatelet and fibrinolytic drugs. Haemostatic and procoagulant drugs.
4. Metabolic therapy.
    - Agents used in hyperlipidemia.
    - Therapy of obesity
5. Diuretics.

Practical activities:

1. Anti-ulcer therapy
2. Anti-vomiting therapy. Antidiarrheal therapy. Treatment of constipation
3. Treatment of inflammatory bowel disease. Treatment of chronic viral hepatitis
4. Hypolipemic therapy. Treatment of obesity
5. Diuretic drugs
6. Treatment of anemia

7. Anticoagulant therapy.

References:

1. Karen Whalen PharmD – Lippincott *Illustrated Reviews: Pharmacology*- Seventh, North American Edition, 2018
2. Katzung BG. – *Basic and Clinical Pharmacology* (14th ed) Mc Graw Hill 2017
3. Rang HP, Dale MM et al. *Pharmacology* 8th ed., Elsevier Churchill Livingstone, 2015
4. Goodman and Gilamn's *Manual of Pharmacology and Therapeutics*, 13th ed., Mc Graw Hill Publishing, 2017
5. Colman Rebecca, Somogiy Ron. *The Toronto Notes for Medical Students* 2008
6. Anca Dana Buzoianu – *Farmacologie. Curs pentru studenții anului IV*, Ed. Medicală Universitară „Iuliu Hațieganu" Cluj-Napoca, 2015

Evaluation:

- Written exam 70%
- Practical exam 30%

NEPHROLOGY

Field of study:	**Medicine**
Study program:	**Medicine**
Course title:	**Nephrology**
Course coordinator:	**Lecturer Moldovan Diana, MD, PhD**
	Prof. Kacso Ina Maria, MD, PhD
Department :	**Internal Medicine**
Discipline :	**Nephrology**
Course code :	**MED 4 1 03 EN**

Semester	Type of the course	Lectures	Practical activities		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: Renal physiology, Renal morphopatology

General objectives:
Diagnostic and therapeutic approach of renal pathologies.

Specific objectives:
Providing basic notions on approaches of renal patients, as well as diagnostic procedures (renal biopsy included) and specific treatment options including renal replacement therapy (hemodialysis, peritoneal dialysis, renal transplantation).

Course / Practical activities content:
1.Glomerulopathies
- Introduction
- 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. Water, electrolyte and acid-base disturbances.

References:

1. Kacso Ina Maria, *Injuria renală acută de la teorie la practică*, Editura Casa Cărții de Știință Cluj, 2016
2. Kacso Ina Maria, Moldovan Diana, Potra Alina, Rusu Crina, Spânu Costel, Spănu Silvia, Vlăduțiu Dan Ștefan. *Nefrologie*, Editura Medical Universitar Medicală « Iuliu Hațieganu » Cluj-Napoca
3. Harrison, *Medicina internă*, Ediţia XVIII

Evaluation:

- Written exam 60 %
- Practical exam 40 %

RADIOLOGY AND MEDICAL IMAGING

- RADIOLOGY. MUSCULOSKELETAL AND GENITOURINARY SYSTEMS; EMERGENCIES.
- MEDICAL IMAGING

A. RADIOLOGY. LOCOMOTOR, EXCRETORY AND EMERGENCY APPARATUS

Field of study:	**Medicine**
Study program:	**Medicine**
Course title:	**Radiology. Musculoskeletal and genitourinary systems; emergencies**
Course coordinator:	**Prof. Dudea Sorin, MD, PhD,** **Lecturer Ciurea Anca, MD, PhD**
Department:	**Surgical Specialties**
Discipline:	**Radiology**
Course code:	**MED 4 1 04 EN**

Semester	Courses type	Lectures	Practical activities		Lectures	Practical activities		Individual study	TOTAL	Credits	Evaluation
		hours/week			hours/sem.						
		L	PA	CI	L	PA	CI				
II	Compulsory	1,5	1,5	-	21	21	-	42	84	5*	Written + oral exam

L = lectures; PA = practical activities; CI = clinical internship
*with Medical Imaging

Pre-requisites:
Establishing clinical diagnosis based on objective examination and interpretation of information obtained through laboratory examinations

General objectives:

- To learn the physical background of conventional and imaging techniques (X-ray physics, physics of ultrasound, MRI physics), biological effects of radiation and the principles of professional and general radiation protection.
- To acquire the basic notions of semiology that apply to each examination technique (conventional and imaging) with the explanation of the basic concepts of image acquisition.
- To know the indications and contraindications of each examination technique as well as the algorithms of examination in order to reduce

exposure to radiation. To correlate common and/or specific abnormal imaging findings with organ pathology and disease.

Specific objectives:

- Recognition of the imaging method
- Recognition of the normal anatomical elements and of the variants
- Recognition of the semiology elements and their signification
- Recognition of the pathological findings
- Discussion of the positive and differential diagnosis
- Elaborating a radiological report.

Course content:

1. **Elementary notions of physics and technique:** The structure of the atom; Electromagnetic and corpuscular radiation: classification, properties; X-rays: mechanisms of production, properties, interaction with matter; X-ray tube: structure of a radiology device, conventional radiological examination techniques (fluoroscopy, radiography, special techniques and angiography).
2. **Elements of physics and technique of imaging equipment:** conventional radiological image (radiography and fluoroscopy), digital image; Ultrasound: physics, basic notions; Computed tomography: physics, basic notions; Magnetic resonance imaging: physics, basic notions; the examination plan of a radiological image.
3. **Radiobiology:** Natural and artificial irradiation**;** Biological effects of ionizing radiations; Acute irradiation disease: general notions.
4. **Radioprotection notions:** Notions of radiation measurement; Useful and unnecessary irradiation; Main nations of general and professional radioprotection; legislation.
5. **Genitourinary system:** Examination technique (KUB, ultrasound, CT). Normal radiological anatomy. Syndromes: small kidney, large kidney, renal mass, obstruction, stones, malformation.
6. **The breast:** imaging techniques, main disease, BIRADS, interventional.
7. **The retroperitoneum and pelvis:** imaging of the adrenals, lymph nodes, bladder, genitals.
8. **Musculoskeletal system:** examination technique (radiography, ultrasound, CT, MR); Radio-imaging anatomy; Elementary semiology of the musculoskeletal system pathology.
9. Elementary notions of **infectious** and **tumor** disease of the musculoskeletal system**.**
10. Elementary notions of the **inflammatory joint disease**. **Degenerative processes** of the musculoskeletal system**.**
11. **Imaging in pediatrics:** musculoskeletal, genitourinary and digestive tract specific disease**.**

12. **Emergencies**: imaging of traumatic and nontraumatic emergencies of the musculoskeletal and genitourinary systems.
13. Rehearsal and integration through algorithms of the indications of the imaging techniques.

Practical activities:

1. Basic notions of physics and radiological technique - definitions, terms, elements of semiology
2. Excretory apparatus - Examination techniques (IVU, ultrasound, scanner, MRI). Normal radiological anatomy. Syndromes: small kidney, large kidney, renal mass, obstruction, lithiasis, malformations.
3. Imaging exploration in the pathology of retroperitoneal and small pelvis organs (adrenal glands, lymphadenopathies). Radiological exploration of the bladder. Radiological exploration of the internal genital organs
4. Musculoskeletal system - examination techniques (X-ray, ultrasound, CT, MRI). Radiologic anatomy, basic radiological semiology in the pathology of the musculoskeletal system
5. Basic radiological images in infectious, inflammatory, degenerative and tumoral pathology of the locomotor system. Child-specific locomotor pathology (rickets, DDS)
6. Basic radiological aspects of medico-surgical emergencies (abdomen and pelvis: trauma, acute abdomen, extremities: trauma, vascular emergencies, herniated disc, foreign bodies).

References:

1. David Sutton – *Textbook of radiology and imaging*, 7th Ed, Elsevier, 2014.
2. Dudea SM (ed) - *Radiologie* – Vol. I – Ed. Med. Univ. Iuliu Haţieganu, Cluj-Napoca, 2017.

Evaluation:

- Written exam 50%
- Practical exam 50%

B. MEDICAL IMAGING

Field of study: **Medicine**
Study Program: **Medicine**
Course title: **Medical Imaging –Digestive tract**
Course coordinator: **Lecturer Mihai Socaciu, MD, PhD**
Department: **Surgical Specialties**
Discipline: **Medical Imaging**
Course code: **MED 4 1 04 EN**

Semester	Course Type	Lectures	Practical activities		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 Radiology

Pre-requisites:
- Useful prerequisites are knowledge in Medical Semiology and General Morphopathology
- Analysis of the results of different imaging techniques, knowledge of therapeutic prescriptions for taught pathology, critical analysis and interpretation of clinical studies.

General objectives:
At the end of the course the students will be able to correctly achieve the therapeutic management of the patients with digestive pathology in relation to the taught techniques.

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 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. Chen MYM, Pope TL, Ott DJ. *Basic Radiology*, Second Edition: McGraw-Hill Education; 2010.
2. Mettler FA. *Essentials of Radiology*: Elsevier Saunders; 2005.
3. Gunderman RB. *Essential Radiology: Clinical Presentation Pathophysiology Imaging*: Theme; 2014.

4. Brant WE, Helms CA. *Fundamentals of Diagnostic Radiology*: Wolters Kluwer/Lippincott Williams & Wilkins; 2012.
5. Harisinghani MG, Mueller PR. *Teaching Atlas of Abdominal Imaging:* Theme; 2011.
6. Block B, Telger TC. *Abdominal Ultrasound: Step by Step*: Theme; 2015.
7. Prokop M, Galanski M, Van der Molen A. *Spiral and Multislice Computed Tomography of the Body*: Theme; 2003.
8. Sutton D (editor). *Textbook of Radiology and Imaging*. Vol 1. 7th Edition. Churchill Livingstone 2003.
9. European Association of Nuclear Medicine www.eanm.org/guidelines

Evaluation:

- Written exam 50%
- Practical exam 50%

HAEMATOLOGY

Field of study:	**Medicine**
Study program:	**Medicine**
Course title:	**Haematology**
Course coordinator:	**Lecturer Tunde Torok, MD, PhD**
	Lecturer Ciprian Tomuleasa, MD, PhD
Department:	**Oncology**
Discipline:	**Haematology**
Course code:	**MED 4 1 05 EN**

Semester	Courses Type	Lectures	Practical activities		Lectures	Practical activities		Individual study	TOTAL	Credit	Evaluation
		hours/week			hours/sem.						
		L	PA	Cl	L	PA	Cl				
I	Compulsory	1,5	1,5	-	21	21	-	33	75	3	Written + practical exam

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

Pre-requisites:

- Physiology, Genetics, Cell Biology
- carrying out the anamnesis and the local and general clinical examination
- analysis and interpretation in context of the lab tests
- analysis and interpretation in context of the particularities of the clinical examination and the lab tests.

General objectives:

- Knowing the diagnostic approach in the main hematological syndromes: anemia, bleeding disorders, disorders of leukocytes, disorders of the spleen, etc.
- Knowing the diagnostic approach and principles of treatment in the main hematological disorders

Specific objectives:

- Diagnostic approach of a patient with anemia.
- Diagnostic approach to the bleeding disorders
- Diagnostic approach to the leukocytes disorders
- Knowing the diagnostic approach and principles of treatment in the main hematological disorders
- Knowing the indications of bone marrow biopsy, lymph node biopsy, bone marrow aspiration, etc.
- Diagnostic approach of the lymph node and spleen disorders.

Course content:

Course 1 – 3 h: Normal Hematopoiesis and its exploration

Course 2 – 3 h: The anemias. Classification, pathophysiology, diagnosis, management.

Iron deficiency anemia. Anemia of chronic disorders. Megaloblastic anemias: vitamin B 12 and folic acid deficiency. The congenital hemolytic anemias: hereditary spherocytosis, glucose-6-phosphate dehydrogenase and pyruvat-kinase deficiency, thalasemias, sikle cell anemia. The acquired hemolitic anemias: autoimmune hemolytic anemias / warm and cold autoantibodies / paroxismal nocturnal hemoglobinuria

Course 3 – 3 h: Acute leukemias , Aplastic anemia, Myelodysplastic syndromes, Stem cell transplantation / bone marrow, peripheral stem cells; ethiopathogenesis, classification, diagnosis, prognostic factors and treatment

Course 4 – 3 h: Chronic Myeloproliferative Diseases: Chronic Myeloid Leukemia, Polycythemia vera, Primary Myelofibrosis: ethiopathogenesis, clinical presentation, prognostic, complications, treatment

Course 5 – 3 h: Chronic lymphoid leukemias: classification, ethiopathogenesis, diagnosis, prognostic factors, treatment

Malignant monoclonal gammopathies: Pathophysiology, pathogenesis, classification, criteria of diagnosis, prognostic factors, treatment

Course 6 – 3 h: Malignant lymphomas. Classification, pathogenesis, histopathology, staging, prognosis and treatment: Hodgkin's disease, Non Hodgkin's lymphomas. Blood transfusion. Generalities. Blood grouping, leucocyte and platelet antigens. The use of blood components. Posttransfusional reactions: diagnosis and management

Course 7 – 3 h: Disorders of hemostasis: pathophysiology of hemostasis, exploration of hemostasis, classification of bleeding disorders, principles of treatment

Platelet disorders / quantitative and qualitative – congenital and acquired

References:

1. Andrei Cucuianu, Mihnea Zdrenghea, Steve Johnson, Mariana Patiu, Calin Coldea, Bogdan Fetica – *Manual of Clinical Hematology*. Ed. Casa Cartii de Stiinta, Cluj Napoca, 2011
2. M. Wintrobe - *Clinical Hematology*, Lea & Feboiger, Philadelphia, London, 2016.

3. Andrei Cucuianu, Mihnea Zdrenghea, Steve Johnson, Mariana Patiu, Calin Coldea, Bogdan Fetica – *Manual of Clinical Hematology*. Ed. Casa Cartii de Stiinta, Cluj Napoca, 2008

Evaluation:

- Written exam 70%
- Practical exam 30%

CLINICAL BIOCHEMISTRY

Field of study:	**Medicine**
Study program:	**Medicine**
Course title:	**Clinical biochemistry**
Course coordinator:	**Prof. Alexandra Crăciun, MD, PhD**
Departament:	**Molecular Sciences**
Discipline:	**Medical Biochemistry**
Course code:	**MED 4 1 06 EN**

Sem.	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	1	-	14	7	-	29	50	2	Written+ practical exam

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

Pre-requisites:

- basics of Descriptive and Metabolic Biochemistry, Physiology, Pathophysiology, Methodology of medical scientific research
- the principle of analytical methods used in the clinical laboratory.

General objectives:

- Developing skills in applying and interpreting the rational logic of laboratory tests in conjunction with the clinical context.

Specific objectives:

- Knowledge of preanalitic factors (related to the patient, harvesting, transport of samples) that may affect laboratory results
- Understanding the pathogenetic mechanisms that cause changes in laboratory parameters in various diseases
- Acquiring the ability to indicate laboratory tests and to justify the indications from a clinical context
- Acquiring the ability to perform an analysis.

Course content:

1. Plasma proteins-disproteinemia types. Deficiencies of some plasmatic proteins. Diagnostic significance of serum enzyme changes.
2. Laboratory explorations in liver and gastrointestinal pathology.
3. Iron and hemoglobin metabolism. Laboratory explorations in deficiency and iron overload.

4. Laboratory explorations in the metabolism of calcium, phosphorus and magnesium.
5. Lipids and lipoproteins-transport, lipid metabolism laboratory explorations.
6. Primary and secondary dyslipidemia – laboratory diagnosis.
7. The significance of laboratory abnormalities in carbohydrate metabolism and uric acid.
8. Disturbances and laboratory exploring fluid and electrolyte balance and electrolyte.

Practical activities:

1. Clinical laboratory: organization, stages of lab tests, collecting, processing and transport of biological samples, factors that influence the tests results
2. Hemostasis exploration
3. Exploring the acid-basic balance
4. Complete urine examination
5. The importance and correct indication of the lab tests
6. Interpretation of analysis bulletins, discussion of clinical cases: cardiovascular, digestive, liver and osteo-articular pathology
7. Interpretation of analysis bulletins, discussion of clinical cases: imbalances of metabolism of calcium, magnesium, iron, phosphorus.

References:

1. Ioana Brudaşcă. *Biochimie clinică – note de curs şi activităţi practice*. Editura Medicală Universitară Iuliu Haţieganu Cluj Napoca, 2011
2. Bishop M.L, Duben Engelkirk J. L., Fody E.P. *Clinical chemistry. Principles, procedures, correlations* J. B. Lipincott (Eds), Philadelphia, New York, London, Hagerstown, 1992
3. Marshall W. J. *Clinical chemistry* Mosby, London, 1995
4. Gaw A., Cowan R., O'Reilly D., Stewart M., Shepherd J., *Biochimie clinique*, Elsevier 2004
5. http//www.specialtylabs.com/books
6. www.medramo.ac.ma/fmp/docm/bio.pdf

Evaluation:

- Written exam 70%
- Practical exam 30%

UROLOGY

Field of study:	**Medicine**
Study program:	**Medicine**
Course title:	**Urology**
Course coordinator:	**Assoc. Prof. Liviu Ghervan, MD, PhD** **Assoc. Prof. Dr. Nicolae Crisan, MD, PhD** **Lecturer Dan Vasile Stanca, MD, PhD** **Lecturer Bogdan Petrut, MD, PhD**
Department:	**Surgical Specialties**
Discipline:	**Urology**
Course code:	**MED 4 2 08 EN**

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	-	4	14	-	28	41	83	3	Written + practical exam

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

Pre-requisites: -

General objectives:
Knowledge of diagnosis, treatment and monitoring principles for the urologic patient.

Specific objectives:
Knowledge of diagnosis, monitoring of the post-operative urologic patient, recognition of urologic emergencies, performing the emergency maneuvers.

Course content:
1. Introduction. Semiology. Urologic emergencies
2. Prostate adenoma. Prostate cancer
3. Urothelial tumors
4. Urinary lithiasis. Urogenital infections
5. Renal tumors
6. Benign and malignant disease of external genitalia. Malformations of the uro-genital apparatus
7. Renal failure. Renal transplantation. Trauma of the uro-genital apparatus.

Practical activities:

1. Particularities of the anamnesis and the objective examination in urology
2. Particularities of the imaging and endoscopic examinations in urology
3. Particularities of urological surgeries
4. Preoperative preparations in urology
5. Postoperative surveillance after urological surgery
6. Emergency therapeutic maneuvers
7. Surveillance and care of emergency urological patients.

References:

1.*Bazele Urologiei* – Liviu Ghervan, Ciprian Lucan, Ed. Med. Universitară "Iuliu Haţieganu" Cluj-Napoca 2007

2.*Urologie. Manual pentru lucrări practice* – Vasile Dan Stanca, Ed. Med. Universitară "Iuliu Haţieganu" Cluj-Napoca 2014

Evaluation:

- Written exam 70%
- Practical exam 30%

OCCUPATIONAL MEDICINE AND OCCUPATIONAL DISEASES

Field of study:	**Medicine**
Study program:	**Medicine**
Course title:	**Occupational Medicine**
Course coordinator:	**Lecturer Armand Râjnoveanu, MD, PhD**
Department:	**Community Medicine**
Discipline:	**Occupational Medicine**
Course code:	**MED 4 2 09 EN**

Semester	Courses Type	Lectures	Practical activities		Lectures	Practical activities		Individual study	TOTAL	Credit	Evaluation
		hours/week			hours/sem.						
		L	PA	CI	L	PA	CI				
II	Compulsory	1,5	2	-	14	28	-	33	75	3	Written+ practical exam

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

Pre-requisites:

- Semiology, Pharmacology, Biochemistry, Biophysics, Anatomy, Pathological Anatomy, Physiology, Pathophysiology, Microbiology
- Carrying out and interpreting the medical history and objective examination on devices and systems.

General objectives:

- Introducing the concept of occupational medicine.
- Running into good theoretical and practical issues in diagnosis and treatment management of different occupational illnesses. By the course and the practical activities, we aim to transmit to the medicine students the necessary information in the field of occupational health.

Specific objectives:

- Knowing the definitions and principals of occupational health and occupational medicine and their importance in work related health monitoring.
- Recognition of the most important occupational respiratory diseases.
- Knowing the principals of occupational toxicology and of the most common occupational poisonings.
- Learning about the effects of physical and ergonomic hazards on workers' health.

Course content:

1. Occupational illnesses and work-related diseases. Definition; Etiology - occupational determinant and favorising risk factors; Work places at risk; Pathogenesis; Positive diagnosis; Differential diagnosis; Evolution. Prognosis; Treatment, technical and medical prevention.

2. Occupational respiratory diseases

2.1 Occupational Bronchial Asthma. Framing of bronchial asthma and occupational bronchial asthma; Sensitizing agents involved in etiology; Pathogenesis; Clinical findings; Positive diagnosis: specific and non specific pharmacological tests; Differential diagnosis; Evolution. Prognosis; Treatment, technical and medical prevention; Clinical forms. Extrinsic allergic alveolitis.

2.2 Pneumoconiosis. Mineral dusts – general considerations, classification; Pulmonary clearance mechanisms: tracheal, bronchial, alveolar; Pneumoconiosis classification: collagen and non-collagen; International Classification of Radiographs of Pneumoconiosis (ILO 2011).

Silicosis; Work places at risk; Pathogenesis; Clinical findings; Positive and differential diagnosis; Evolution. Prognosis; Treatment. Prevention.

Coal miner's pneumoconiosis. Work places at risk; Pathogenesis; Clinical findings; Positive and differential diagnosis; Evolution. Prognosis.; Treatment. Prevention;

Asbestosis. Work places at risk; Pathogenesis; Clinical findings; Positive and differential diagnosis; Evolution. Prognosis.; Treatment. Prevention.

Pleural and peritoneal mesothelioma. Work places at risk; Pathogenesis; Clinical findings; Positive and differential diagnosis; Evolution. Prognosis.; Treatment, prevention.

Other occupational cancers. Work places at risk; Industrial carcinogens classification; Broncho-pulmonary cancer; Occupational cancers with other localizations; Nasal and sinuses cancer; Larynx cancer; Urinary bladder and urinary tract cancer; Liver angiosarcoma; Skin cancer;

3. Occupational toxicology

3.1. General considerations. Toxics classification: Toxicokinetics: Absorption, Transport, Distribution, Storage, Elimination, Biotransformation; Toxicodynamics: Toxic action mechanism.

3.2. Occupational poisonings with metals and metal like substances: Lead intoxication; Mercury intoxication; Chrome intoxication; Cadmium intoxication; Manganese intoxication; Arsenic intoxication.

3.3 Occupational organic solvents poisoning. Work places at risk; Group effects: Liver, Kidneys, Haematopoietic system, Nervous system, Reproduction; Benzene poisoning; Nitro and amino compounds of polycyclic aromatic hydrocarbons; Cyanic compounds poisoning; Methanol poisoning.

4. Occupational exposure to physical and musculo-skeletal hazards

4.1 Noise induced occupational disorders. Work places; Non-specific effects; Specific effects (occupational noise-induced hearing loss: diagnosis, treatment and prevention, legislation).
4.2 Occupational disorders caused by vibrations. Whole-body vibrations; Hand-arm vibrations – occupational white finger disease.
4.3 Occupational musculo-skeletal disorders. Work places; Pathogenesis and classification according to anatomic segment affected; Diagnosis and differential diagnosis; Treatment and prophylaxis.

Practical activities:
1. General duties of the occupational medicine service according to Convention 161 of the International Labor Organization. Notions of selection and career guidance, employment examination, adaptation of new employees and periodic medical check-up
2. Diagnosis of occupational disease: criteria, reporting, research, declaration and record of occupational diseases. Methodology for researching working conditions and assessing professional risks
3. Methodological criteria for collecting samples and interpreting analysis bulletins for physical, physico-chemical and chemical factors at work
4. The technique of monitoring respiratory function in personnel exposed to the risk of chronic bronchopneumopathy. Standard ventilatory functional tests, small airway investigation, VEMS decline rate, bronchial challenge tests
5. Diagnosis of a case of professional asthma or aggravated by the working conditions, professional obstructive or chronic obstructive pulmonary disease
6. Cardiovascular functional tests, their application in the field of occupational medicine: Teslenko, Crampton and Brouha tests
7. Interpretation of a standard chest radiography for the diagnosis of pneumoconiosis, according to ILO International Classification 2011
8. Diagnosis of a case of silicosis, asbestosis, anthracosis, siderosis
9. Performing and interpreting an audiogram. Pressure and cold challenge test. Allergic skin tests
10. Diagnosis, treatment and prophylaxis of a case of hearing loss / professional deafness. Diagnosis of a case of professional Raynaud's syndrome and professional dermatosis
11. Professional cancer: pollutants, trades, technological processes
12. Diagnosis of a case of professional poisoning with metals, professional poisoning with organic solvents
13. Diagnosis of a professional case or related to the profession of osteo-musculoskeletal disease.

References:
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2. Cocârlă A., Tefas L., Petran Marilena. *Manual de Medicina Muncii*, Ed. Medicală Universitară "Iuliu Haţieganu", Cluj-Napoca, 2000.
3. Cocârlă A. *Bronhopneumopatiile cronice în mediul industrial*, vol. I-II, Ed. Dacia, Cluj-Napoca, 1984.
4. Finkel Asher J., Hamilton and Hardy's *Industrial Toxicology*. Ed. John Wright, PSG INC, Massachusetts, 1983.
5. La Dou Joseph. *Occupational Medicine*., Ed. Appleton & Lange, Norwalk, Connecticut, 1990.
6. Manu P., Niculescu T. *Practica Medicinii Muncii*, Ed. Medicală, Bucureşti. 1978.
7. Merchant James A., *Occupational Respiratory Diseases*., US Dept. of Health & Human Services, Washington, 1986.
8. Oarga Marilena, *Medicina Muncii*, Ed. Medicală Universitară "Iuliu Haţieganu", Cluj-Napoca, 2006.
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10. Pope Andrew N. and Rall David P., *Environmental Medicine*, Ed. National Academy Press, Washington, 1995.
11. Rom William N., *Environmental and Occupational Medicine*, Ed. Little, Brown & Co, Boston, 1992.
12. Sax Irving N., *Dangerous Properties of Industrial Materials*, Ed. Van Nostrand Reinhold Company, New York, 1979.
13. Zenz Carl, *Occupational Medicine. Principles and Practical Applications*, Ed. Year Book Medical Publishers, INC, Chicago, 1988.

Evaluation:

- Written exam 75%
- Practical exam 25%

SURGERY

- **GENERAL SURGERY**
- **ONCOLOGIC SURGERY**
- **CARDIOVASCULAR SURGERY**
- **PLASTIC SURGERY**

Field of study:	**Medicine**
Study program:	**Medicine**
Course title:	**General Surgery**
Course coordinator:	**Professor Ph.D. Nadim Al Hajjar** **Associate Professor Ph.D. Adrian Molnar** **Professor Ph.D. Achimas-Cadariu Patriciu** **Lecturer Ph.D. Ileana Matei** **Professor Ph.D. Alexandru Georgescu** **Associate Professor Ph.D. Traian-Sorin Barbu** **Lecturer Ph.D. Emanuel Palade**
Department:	**Surgery**
Discipline:	**Surgery Clinic III**
Course code:	**MED 4 2 10 EN**

Sem.	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	8	-	20	84	-	182	104	370	12	Written+ practical exam

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

Pre-requisites:

- Anatomy, Physiology, General Morphopathology
- General surgery
- Basic practical skills.

General objectives:

- Assimilation of the elements and principles of Propedeutics and Surgical Semiology
- Introduction of the basic notions of surgical pathology in General Surgery
- Correlation of the themes of this course with the notions and themes of the introductory clinical courses of year 3: Pathophysiology, Medical Semiology and Immunopathology

- Introduction of new elements of therapeutic behavior and paraclinical investigations, indispensable for the understanding of the notions of Surgical Pathology.
- Observing and illustrating the specific elements of Surgery Semiology and Pathology through case studies and "Problem-based-learning" exercises
- Developing a clinical medical-surgical vocabulary.

Specific objectives:
- Course objectives (course and applications): familiarize students with the pathology of cardiovascular and thoracic practice attitude in cardiothoracic surgery.
- Implementing the specific notions of tumor pathology: skin and soft tissues
- Recognizing the various clinical signs in the pathology of the mammary gland and thyroid; differential diagnosis and treatment.

Course content:

1. Surgical pathology of the esophagus
   - Surgical anatomy and physiology
   - Esophageal diverticula
   - Achalasia
   - Corrosive esophagitis and post-casual esophageal stenosis
   - Gastroesophageal reflux disease
   - Hiatal hernia
2. Surgical pathology of the esophagus
   - Esophageal cancer
3. Surgical pathology of stomach and duodenum
   - Complications of gastro-duodenal ulcer
4. Surgical pathology of stomach and duodenum
   - Benign and malignant tumors of the stomach
5. Bariatric surgery
6. Surgical pathology of the small intestine
   - Surgical anatomy and physiology
   - Diverticul Meckel
   - Crohn's disease
   - Benign and malignant tumors of the small intestine
7. Surgical pathology of the appendix
   - Surgical anatomy and physiology
   - Acute appendicitis
   - Appendicular tumors
8. Surgical colon pathology
   - Surgical anatomy and physiology
   - Colic Diverticulosis

Ulcer-haemorrhagic rectocolitis

9. Surgical colon pathology
   Benign and malignant tumors of the colon
10. Surgical pathology of the rectum and anus
   Surgical anatomy and physiology
   Perianorectal disease: hemorrhoids, fistula and perianorectal abscesses, anal fissure, anal prolapse
   Sacro-cochlear pilonidal disease
11. Surgical pathology of the rectum and anus
   Anorectal cancer
12. Surgical Liver Pathology
   Surgical anatomy and physiology
   Hepatic abscesses
   Non-parasitic liver cysts
   Hepatic hydatid cyst
   Surgical treatment in portal hypertension
13. Surgical Liver Pathology
   Benign and malignant liver tumors
14. Surgical pathology of the bile ducts
   Surgical anatomy and physiology
   Gall bladder
15. Surgical pathology of the bile ducts
   Biliary tract tumors
16. Surgical pathology of the bile ducts
   The mechanical jaundice
17. Surgical pathology of the pancreas
   Surgical anatomy and physiology
   Acute pancreatitis
   Chronic pancreatitis
18. Surgical pathology of the pancreas
   Pancreatic tumors
19. Surgical pathology of the spleen
   Surgical anatomy and physiology
   Hypersplenism
   Vascular disorders of the spleen
   Indications of splenectomy
20. Acute surgical abdomen
   Clinical examination in acute surgical abdomen
   Paraclinical examinations in acute surgical abdomen
   Acute surgical abdomen - Generalities
21. Acute surgical abdomen
   Abdominal trauma
22. Acute surgical abdomen

Acute generalized and localized peritonitis
23. Acute surgical abdomen. The intestinal occlusion. Enteromezenteric infarction
24. Upper digestive bleeding
25. Lower digestive bleeding
26. Introduction to laparoscopic surgery
27. Introductory notions in minimally invasive and robotic surgery
28. Organ transplants
29. Ischemic heart disease
30. Mechanical complications of myocardial infarction
31. Heart valve disease
32. Complications of prosthetic heart valve
33. Extracorporeal circulation
34. Cardiac tamponade
35. Acute dissection of the aorta
36. Abdominal aneurysm
37. Heart traumatisms
38. Peripheral artery disease
39. Cardiac tumors
40. Thoracic trauma
41. Pneumothorax
42. Pleural effusions with focus on malignant pleural effusions
43. Purulent pleural effusions
44. Lung cancer
45. Breast cancer
46. Thyroid cancer
47. Skin cancers
48. Genital cancers
49. Skin. Skin vascularisation. Wound healing. Surgical treatment of soft tissue defects. Skin grafts. Flaps
50. Complex trauma of the limbs. Replantation. Revascularisation
51. Burns. Cold injuries.

Practical activities:
1. Schematic presentation of a surgical clinical case
2. Clinical examination and paraclinical examinations in surgical conditions of the esophagus
3. Surgical treatment of the esophagus
4. Clinical examination and paraclinical examinations in surgical conditions of the stomach and duodenum
5. Surgical treatment of the stomach and duodenum
6. Clinical examination and paraclinical examinations in surgical conditions of the small intestine

7. Surgical treatment of the small intestine
8. Clinical examination and paraclinical examinations in the surgical conditions of the appendix
9. Surgical treatment of the appendix
10. Clinical examination and paraclinical examinations in surgical conditions of the colon
11. Surgical treatment of the colon
12. Clinical examination and paraclinical examinations in surgical disorders of the rectum and anus
13. Surgical treatment of the rectum and anus
14. Clinical examination and paraclinical examinations in the surgical conditions of the liver
15. Surgical treatment of the liver
16. Clinical examination and paraclinical examinations in the surgical conditions of the biliary tract
17. Surgical treatment of the biliary tract
18. Clinical examination and paraclinical examinations in the surgical conditions of the pancreas
19. Surgical treatment of the pancreas
20. Clinical examination and paraclinical examinations in the spleen surgery
21. Surgical treatment of the spleen
22. Clinical examination and paraclinical explorations in acute surgical abdomen
23. Principles of treatment in acute surgical abdomen
24. Surgical sutures, mechanical sutures
25. Stomies: indications, stomotherapy
26. Digestive anastomoses
27. Instrumentation in open digestive surgery
28. Medical equipment used in digestive surgery
29. Notions of enteral and parenteral nutrition
30. Instrumentation in laparoscopic surgery
31. Presentations of clinical cases
32. Video demonstrations
33. Clinical scenarios
34. Simulated structured objective examination
35. Local clinical examination of the limbs. Therapeutic principles in limb lesions. Principles of care of wounds
36. Ways of covering the defects of soft parts. Skin grafts. Flaps. Reconstruction of complex defects
37. Clinical examination of the cardiovascular patient
38. Notions about extracorporeal circulation
39. Surgical treatment in coronary pathology
40. Surgical treatment in cardiac valvular pathology

41. Surgical treatment in vascular pathology
42. Surgical treatment in thoracic pathology.

References:

1. *Cardiovascular Surgical Pathology Treaty*, vol 1 and 2 - Socoteanu, Medical Publishing House - Bucharest 2007
2. *Cardiac Surgery in the Adults* - Edmunds - Mc Graw Hill, 1997
3. *Vascular Surgery*, vol 1 and 2 - Rutherford, Saunders Company, 2000
4. *Chronic peripheral arteriopathy* - Mironiuc A., S. Radulescu, A. Molnar, Risoprint, Cluj-Napoca, 2002
5. *Diseases of veins* - Scridon T., A. Molnar, S. Radulescu, Ed Info Medica, Bucharest, 1999
6. Lazăr Ş. L, Mureşan M. A., Rancea A. C., Eniu D.T, *Semiologie şi Patologie Chirurgicală* (vol. I, II), ed. Sincron, Cluj-Napoca, 1997.
7. Andercou A., Galea F., Rădulescu Ş., Mironiuc A., Ciuce C., Gherman I., Strâmbu C., Pintea D., Demco D., Mircioiu D., *Propedeutică Chirurgicală*, ed. Mediamira, Cluj-Napoca, 2000.
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11. A. V. Georgescu - *Lambourile in chirurgia reconstructiva* – vol. I, Ed. Quo Vadis, Cluj Napoca, 1999
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13. Green D., Hotchkiss RN., Pederson WC - *Green's Operative Hand Surgery* –Ed. Churchill Livingstone
14. Georgescu A, Matei I, Ardelean F, Capota I. *Microsurgical nonmicrovascular flaps in forearm and hand reconstruction. Microsurgery* 2007;27(5):384-394.
15. Blondeel PN, Morris SF, Hallock GG, Neligan PC, editors. *Perforator flaps: Anatomy, technique & clinical applications*. St. Louis, Missouri: Quality Medical Publishing, Inc; 2006
16. Taylor GI, Palmer JH. *The vascular territories (angiosomes) of the body: experimental study and clinical applications*. British Journal of Plastic Surgery 1987;40:113-141.
17. Papilian V. - *Anatomia omului*, vol. I, II, ed. a 6-a, Ed. Didactică şi Pedagogică Buc., 1982
18. Charles H. Thorne; Scott P. Bartlett, Grabb and Smith's *Plastic Surgery*, Ed. 6 Lippincott Williams & Wilkinson, 2006

19. N. Angelescu - *Tratat de patologie chirurgicală*, Ed. Medicală, Buc.
20. Textbook of Surgery Vol.IV: *Thoracic Surgery* – Horvat T, Editura Academiei Romane, Bucharest, 2008
21. Pearson`s *Thoracic and Esophageal Surgery*, Vol.I – Thoracic – Elsevier, 2008.

Evaluation:

- Written exam 50%
- Practical exam 50%

CRANIO AND MAXILLOFACIAL SURGERY

Field of Study	**Medicine**
Study program	**Medicine**
Course title	**Maxillofacial surgery**
Course coordinator	**Lecturer Onisor Florin, MD, PhD**
	Lecturer Roman Rareş, MD, PhD
Department	**Dental Medicine**
	Department of Cranio-Maxillofacial Surgery and Dental Emergencies
Discipline	**Maxillofacial Surgery**
Course code	**MED 4 2 11 EN**

Semester	Course type	Lectures	Practical activities		Lectures	Practical activities		Individual study	TOTAL	Credits	Evaluation
		hours/week			hours/semester						
		L	PA	Cl	L	PA	Cl				
II	Compulsory	1	1	-	14	14	-	55	83	2	Written exam

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

Pre-requisites:

- General and special anatomy - of the head and neck. Physiology. Pathophysiology. Semiologie
- The ability to analyze the anatomical-clinical parameters in the clinical case study
- Critical analysis and interpretation of laboratory tests
- Correct writing of therapeutic prescriptions.

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.

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. Ethiopathogenesis, clinical appearance, diagnosis, emergency and curative treatment. Pathology of dental origin of the maxillary sinus. Diagnosis and treatment.
4. Benign tumors of the soft and hard parts of the maxillofacial territory: the cysts of the jaw and of the cervico-facial soft parts, the papilloma of the buccal mucosa, the epithelio-conjunctival hyperplasia, the granuloma of the pregnant woman, the epulis, the hemangioma, the osteoma, the fibrosomal dysplasia, the adamantoma, the adamantoma
5. Malignant tumors of the soft and hard parts of the maxillofacial territory: the peculiarities of the onset forms of the oro-facial cancer; middle-stage cancer of the face; mandible carcinomas; jaw sarcomas; the dental care of the patient to be irradiated antitumor
6. Pathology of the salivary glands. Clinical appearance, diagnosis and treatment. Cranio-maxillofacial malformations. Clinical appearance, diagnosis and therapeutic principles
7. Pathology of the temporo-mandibular joint: diagnosis, treatment. Trigeminal neuralgia: clinical forms, diagnosis, treatment.

References:
Burlibasa Corneliu, *Chirurgie orala si maxilofaciala*, Medical Publishing, Bucharest, 1999;

Alexandru Rotaru, Grigore Baciut, Horatiu Rotaru, C*hirurgie maxilo-faciala*, Vol. I and Vol. II, "Iuliu Haţieganu" Academic Medical Publishing, Cluj-Napoca, 2003.
Lucia Hurubeanu, *Stomatologie si chirurgie oro-maxilofaciala,* "Iuliu Haţieganu" Academic Medical Publishing Cluj–Napoca 2002, ISBN 973 – 8385 – 01 – 6
Bucur A. & all, *Compendiu de chirurgie oro-maxilo-faciala*, vol. I QMed Publishing, 2009

Evaluation:

- Written test 100%

ORTHOPAEDICS

ORTHOPAEDICS – TRAUMATOLOGY
PEDIATRICS ORTHOPAEDICS

Field of study:	**Medicine**
Study programe:	**Medicine**
Course title:	**Orthopedics and traumatology**
Course coordinator:	**Assoc. Prof. Dan Ionut Cosma, MD, PhD** **Lecturer Adrian Todor MD, PhD** **Lecturer Benea Horea MD, PhD**
Department:	**Surgical specialties**
Discipline:	**Orthopaedic-Traumatology and Pediatric Orthopaedics**
Course code:	**MED 4 2 12 EN**

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	-	28	84	3	Written+ practical exam

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

Pre-requisites:
- Anatomy, Medical Imaging, General Surgery
- interpretation of Medical imaging

General objectives:

- Acquiring fundamental theoretical and practical notions related to the pathology of the locomotor apparatus
- Knowledge and understanding of the principles and methods of orthopedic and surgical treatment of diseases of the locomotor system
- Familiarizing with the child's most common orthopedic disorders; early recognition of specific conditions, for timely routing to a specialist.
- Acquiring therapeutic algorithms in the main orthopedic disorders of pediatric patients.

Specific objectives:

- The particularities of the objective examination in osteo-articular traumatology
- Emergency therapy in resolving osteo-articular traumas (fractures, sprains, sprains, politraumatisms)
- Diagnosis and treatment of the patient with traumatic or chronic diseases of the osteo-articular system, as well as methods for preventing and combating their complications
- Acquiring the knowledge necessary for early detection of complications that may occur under the gypsum apparatus and treatment modalities
- Therapeutic principles of open fractures and multiple fractured patients
- Principles of surgical treatment and osteosynthesis methods used in the treatment of fractures
- Knowledge of the infectious and tumor pathology of the locomotor apparatus and principles of treatment
- Knowing modern methods of investigation and their usefulness in the diagnosis of osteo-articular diseases

Course content:

Orthopaedics – Traumatology

1. Introduction
2. General notions of osteo-articular anatomy and physiology
3. General notions of osteo-articular traumatology:
   a) fracture
   b) sprains
   c) sprains
   d) joint wounds
   e) compartment syndrome
4. Traumatology of scapular belt and arm
   a) the fractures of the clavicle
   b) shoulder fractures
   c) acromio-clavicular dislocation
   d) scapular-humeral dislocation
   e) fractures of the proximal end of the humerus
   f) fractures of the humeral diaphysis
   g) fractures of the distal humerus
5. Elbow, forearm and hand traumatology
   a) elbow elbows
   b) olecranon fractures
   c) radial head fractures

d) the fracture of the bones of the forearm
e) the forearm fracture-dislocation (Monteggia-Stanciulescu)
f) fractures of the distal extremity of the radius

6. Traumatology of spine and pelvis
   a) traumatology of the spine
   b) traumatology of the pelvis
7. Hip and thigh traumatology
   a) traumatic hip dislocation
   b) fractures of the femoral neck
   c) pertrochanteric fractures
   d) femoral diaphysis fractures
8. Traumatology of the knee, leg and leg
   a) fractures of the distal extremity of the femur
   b) patella fractures
   c) fractures of the proximal tibia
   d) the fractures of the calf bones
   e) Malleolar fractures
9. Bone tumors and infections of the osteo-articular apparatus
   a) benign bone tumors
   b) malignant, primary and secondary bone tumors
   c) Acute and chronic osteomyelitis
10. Arthrosis
   a) hip osteoarthritis
   b) knee osteoarthritis

Pediatrics Orthopaedics

1.Morphofunctional particularities of the musculoskeletal system in children.
2.Musculoskeletal trauma in children: fractures- generalities, obstetrical fractures, fractures of the upper limb, fractures of the lower limb.
3.The Volkmann syndrome, the nursemaid's elbow, the physically abused child.
4.Congenital malformations: congenital malformations of the upper limb, congenital malformations of the lower limb, congenital idiopathic talipes equinovarus (congenital clubfoot), developmental dysplasia of the hip.
5.The congenital muscular torticolis.
6.The juvenile osteochondroses.
7.Utilization and maintenance of plasters casts and external fixation devices.
8.Prostheses, orthoses and other support devices (including their utilization).

Practical activities:

1. providing first aid and transporting the patient with traumatic osteo-articular disorders
2. maneuvers to reduce fractures and dislocations

3. gypsum immobilization
4. how to make and apply gypsum appliances
5. temporary assets (continuous traction)
6. special fixed assets (bandages, plaster appliances, braces)
7. presentation of implants used in orthopedics and osteo-articular trauma
7. presentations and discussions of clinical cases
8. prevention and treatment of post-immobilization complications
9. imaging methods used in locomotor system disorders
10. video presentations with a surgical resolution of fractures
11. traumas of the locomotor system in children: diagnosis, complications, orthopedic and surgical treatment
12. idiopathic varus-equin congenital crooked leg: diagnosis, classification, treatment
13. hip developmental dysplasia.
14. orthoses, prostheses and gypsum immobilization used in Pediatric Orthopedics.

References:

1. Tomoaia Gheorghe - *Osteoarticular Traumatology*. Editura Medicala Universitara „Iuliu Haţieganu", Cluj-Napoca, 2016
2. Tomoaia Gheorghe - *Ortopedie.* Editura Medicala Universitara „Iuliu Haţieganu", Cluj-Napoca, 2013
3. Vasilescu Dana et al. *Elemente de ortopedie Pediatrică*, Editura Risoprint Cluj, 2014.
4. Herring. *Tachdjian's pediatric orthopaedics*, 2008.

Evaluation:

- Theoretical exam 60%
- Practical exam 40%

OPHTHALMOLOGY

Field of study:	**Medicine**
Study Program:	**Medicine**
Course title:	**Ophthalmology**
Course coordinator:	**Assoc. Prof. Cristina Nicula, MD, PhD**
Department:	**Surgical specialties**
Discipline:	**Ophthalmology**
Course code	**MED 4 2 13 EN**

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	4	-	14	28	-	47	89	3	Written + practical exam

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

Pre-requisites: Anatomy

General objectives:

- Learning the basic principles of ophthalmology, proving the importance of ophthalmic knowledge for general pathology.

Specific objectives:

- Acquiring the basic skills useful for general practice: examining the eye in daylight, instillations, ointment administration, eyelid exam, foreign body extraction, visual acuity measurement, ophthalmoscopic exam, ability to recognize the most frequent pathology (hordeolum, conjunctivitis, minor traumatisms).

Course Content:

1. Eye Physiology: Visual Function, Refraction, Binocular Vision.
2. Pathology of ocular annexes: Orbit, Eyelid, Tear system, Conjunctiva
3. Eye Pathology: Cornea, Uveea, Lens, Retina, Optic Nerve, Glaucoma
4. Ocular Traumatisms

Practical activities:

1. Anatomy of the visual analyzer. Clinical observation sheet in ophthalmology
2. Examination of the previous pole. Ophthalmological semiology
3. Functional ophthalmological examination
4. Ocular refraction

5. Binocular vision - examination methods
6. Clinical cases: eyelids, conjunctiva, cornea, orbit, tear apparatus, cataracts, glaucoma, retina, optic nerve, trauma.

References:

Cristina Nicula, *Ophthalmology*, Editura Medicală Universitară „Iuliu Haţieganu" Cluj-Napoca, 2014, ISBN 978-973-693-595-4.

Evaluation:

- Written exam 60%
- Practical exam 40%

ENDOCRINOLOGY. DIABETES AND NUTRITION RELATED DISEASES

A. ENDOCRINOLOGY

Field of study:	**Medicine**
Study program:	**Medicine**
Course title:	**Endocrinology**
Course coordinator:	**Prof. Carmen GEORGESCU, MD, PhD**
Departament:	**Medical Specialties**
Discipline:	**Endocrinology**
Course code:	**MED 4 2 14 EN**

Sem.	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	3	-	14	-	21	15	50	2	Written + practical exam

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

Pre-requisites:

- Semiology, Physiology, Pathophysiology
- general clinical examination, pulse measurement, blood pressure, osteotendinous reflexes.

General objectives:

There are three general objectives in teaching clinical Endocrinology: ***The informational core*** which involves transmitting knowledge of clinical and paraclinical endocrinology. Moreover, acquiring certain ***clinical abilities*** specific to the field is also needed as they are to be used while examining patients, formulating a diagnostic, establishing a target for paraclinical explorations or while elaborating a therapeutical plan after a thorough examination of the patient. Beside these, students in Medicine have to develop ***competences*** in clinical diagnostic and monitoring of the chronic treatment of endocrine diseases and have to be able to put their acquired knowledge into practice.

Specific objectives:

- Knowing the principles in medical assistance of patients with endocrine disorders: diagnosis and treatment of endocrinopathies.

- Running into good clinical practice of hormone replacement therapy in pituitary, thyroid, adrenal and gonadal diseases.
- Establishing indications of investigation and management in primary care of most important endocrine diseases – myxedema, thyrotoxicosis, hypocalcemia, chronic and acute adrenal insufficiency, postmenopause, osteoporosis.

Course content:

1. Classification of hormones. Feedback control of the endocrine systems
2. THE HYPOTALAMUS
    - 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:

Georgescu CE. *Principles of Clinical Endocrinology – A Manual for English Students*. Editura Medicala Universitara 2012

Oxford Handbook of Endocrinology and Diabetes, John Wass & Katharine Owen, 3rd Edition, Oxford University Press, 2014

Georgescu CE. *Îndreptar practic de endocrinologie*. Editura Medicală Universitară "Iuliu Haţieganu", Cluj-Napoca 2013, ISBN 978-973-693-521-3

Duncea I (sub red.), Ghervan C, Georgescu C, Valea A, , Lencu C, Ilie I. *Endocrinologie*. Editura Medicală Universitară „Iuliu Haţieganu" Cluj-Napoca 2011, ISBN 978-973-693-430-8

Evaluation: Common exam with Diabetes and Nutritious related diseases

- Written exam 60%
- Practical exam 40%

B. DIABETES AND NUTRITION RELATED DISEASES

Field of study: **Medicine**
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: **MED 4 2 14 EN**

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	1	-	14	14	-	24	52	2	Theoretical + practical exam

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

Pre-requisites:
- Physiology, Pathophysiology, Biochemistry, Semiology
- Knowledge of research methodology, analysis and interpretation of clinical studies.

General objectives:

- Awareness of chronic non-communicable diseases – prevalence and health implications
- Introducing the concept of metabolic diseases and nutritional pathology: diabetes mellitus, obesity, metabolic syndrome, dyslipidemia, cardiovascular riskm hyperuricemia, healthy nutrition.
- Integrating metabolic diseases in global cardio-metabolic risk.

Specific objectives:
At the end of the theoretical and practical module, students should know:

- To diagnose the hyperglycemic status (impaired fasting glycemia, impaired glucose tolerance, type 1 and type 2 diabetes, gestational diabetes);
- To collect relevant data on risk factors for type 2 diabetes and gestational diabetes in high risk population;
- To screen for type 2 diabetes and gestational diabetes in high risk population;
- To recognize and interpret the main signs and symptoms of hyperglycemia in diabetes;

- To diagnose the etiopathogenic types of diabetes (type, 1, type 2, gestational diabetes, specific diabetes);
- To formulate recommendations for the clinical management of diabetes;
- To perform an explain to the patients the technical procedures to inject insulin;
- To recognize the side effects of antihyperglycemic drugs
- To monitor the efficacy of antihyperglicemic treatment by interpreting the HbA1c, glycemic profile and by using glucometers;
- To identify the therapeutic objectives and priorities for the different evolutive phases of type 1, type 2 and gestational diabetes;
- To make the differential diagnosis and to evaluate the severity of hyperglycemic crises (diabetic ketoacidosis and hyperglycemic hyperosmolar status)
- To implement the first aid for people with diabetic ketoacidosis and hyperglycemic hyperosmolar status;
- To make the differential diagnosis, to evaluate the severity of hypoglycemic crises and to give recommendations for prevention and treatment;
- To interpret the screening test and to diagnose the diabetes chronic microvascular complications (retinopathy, nephropathy, neuropathy);
- To elaborate a management plan for the patients with diabetes chronic microvascular complications: therapy, monitoring, therapeutic education, evaluation;
- To define the clinical and evolutive particularities of cardiovascular diseases in diabetes; ischemic heart disease, heart failure, cerebrovascular disease, peripheral obstructive arteriopathy;
- To screen and to stage the risk for foot ulcers/amputations in patients with diabetes;
- To formulate the diagnosis of dyslipidemia, according to the guidelines;
- To explain to the dyslipidemic patient the diagnostic and therapeutic options;
- To explain to the patient the antihyperlipidemic diet and the importance of physical activity;
- To identify the risk factors for the development of metabolic syndrome and obesity;
- To formulate the diagnosis, metabolic syndrome and obesity according to the guidelines;
- To analyze the health, social and economic impact that metabolic syndrome and obesity have in general population and to judge the importance of preventive strategies and early diagnosis;

- To settle a plan for the global clinic-biological assessment of the patients with obesity/metabolic syndrome;
- To structure/evaluate strategies for the clinical management of obesity/metabolic syndrome;
- To instruct the patients with obesity/metabolic syndrome for lifestyle optimization;
- To define cardiovascular risk factors and to calculate/interpret the cardiovascular risk according to specific score systems;
- To promote healthy lifestyle to high risk people for metabolic and cardiovascular diseases;
- To compose/explain the nutritional intervention in metabolic diseases (obesity, diabetes, dyslipidemia, hyperuricemia, hypertension);
- To formulate the concept of health and its determinant factors.

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 hypoglicemia
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. Chronic non-communicable diseases: prevalence of risk
Metabolic diseases: epidemiology, medical, social, economic impact
Diabetes: definition, classification, risk factors
2. Diabetes: pathogenesis, clinical appearance, complications, clinical management
3. Diabetes: clinical management, comorbidities
Non-diabetic hypoglycemia
4. Obesity: definition, classification, risk factors, pathogenesis, clinical appearance, complications, clinical management

5. Dyslipidemia: definition, classification, risk factors, pathogenesis, clinical appearance, complications, clinical management
6. Metabolic syndrome and cardiovascular risk: definition, evaluation, clinical management
Evidence-based medicine in metabolic diseases
Hyperuricemia: definition, clinical and biochemical evaluation, clinical management
7. Healthy lifestyle: optimal nutrition, physical activity, sleep
Healthy nutrition and nutritional medical therapy: definition, principles.

Bibliography:
Courses slides
Toronto Notes 2017-2018

Optional supplementary bibliography:

1. Hâncu N., Roman G., Veresiu I.A. (editori). *Diabetul zaharat, nutritie, bolile metabolice* – Tratat, vol. 1 si 2, Editura Echinox, Cluj-Napoca, 2010
2. Hâncu N., Roman G., Veresiu I.A. (editori). *Farmacoterapia diabetului zaharat*. Editura Echinox Cluj-Napoca, 2008
3. *Global Guidelines for Type 2 Diabetes*, IDF 2012, idf.org/guidelines
4. *Management of Hyperglycemia in Type 2 Diabetes* 2018. A Consensus Report by the American Diabetes Association (ADA) and the European Association for the Study of Diabetes (EASD), Diabetes Care 2018 Sep
5. *Standards of Medical Care in Diabetes* – 2018. Diabetes Care. January 01 2018; volume 41 issue Supplement 1, www.http://care.diabetesjournals.org/content/41/Supplement_1
6. *CVD Prevention in Clinical Practice (European Guidelines on). European Guidelines 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) 36 (29): 2315-2381
7. *ESC/EAS Guidelines for the Management of Dyslipidemias.* Eur Heart J (2016) 36 (29): 2999-3058
8. *European Guidelines for Obesity Management in Adults.* Obes Facts 2015; 8:402-424

Evaluation: Combined Exam Diabetes and Endocrinology

- Theoretical written exam 60%
- Practical exam 40%

YEAR V

INTERNAL MEDICINE. CARDIOLOGY. PNEUMOLOGY

- INTERNAL MEDICINE. CARDIOLOGY
- INTERVENTIONAL CARDIOLOGY
- PNEUMOLOGY

A. INTERNAL MEDICINE. CARDIOLOGY

Field of study:	**Medicine**
Study program:	**Medicine**
Course title:	**Internal Medicine – Cardiology**
Course coordinator:	**Lecturer Radu Rosu, MD, PhD**
Department:	**Internal Medicine**
Discipline:	**Cardiology – Rehabilitation**
Course code:	**MED 5 1 01 EN**

Semester	Course type	Lectures	Practical activities		Lectures	Practical activities		Individual study	TOTAL	Credit	Evaluation
		hours/week			hours/sem.						
		L	PA	Cl	L	PA	Cl				
I	Compulsory	8	-	14	56	-	106	138	300	12	Written + practical exam

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

Pre-requisites:

- Biochemistry, Physiology, Pathophysiology, Morphopathology, Semiology 3rd year
- Semiological approach of the clinical case (anamnesis, objective examination, synthesis of clinical data, diagnosis of clinical presumption), formulation of a simple diagnosis of stage, of clinical syndrome
- Interpretation of the results of the complementary examinations on syndromes, devices and systems
- Principles and rules of therapeutic prescription
- Criteria for monitoring the evolution under treatment.

General objectives:

By the end of the course, the students will be able to manage correctly patients suffering from the main cardiovascular and respiratory diseases.

Specific objectives:
At the end of the course students will be able:
- to list some of the etiological causes for the cardiovascular and respiratory diseases learned
- to explain the pathogenetic mechanisms of cardiovascular and respiratory diseases and hemodynamic changes in heart disease
- to synthesize clinical data and to develop an investigation plan for major clinical syndromes in cardiology and pneumology
- to interpret an electrocardiogram, a cardiac ultrasound scan, spirometry and arterial gasometry
- to describe the semiological elements of a thoracic radiography
- to develop a complete diagnosis of the main cardiac and respiratory diseases
- to recommend lifestyle changes for each learned disease
- to complete a medical treatment plan for each cardiovascular and respiratory disease.
- to describe the side effects of drug classes used in cardiovascular and respiratory systems
- to analyze the common prognostic factors in the main cardiovascular and respiratory diseases.

Course content:
Approach of the patient with cardiovascular disease
Atherosclerosis
Arterial hypertension
Heart failure
Cardiac arrhythmias
Ischemic heart disease
Cardiomyopathies
Acute rheumatism
Infective endocarditis
Valvulopathies
Congenital heart disease
Pericardial diseases
Aortic and peripheral artery diseases
Deep vein thrombosis and pulmonary thromboembolism
Cor pulmonale
Syncope
Approach of the patient with pulmonary diseases
Pneumonias
Pleural effusion
Asthma
Bronchiectasis
Chronic obstructive pulmonary disease

Respiratory failure
Fibrosing interstitial pneumonias
Pneumothorax.

Practical activities:

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

1. The approach of the patient with cardio-vascular pathology
- valvulopathy
- rhythm and driving disorders
- cardiomyopathy
- high blood pressure
- heart failure
- atherosclerosis
- ischemic heart disease: stable form, acute coronary syndrome, myocardial infarction with and without ST elevation, myocardial infarction complications
- peripheral artery disease, critical ischemia
- deep vein thrombosis. Pulmonary thromboembolism

2. The patient's approach with respiratory pathology
- respiratory failure
- pneumonia
- chronic obstructive pulmonary disease. Chronic pulmonary heart
- bronchial asthma
- pleurisy.

b. During the clinical internship, in addition to the activities carried out in the patient rooms and in the paraclinical examination offices, the students will participate in other activities such as:
- practical demonstrations of paraclinical examinations for diagnostic purpose
- 2 sessions per week (Tuesdays and Wednesdays):
    - electrocardiography
    - holter monitoring ecg
    - holter TA monitoring
    - test of effort
    - myocardial scintigraphy
    - 2D echocardiography
    - Doppler echocardiography
    - transesophageal echocardiography
    - coronarography
    - cardiac catheterization
    - Doppler arterial ultrasound
    - venous Doppler ultrasound.

- practical demonstrations of the results of the interventional therapeutic procedures for coronary and peripheral arteries (daily, after the report of the guard).

References:

Zdrenghea D., D. Pop, Rosu R, Grosz Cs, Gusetu G. *Heart And Respiratory Disease*. 2011. Editura Medicală Universitară „Iuliu Haţieganu" Cluj-Napoca

D. Pop, Zdrenghea D, , Rosu R, Caloian B, Cismaru G, Comşa H, Grosz Cs, Guşetu G. *Heart and respiratory disease*. 2018. Editura Medicală Universitară „Iuliu Haţieganu" Cluj-Napoca

Anthony Fauci, Eugene Braunwald, Dennis Kasper, Stephen Hauser, Dan Longo, J. Jameson, Joseph Loscalzo.

Harrison's *Principles of Internal Medicine*, 19th Edition, Mcgraw-Hill; 2015

Braunwald's *Heart Disease - A Textbook of Cardiovascular Medicine*, 11th edition, Elsevier-Saunders; 2018

Otto: *Textbook of Clinical Echocardiography*, 5th ed, Elsevier-Saunders; 2013

ESC Clinical Practice Guidelines.

Global Strategy for Diagnostic, Management, and Prevention of COPD (2016). www.goldcopd.org

Goldman: *Cecil Textbook of Medicine*, 25th ed. 2015

Evaluation: Common exam with Interventional Cardiology and Pneumology

- Written exam 50%
- Practical exam 50%

B. INTERVENTIONAL CARDIOLOGY – HEART INSTITUTE

Field of study:	**Medicine**
Study program:	**Medicine**
Course:	**Interventional Cardiology**
Course coordinator:	**Assoc. Prof. Lelia Strambu, MD, PhD, Assoc. Prof. Adela Serban, MD, PhD**
Department:	**Internal Medicine**
Discipline:	**Cardiology - "Niculae Stancioiu" Heart Institute**
Course code:	**MED 5 1 01 EN**

Semester	Courses Type	Lectures	Practical activities		Lectures	Practical activities		Individual study	TOTAL	Evaluation
		hours/week			hours/sem.					
		L	PA	CI	L	PA	CI			
I	Compulsory	-	1	-	-	7	-	7	14	Written exam

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

Pre-requisites: -

General objectives:

- At the end of the course students will be able to recommend invasive investigations and therapies and interpret the results of explorations and applied therapies correctly.

Specific objectives:

- At the end of the course students will be able to
  - list the means of invasive exploration in cardiovascular diseases
  - explain the clinical reasons to recommend an invasive exploration in a patient with heart disease
  - know the possible incidents and accidents that may occur during the invasive exploration of cardiology
  - explain the importance of gender, age and pharmacogenetic aspects in the variability of individual patient response.

Course content:

Interventional cardiology
Cardiac catheterization in valvular diseases
Is cardiac catheterization necessary?
Coronary angiography
Coronary angioplasty

Non-coronary angioplasty
Interventional approach to valvular diseases
Ischemic stroke

References:

- Lecture print out
- Braunwald's *Heart Disease*, 9th edition, 2011, Ed Elsevier
- Crawford *Cardiology* 3rd editio, 2012, Ed Mosby
- Hurst's *The Heart*, 13th edition, 2012, Ed Mc Graw Hill Medical

Evaluation: Common exam with Internal Medicine. Cardiology and Pneumology

- Written exam 100%

C. PNEUMOLOGY

Field of study:	**Medicine**
Study program:	**Medicine**
Course title:	**Phtysiology**
Course coordinator:	**Prof. Carmen Monica Pop, MD, PhD**
	Prof. Doina Todea, MD, PhD
	Assoc. Prof. Man Milena, MD, PhD
	Lecturer Ruxandra Rajnoveanu, MD, PhD
Departament	**Medical specialties**
Discipline:	**Pneumology**
Course code:	**MED 5 1 01 EN**

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	40	68	2	Written + practical exam

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

Pre-requisites:

- Anatomy, Physiology, Pathophysiology, Respiratory Semiology Pharmacology, Radiology, Methodology of Scientific Research
- Carrying out an anamnesis, communicating with the patient and the family, carrying out the objective examination, interpreting an X-ray, writing the correct therapeutic prescriptions.

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
2. Hydatic cyst
3. Diffuse interstitial lung disease and idiopathic pulmonary fibrosis
4. Sarcoidosis
5. Sleep apnea syndrome
6. Mediastinal syndrome
7. Tabacology (tobacco addiction, smoking-induced pathology)
8. Tuberculosis

Practical activities:

1. Clinical examination (anamnesis and objective examination) of patients with respiratory diseases - observation sheet
2. Pulmonary imaging: pulmonary radiography and computer tomography
3. Functional respiratory explorations: spirometry
4. Other diagnostic procedures used in respiratory diseases (non-specific sputum examination, specific microscopy, culture, bronchoscopy, thoracocentesis)
5. Presentation of the clinical case of tuberculosis with its particularities
6. Presentation of clinical cases of pneumology: diagnostic and treatment algorithm, presentation methods
7. Diagnosis of obstructive sleep apnea syndrome: investigation and treatment
8. Tobaccology. Methods of diagnosis, evaluation and techniques used in anti-smoking counseling.

References:

1. *Apneea in somn si comorbiditatile sale,* Note de curs , sub redactia Doina Todea**,** Editura Medicala Universitara „Iuliu Haţieganu" 2011,Cluj-Napoca,
2. *Tuberculoza*, Sub redactia C Pop, Ed Did si Pedagocica, Cluj Napoca, 2009
3. *Pneumologie*, sub red. Bogdan M; Ed. Universitară „Carol Davila", Bucureşti, 2008.
4. Planquette B., *ECN Pneumologie*, ed. Vernazobres-Grego
5. *European Respiratory Monograph*, 2009-2012,
6. Harrison – *Principiile Medicinei Interne*, vol. 1 şi 2, 14th ed., sub red. Fauci, Braunwald, Isselbacher, Wilson, Martin, Kasper, Hauser, Longo; ediţia a II-a în limba română, Ed. Teora, Bucureşti, 2003.
7. Murray and Nadel's *Textbook of Respiratory Medicine*, 5th ed., sub red. Mason RJ, Broaddus VC, Martin TR, King TE Jr., Schraufnagel DE, Murray JF, Nadel JA; Saunders Elsevier, Philadephia, 2010

Evaluation:

- Exam

CLINICAL PHARMACOLOGY

Field of study:	**Medicine**
Study program:	**Medicine**
Course title:	**Clinical Pharmacology**
Course coordinator:	**Lecturer Dr. Bocsan Corina, MD, PhD**
Department:	**Functional Sciences**
Discipline:	**Pharmacology, Toxicology and Clinical Pharmacology**
Course code:	**MED 5 1 02 EN**

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	1,5	1,5	-	21	21	-	20	62	4	Written + practical exam

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

Pre-requisites:

- Pharmacology 3rd year, Physiology, Pathophysiology, Methodology of Scientific research
- Analysis of pharmacokinetic parameters, correct writing of therapeutic prescriptions, critical analysis and interpretation of clinical studies.

General objectives:

- the information core consists in supplement of general pharmacology knowledge (basic) with the systems and special pharmacology.
- the students from medicine must have the ability of learned drugs, must be capable to apply the knowledge in clinical practice, thinking in clinical context according to all the criteria that they have in choosing one drug.

Specific objectives:

To know some basic principles in clinical pharmacology

- The pharmacokinetic principles and how to monitor pharmacological treatment
- To prevent and to manage the adverse reactions induced by drugs and drugs interactions
- Some pharmacogenetic aspects and the variability of therapeutic response
- Age and sex as variables of therapeutic response
- The specific aspects regarding the prescription in elderly, in pediatric patients, in pregnancy and during lactation

- The specific aspects regarding the prescription in patients with hepatic and renal failure
- The principles of treatment in acute intoxications
- To prevent the prescription errors.

Course content:

1. Drugs affecting the cardiovascular system
- Drugs used in cardiovascular diseases. Beta blockers, ACE inhibitors and angiotensin receptor blockers. Calcium channel blockers.
- Antianginal drugs. Nitrates. Beta adrenoceptor blocking agents. Calcium channel blockers. Other antianginal drugs
- Peripheric and cerebral vasodilators
- Antiarrhythmic drugs
- Antihypertensive drugs. Diuretic drugs in hypertension. Beta adrenoceptor blocking agents. The renin angiotensin aldosteron system. Calcium channel blockers. Alfa adrenoceptor blocking agents. Symphatetic central inhibitors. Ganglioplegic agents. Vasodilator drugs. Treatment of hypertensive emergency
- Pharmacologic management of cardiac heart failure. Diuretic drugs in cardiac heart failure. Angiotensin converting enzyme inhibitors. Vasodilators in cardiac heart failure. Beta adrenoceptor blocking agents in cardiac heart failure. Cardiac glycosides

2. Respiratory system pharmacology.
- Drugs used to treat cough
- Expectorant and mucolytic drugs
- Drugs used in bronchial asthma treatment
- Drugs used in allergic rhinitis treatment
- Pulmonary surphactant

3. Drugs affecting the central nervous system
- Sedative, hypnotic and anxiolytic drugs
- Antipsychotic drugs
- Drugs used in mood disorders
- Drugs affecting neuromuscular transmission
- Drugs used in Parkinson disease.
- Antiepileptic drugs
- Drugs used in neurodegenerative diseases
- Drug abuse. Drug dependence.

Practical activities:

1. Antianginal therapy
2. Acute coronary syndromes therapy. Vasodilator therapy
3. Treatment of arrhythmias

4. Treatment of high blood pressure
5. Treatment of heart failure
6. Forms of inhalation administration. Treatment of asthma
7. Treatment of COPD and allergic rhinitis
8. Treatment of insomnia
9. Treatment of epilepsy and Parkinson's disease
10. Treatment of depression.

References:

1. Karen Whalen PharmD – *Lippincott Illustrated Reviews: Pharmacology*- Seventh, North American Edition, 2018
2. Katzung BG. – *Basic and Clinical Pharmacology* (14th ed) Mc Graw Hill 2017
3. Rang HP, Dale MM et al. *Pharmacology* 8th ed., Elsevier Churchill Livingstone, 2015
4. Goodman and Gilamn's *Manual of Pharmacology and Therapeutics*, 13 th ed, Mc Graw Hill Publishing, 2017
5. Colman Rebecca, Somogiy Ron. *The Toronto Notes for Medical Students* 2008
6. Anca Dana Buzoianu – *Farmacologie clinică. Curs pentru studenții anului V*, Ed. Medicală Universitară „Iuliu Hațieganu" Cluj-Napoca, 2016

Evaluation:

- Written exam 70%
- Practical exam 30%

NEUROSCIENCES

- **ADULT NEUROLOGY**
- **PEDIATRIC NEUROLOGY**
- **NEUROSURGERY**

A. ADULT NEUROLOGY

Field of study:	**Medicine**
Study program:	**Medicine**
Course title:	**Adult Neurology**
Course coordinator:	**Prof. Dafin Fior Mureşanu, MD, PhD,**
	Lecturer Ioana Stănescu, MD, PhD
	Lecturer Adina Stan, MD,PhD
Department:	**Neurosciences**
Discipline:	**Neurology and Pediatric Neurology**
Course code:	**MED 5 1 03 EN**

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	4	-	4	56	-	56	48	160	10*	Written + practical exam

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

*with the Disciplines Pediatric Neurology and Neurosurgery

Pre-requisites:

- Notions of Anatomy, Morphopathology, Physiology and Pathophysiology of the central and peripheral nervous system, notions of Clinical Semiology, notions of General Pharmacology
- General clinical examination.

General objectives:

- Introducing the neurological examination into clinical practice.
- Settlement of theoretical and practical principles of diagnosis and management of different neurological diseases.

Specific objectives:

- Appreciate that a patient has a neurological problem;
- Evaluate the common neurological presenting symptoms;
- Recognise the common neurological disorders;
- Recognize neurological emergencies and initiate treatment;

- Manage the common neurological disorders using appropriate drugs and alternatives of general management;
- Principles of care in neurological disability.

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: voluntar 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. Extrapyramidal 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-vestibulary 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
    - Subarachnoideal hemorrhage
    - Cerebral venous thrombophlebitis
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, polimyositis). Myasthenia and myasthenis syndromes
27. Neuropathic pain. Headache and migraine; craniofacial pain. Encephalopathies
28. Neurologic symptoms in general diseases.

Practical activities:

1. Participation in the activities of the section

Visit

Active participation in the examination of patients

2. Acquiring the methodology of interaction with the neurological patient
3. Specific measures for emergency recognition and assessment in:
Cerebral vascular pathology
Parkinson's disease
Multiple sclerosis
Epilepsy
Headache syndrome
Coma

References:

1. *Neuroscience* Course Support
2. Allan Ropper, Martin Samuels, Joshua Klein, Adams and Victor's *Principles of Neurology*, Ed. 10, ISBN: 9780071794794, New-York, McGraw-Hill Companies, 2014

Evaluation:

- Written exam 70%
- Practical exam 30%

PEDIATRIC NEUROLOGY

Field of study:	**Medicine**
Study program:	**Medicine**
Course title:	**Paediatric Neurology**
Course coordinator:	**Assistant Professor Mihaela Vinţan, MD, PhD**
Department:	**Neuroscience**
Discipline:	**Neurology and Paediatric Neurology**
Course code:	**MED 5 1 03 EN**

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	-	4	14	-	14	33	61	10*	Written exam

L = Lectures; PA = practical activities; CI = clinical internship
*with the Disciplines Adult Neurology and Neurosurgery

Pre-requisites:
- Neurological Semiology, Pediatrics and Childcare, Pharmacology, Physiology, Pathophysiology, Methodology of scientific research
- General data on neurological examination, critical analysis and interpretation of clinical studies.

General objectives:
Gaining of basic knowledge by students:

- To assess the level of neurological and psychological development of children at different ages
- To understand how to approach children with neurological disorders (aphasia, behavior disorders, emotional and cognitive disorders, motor or sensorial deficits)
- To create an image of the whole area of the patient in terms of the symptoms, diagnostic classification and therapy, rehabilitation and recovery measures of neurological
- Implementation of notions with theoretical and applicative nature of the material presented in class.
- To critically plan and analyze the management of children with neurological disorders.
- To monitor the prescribed treatment regarding efficiency and adverse reactions,

- To identify the situation where special treatment should be prescribed (surgical or neurosurgical treatment, orthopedic treatment, endocrinology, ENT, ophthalmology, physiotherapy, psychological interventions, speech therapy, play therapy)
- To be able to efficiently use the available theoretical data about pediatric neurology disorders and their management.
- To be able to understand the results of a clinical study in the field of pediatric neurology

Specific objectives:

- To recognize and individualize the semiological characteristics, according to the patient's age: newborn, infant, toddler, student.
- To train and apply specific techniques and methods of review, tailored to the pediatric age for characterization of neuro-psychological development of the child and to specify the type of neurological clinical picture
- To recognize the particularities of neurological sufferance since the age of the newborn until the age of adolescence
- To recognise the developmental disorders in infant and toddler in order to ensure early diagnosis and immediate therapy procedures.
- To identify and implement specific measures for specific disorders:
  - Cerebral Palsy
  - Brain trauma and peripheral nervous system disorders (including the obstetrical ones)
  - Epileptic seizures in childhood
  - Developmental disorders - cognitive and sensory motor in childhood

Course content:

1. The ontological development of the nervous system. The evaluation of the level of maturation of the nervous system in childhood.
2. Assessment of the psychomotor development according to age: newborn, infant, toddlers. Particularities of neurological examination in newborn, infant and toddlers.
3. Early Diagnosis of developmental disroders. Early intervention in order to prevent the psychomotor disability.
4. Brain and spine malformations in childhood.
5. Perinatal pathology, obstetrical trauma of brachial plexus, spine and peripheral nerves.
6. Cerebral palsy
7. Epileptic syndromes in childhood.

Practical activities:

1. Completion of the child observation sheet with neurological pathology: anamnesis, history of the disease, hereditary-collateral and personal history, epidemiological investigation
2. The approach of the neuropediatric patient by age-specific and neurological pathology interaction methods (aphasia, delay, sensory deficiency, etc.)
3. Assessment of the level of neuropsychological development by using developmental scales for the pediatric age. Examination of neurological functions through maneuvers and methods appropriate to the degree of maturation of the nervous system
4. Obtaining the final, etiological diagnosis, by integrating the clinical elements with the paraclinical results and the laboratory data in each case. Differential diagnosis
5. Discussion in each case of prophylactic and curative therapeutic possibilities. Monitoring of results, elimination of side effects
6. Early preparation of a recovery plan, to avoid the installation of disabilities or to reduce them
7. Analysis of prognosis, evolution, assessment of the degree of recovery during treatment.

References:

Course support
Kenneth F. Swaiman, Stephen Ashwal, (2012), 5th edition; *Pediatric Neurology: Principles and Practice*, 2-Volume, MOSBY Inc.
Paul A. Young, Paul H. Young and Daniel L. Tolbert (2015); *Basic clinical neuroscience*. Philadelphia: Wolters Kluver.

Evaluation:

- Written exam

NEUROSURGERY

Field of study:	**Medicine**
Study program:	**Medicine**
Course title:	**Neurosurgery**
Course coordinator:	**Prof. Ioan Stefan Florian, MD, PhD**
Department:	**Neuroscience**
Discipline:	**Neurosurgery**
Course code:	**MED 5 1 03 EN**

Semester	Course Type	Lectures	Practical activities		Lectures	Practical activities		Individual study	TOTAL	Credits	Evaluation
		hours/week			hours/sem.						
		L	PA	Cl	L	PA	Cl				
I	Compulsory	2	-	4	14	-	14	-	28	10*	Written exam

L = lectures; PA = practical activities; Cl = clinical internship
*with the disciplines Adult Neurology and Pediatric Neurology

Pre-requisites: -

General objectives:
Acknowledgment of elementary neurosurgical principles and techniques.

Specific objectives:
Aknowledgment of the clinical aspects, of the investigation means, principles of treatrment, 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 sequellaes

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. *Neurochirurgie* – curs pentru studenti, Florian Ioan Stefan, Editura Didactica Universitara “Iuliu Haţieganu”, Cluj-Napoca, 215 pag., 2003.
2. *Handbook of Neurosurgery* by Mark S. Greenberg. Thieme Medical Publishers, New York, 2006
3. *Atlas of Neurosurgicals Techniques, Brain*, editors L.N. Shekar, R.G. Fessler, Thieme 2006
4. *Principiile Chirurgiei Neurologice* Editia a 4-a, coord. ed. în lb. română: Ioan Ștefan Florian, Editura Hipocrate, 2019.

Evaluation:

- Written exam

RADIOLOGY. THE CHEST, HEART AND VESSELS. THE CENTRAL NERVOUS SYSTEM

Field of study:	**Medicine**
Study program:	**Medicine**
Course title:	**Radiology. The chest, heart and vessels. The central nervous system**
Course coordinator:	**Prof. Dudea Sorin, MD, PhD** **Lecturer Ciurea Anca, MD, PhD**
Department:	**Surgical Specialties**
Discipline:	**Radiology**
Course code:	**MED 5 2 04 EN**

Semester	Courses type	Lectures	Practical activities		Lectures	Practical activities		Individual study	TOTAL	Credit	Evaluation
		hours/week			hours/sem.						
		L	PA	CI	L	PA	CI				
II	Compulsory	2	2	-	14	14	-	28	56	2	Written + oral exam

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

Pre-requisites:

- Radiology 4th year
- Establish the clinical diagnosis based on the objective examination and the interpretation of the information obtained through the laboratory tests.

General objectives:

- Underlining the indications and contraindications of each examination technique as well as learning of algorithms of examination in order to reduce exposure to radiation. Correlation of common and/or specific pathological imaging findings with organ pathology.

Specific objectives:

- Recognition of the imaging method
- Recognition of the normal anatomical elements and of the variants
- Recognition of the semiological elements and their signification
- Recognition of the pathological findings
- Discussion of the positive and differential diagnosis
- Elaborating a radiological report.

Course content:

1. **Lungs**: anatomy and examination techniques. Pulmonary radiological semiology (opacity, lucency, mix image).
2. **Pulmonary syndromes**: parietal, pleural, alveolar filling, bronchial, interstitial. Lung **cancer**. **Mediastinal** disease.
3. **Heart** examination. Radio-imaging techniques: Contrast media used in radiology: indications, contraindications, risks; Imaging techniques of vascular examination (angiography, ultrasound, MRI, angioCT); Radiographic anatomy of the heart (PA and LL); Notions of echocardiography and MRI anatomy of the heart; Elementary radiographic semeiology of the heart. Enlargement of heart chambers.
4. The **pulmonary vascular syndrome**. The radiographyc appearance of the heart in the main **valvulopathies**. The **miocardial** and **pericardial** syndrome.
5. Elementary changes in **peripheral arterial and venous diseases**. Elementary notions of vascular **interventional radiology**.
6. Radio-imaging of the **brain and spine**: CT and MRI findings in: stroke, tumors, trauma; MRI of the spine (disc hernia, tumors).
7. **Pediatric radiology**: peculiarities in imaging the chest and central nervous system.
8. **Emergencies**: Head and neck trauma, stroke; Thorax: trauma, pulmonary embolism, pneumotorax, pulmonary edema, cardiac tamponade; vascular emergencies, disc hernia.

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. Cord - 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. David Sutton – *Textbook of radiology and imaging*, 7th Ed, Elsevier, 2014.
2. Dudea SM (ed) - *Radiologie* – Vol. II – Ed. Med. Univ. "Iuliu Haţieganu", Cluj-Napoca, 2018.

Evaluation:

- Written exam 50%
- Practical exam 50%

PEDIATRICS, PUERICULTURE, PEDIATRIC SURGERY

A. PEDIATRICS AND PUERICULTURE

Field of study:	**Medicine**
Study programe:	**Medicine**
Course title:	**Pediatrics and Puericulture**
Course coordinator:	**Prof. Man Sorin Claudiu, MD, PhD**
Department:	**Mother and Child**
Discipline:	**Pediatrics Clinic III**
Course code:	**MED 5 2 05 EN**

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	6	-	12,78	84	-	179	97	360	12*	Written + practical exam

L = lectures; PA = practical activities; CI = clinical internship
*with the discipline Pediatric Surgery

Pre-requisites:
- Physiology, Pathophysiology, Semiology, Radiology
- practical knowledge for clinical examination and laboratory tests.

General objectives:
At the end of the course students will be able to correctly manage the management of pediatric patients.

Specific goals:
At the end of the course students will be able top:
- Identify the normal aspects of somatic and psychomotor development of the child,
- Establish a proper diet plan for the normal development of the infant and the baby
- Identify special nutritional needs in various diseases and establish a recovery plan
- Perform a complete clinical evaluation with anamnestic and objective examinations in the child

- Make a correct differential diagnosis and an appropriate investigation plan for the clinical classification of the patient
- Interpret laboratory and paraclinical data applied to the clinically evaluated case
- Mention the side effects of medication and to manage the adverse reactions of the drugs used
- Identify the particularities of the posology of medication, including particular aspects related to the medication administration technique (e.g. inhaled treatment of the child)
- Effectively manage patient management
- Monitor drug therapy in acute illness
- Use methods to prevent prescription errors
- Students will be familiar with the principles of acute poisoning
- Perform prophylaxis of certain diseases in the child's pathology.

C**ourse content:**

Child care:

- Child's growth and development
- Baby's nutritional needs
- Mother's milk and breast feeding
- Cow's milk and artificial food
- Diversified nutrition and nutrition of the young child, preschool and schoolchild

Diseases of the respiratory system:

- Acute respiratory insufficiency
- Acute rhinopharyngitis. Streptococcal pharingitis.
- Acute laryngitis. Bronchiolitis acute.
- Pneumonia.
- Bronchial asthma

Diseases of the cardiovascular system:

- Congenital heart disease
- Endocarditis, myocarditis, non-rheumatic pericarditis.
- Heart failure

Diseases of the digestive system:

- Vomiting syndrome. Gastroesophageal reflux.
- Gastritis. Gastro-duodenal ulcer.
- Acute gastroenteritis. Acute dehydration syndrome. Hydroelectrolyte and acidobase disorders.
- Recurrent abdominal pain.
- Chronic hepatitis
- Malabsorption syndrome and chronic diarrhea. Allergy to cow's milk proteins. Celiac disease.
- Infant and newborn jaundice.

Reno-urinary disorders:
- Glomerulonephritis and nephrotic syndrome.
- Urinary Tract Infection.
- Reno-urinary malformations.
- Acute kidney failure.
- Chronic renal failure.

Hematological Diseases:
- Anemia
- Hemorrhagic syndromes
- Leukemia and other malignancies.

Diseases of nutrition and metabolism:
- Rickets
- Diabetes
- Obesity
- Growth failure and malnutrition. Short stature

Pediatric emergencies:
- Coma. Convulsions.
- Acute poisoning.
- Shock (hypovolemic, cardiogenic, anaphylactic, neurogenic, infectious)
- Fever in children (fever without source, occult bacteraemia, fever of unknown origin, antipyretics).

Genetic diseases:
- Chromosomopathies
- Monogenic diseases (galactose, phenylketonuria, Gaucher disease)
- Embryo-and fetopathies

Pediatric rheumatology:
- Juvenile idiopathic arthritis.
- Acute articular rheumatism.
- Diagnostic criteria in other rheumatic diseases.

Practical activities:

A. Child health care

1. Examination of the sick child with the preparation of the observation sheet
- anamnesis
- clinical examination, including morphogram, thermometry, blood pressure measurement
- establishing the examination program and the therapeutic plan
- completing the discharge documents
- measures of health education

2. Caring for the sick child

3. Food:
- the technique of feeding the baby

- establishing the diet according to the specificity of the disease and the age of the child
4. Treatment:
- oral medication administration
- injection treatment (intramuscular, intravenous)
- artificial respiration
- gastric lavage
B. Harvesting techniques
1. Pharyngeal secretion collection
2. Feces collection
3. Blood collection
4. Urine collection
C. Interpretation of laboratory reports and results of diagnostic explorations
1. Complete urine examination: density, proteinuria, sugar, pus, urobilinogen, bile pigments, ketone bodies, urinary sediment, urine ionogram, pH
2. The cerebrospinal fluid - Pandy reaction
- biochemistry exams: proteinuria, glycuria and chloruria
- bacteriological examination
- microscopic examination of the smear
3. Hematological examinations of peripheral blood:
- hemolithogram
- blood picture
- reticulocytes
- bleeding time, coagulation
- medulograma
4. Radiological films
5. ECG
6. Biochemical examinations in the blood: non-specific inflammatory tests, functional-biochemical, liver, renal, metabolic tests
7. Pleural fluid: Rivalta test, microscopic examination of the smear
8. Examination of the seat: coproculture, coprocytogram, pH, digestion
D. Presentations of clinical cases.

References:

1. *Pediatrics for Medical Students*, Man SC, sub redacţia; 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. Nelson *Textbook of Pediatrics*, Kliegman R., Stanton BF, St Geme JW, Scor NF, 20th ed. W.B. Saunders Company, 2016
3. Nelson *Essentials of Pediatrics*. Marcdante K. 6th ed W.B. Saunders Company, 2010
4. *Pediatria Practică*. Man C. Sorin, Nanulescu V. Mircea, Ed Risoprint, Cluj Napoca, 2006.

5. *Puericultura practică*. Maria Miheţiu. Casa Cărţii de Ştiinţă, 2008.

Evaluation:

- Written exam 50%
- Practical exam 50%

B. PEDIATRIC SURGERY

Domain	**Medicine**
Program	**Medicine**
Lecturers	**Pediatric Surgery**
Chairman	**Lecturer Gocan Horațiu, MD, PhD**
Department	**Mother and Child**
Discipline	**Surgery and Pediatric Surgery**
Code	**MED 5 2 05 EN**

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	2	-	3	7	-	21	48	76	12*	Written + practical exam

L=lecturers; P=practical;
*with the Discipline Pediatrics and Puericulture

Pre-requisites: -

General objectives:

- General principles of pediatric surgery
- Management of main surgical congenital and acquired pathology of newborn, infant and child

Specific objectives:

- Clinical exam of infants and children with surgical pathology
- Diagnosis (clinical presentation, radiology and lab studies) of children with surgical diseases
- Attending surgical procedures
- Emergencies in infants and children
- Digestive malformations
- Pediatric urology

C**ourse content:**

1. Esophageal atresia and tracheo-esophageal fistula
2. Duodenal atresia and stenosis
3. Small bowel atresia and stenosis
4. Pyloric stenosis
5. Anorectal malformations
6. Hirschprung`s disease

7. Diaphragmatic hernia
8. Acute appendicitis in children
9. Meckel diverticulum
10. Abdominal trauma
11. Meconium ileus and meconium peritonitis
12. Malrotation and volvulus
13. Necrotizing enterocolitis
14. Hernia and hydrocele
15. Hypospadias
16. Omphalocel
17. Gastroschisis
18. Undescended testis
19. Phymosis
20. Acute scrotum

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. *Pediatric Surgery for medical students*. Anca Budusan, Ed. Medicala Universitara "Iuliu Haţieganu" Cluj-Napoca, 2018
2. Ashcraft`s *Pediatric Surgery*, 6th Edition, Saunders 2014

Evaluation:

- Written exam 50%
- Practical exam 50%

ENT – OTOLARYNGOLOGY

Field of study:	**Medicine**
Study program:	**Medicine**
Course title:	**Otolaryngology**
Course coordinator:	**Lecturer Sever Septimiu Pop, MD, PhD**
Department:	**Surgical Specialties**
Discipline:	**Otolaryngology**
Course code:	**MED 5 2 06 EN**

Semester	Course type	Lectures	Practical activities		Lectures	Practical activities		Individual study	TOTAL	Credit	Evaluation
		hours/week			hours/sem.						
		L	PA	CI	L	PA	CI				
II	Compulsory	4	4	-	28	28	-	41	97	5	Written+ practical exam

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

Pre-requisites:

- **A**natomy, Physiology, Pathophysiology, Pharmacology, Methodology of Scientific Research
- Critical analysis and interpretation of clinical studies.

General objectives:

1. Basic knowledge of ENT pathology
2. Running into good theoretical and practical issues in therapeutical and diagnosis management of different ENT pathologies.
3. Since the great majority of medical students will not become otolaryngologists, it becomes much more important to them to understand how to recognize potentially dangerous problems that should be referred to the ENT specialist, as well as how to manage uncomplicated cases that can be taken care of at the primary care level.

Specific objectives:

1. Knowing the theoretical principles in anatomy, examination and main pathologies of each organ
2. Development of practical skills in performing the clinical examination of the ENT patient
3. Recognition of the main pathologies in otolaryngology based on typical pictures and videos presented during the lectures and practical stages

4. Recognition of the main pathologies in otolaryngology based on examination of ENT patients

Course content:

A. RHINOLOGY

1. ANATOMY OF THE NOSE AND PARANASAL SINUSES

2. EXAMINATION OF THE NOSE AND PARANASAL SINUSES:

2.1. Symptoms of nasal diseases

2.2. Clinical examination

2.3. Investigations

3. ACUTE AND CHRONIC RHINITIS:

3.1. Acute Rhinitis (Coryza)

3.2. Acute Purulent Rhinitis

3.3. Diphtheria

3.4. Chronic Specific Rhinitis: Syphilis, Tuberculosis, Rhinoscleroma, Leprosy

3.5. Chronic Atrophic Rhinitis

4. NASAL MANIFESTATIONS IN SYSTEMIC DISEASES:

4.1. Wegener's Granulomatosis

4.2. Sarcoidosis

5. ALLERGIC RHINITIS

6. NON-ALLERGIC VASOMOTOR RHINITIS

7. NASAL POLYPOSIS

8. RHINO-SINUSITIS:

8.1. Acute Sinusitis

8.2. Chronic Rhino-sinusitis

8.4. Fungal Sinusitis

9. EPISTAXIS

10. TUMORS OF THE NOSE AND PARANASAL SINUSES:

10.1. Benign Tumors

10.2. Malignant Tumors

11. TRAUMA:

11.1. Nasal fractures

12. SKIN DISEASES OF THE NOSE:

12.1. Infections: Vestibulitis, Furuncle, Erysipelas

12.2. Rhinophyma

12.3. Tumors:

12.3.1. Benign tumors

12.3.2. Malignant tumors: SCC, BCC, Melanoma

B. PHARYNGOLOGY

1. ANATOMY OF THE PHARYNX

2. EXAMINATION OF THE PHARYNX

2.1. Symptoms

2.2. Clinical Examination
2.3. Investigations

3. PHARYNGITIS:

3.1. Acute Pharyngitis
3.2. Acute Follicular Tonsillitis
3.3. Peri-tonsillar Abscess
3.4. Diphtheria
3.5. Vincent's Angina
3.6. Scarlet Fever
3.7. Pharyngeal Manifestations in Blood Disorders: Infectious Mononucleosis, Agranulocytosis
3.8. Chronic Non-specific Pharyngitis
3.9. Chronic Tonsillitis
3.10. Adenoids
3.11. Chronic Specific Pharyngitis: Tuberculosis, Syphilis

4. NASOPHARYNGEAL CANCER

5. BENIGN TUMORS OF THE NASOPHARYNX

6. TUMORS OF THE OROPHARYNX:

6.1. Benign Tumors
6.2. Malignant Tumors

7. TUMORS OF THE HYPOPHARYNX

7.1. Benign Tumors
7.2. Malignant Tumors

8. FOREIGN BODIES IN THE PHARYNX

9. NEUROLOGICAL DISORDERS OF THE PHARYNX

9.1. Sensory disorders: Anesthesia, Hyperesthesia, Parenthesis and Glossopharyngeal Neuralgia
9.2. Motor disorders: Paralysis, Spasms

C. LARYNGOLOGY

1. ANATOMY OF THE LARYNX

2. EXAMINATION OF THE LARYNX

2.1. Symptoms
2.2. Clinical Examination
2.3. Investigations

3. LARYNGITIS

3.1. Acute Laryngitis
3.2. Acute Epiglottises
3.3. Laryngeal Diphtheria
3.4. Chronic Non-specific Laryngitis
3.5. Chronic Specific Laryngitis: Tuberculosis, Syphilis, Leprosy, Scleroma
Laryngeal Hyperkeratosis
3.6. Reinke's Edema

3.7. Vocal Cord Nodules
3.8. Vocal Cord Polyps
4. BENIGN LARYNGEAL TUMORS
5. MALIGNANT LARYNGEAL TUMORS
6. NEUROLOGICAL DISEASES
6.1. Recurrent Laryngeal Nerve Palsy
7. TRACHEOSTOMY
8. FOREIGN BODIES

D. OTOLOGY
1. ANATOMY OF THE EAR
2. PHYSIOLOGY OF THE EAR
3. EXAMINATION OF THE EAR
3.1. Symptoms
3.2. Clinical Examination
3.3. Investigations of Hearing
4. DISEASES OF THE EXTERNAL EAR
4.1. Diseases of the Auricle
4.1.1. Congenital Abnormalities
4.1.2. Trauma
4.1.3. Perichondritis
4.1.4. Skin Infections
4.1.5. Tumors
4.2. Diseases of the External Auditory Canal
4.2.1. Wax
4.2.2. Foreign Bodies
4.2.3. Trauma
4.2.4. Localized External Otitis (Furuncle)
4.2.5. Diffuse External Otitis
4.2.6. Otomycosis
4.2.7. Tumors
5. DISEASES OF THE MIDDLE EAR
5.1. Injuries of the Eardrum
5.2. Bullous Myringitis
5.3. Acute Suppurative Otitis Media
5.4. Otitis Media with Effusion
5.5. Simple Chronic Suppurative Otitis Media
5.6. Cholesteatoma
5.8. Otosclerosis
6. DISEASES OF THE INNER EAR
6.1. Sudden Sensorineural Hearing Loss
6.2. Progressive Sensorineural Hearing Loss
6.2.1. Presbyacusis

6.2.2. Ototoxic Drugs
6.2.3. Noise Exposure
6.2.4. Infections
6.2.5. Meniere's Disease
6.2.6. Acoustic Neuroma
6.2.7. Management of the hearing impairment
6.2.8. Hearing loss in children

7. PERIPHERAL VESTIBULAR SYNDROME

7.1. Vertigo
7.2. Examination of the Vestibular Function
7.3. Meniere's Disease
7.4. Benign Positional Paroxysmal Vertigo (BPPV)
7.5. Vestibular Neuronitis
7.6. Acoustic Neuroma

E. NECK AND SALIVARY GLANDS BASICS

1. CLINICAL ANATOMY

2. CLINICAL EXAMINATION

3. INFLAMMATORY DISORDERS

3.1. Infectious inflammatory disorders:
3.1.1. Acute suppurative sialadenitis
3.1.2. Chronic sialadenitis
3.1.3. Mumps
3.1.4. HIV
3.1.5. Granulomatous disorders
3.2. Non-infectious inflammatory disorders
3.2.1. Sjogren syndrome
3.2.2. Sarcoidosis

4. OBSTRUCTIVE DISORDERS: Sialolithiasis

5. SALIVARY GLANDS TUMORS: benign and malignant tumors

References:

1. S. Pop: *ENT Basics*, Editura Casa Cărții de Știință, Cluj-Napoca 2011
2. M. Cosgarea, Alma Maniu, S. Pop, Magdalena Chirila, Violeta Necula: *Curs ORL pentru studenți*, Editura Medicala Universitară „Iuliu Hațieganu" Cluj-Napoca, 2003
3. Alma Maniu, S. Pop, Magdalena Chirila, Violeta Necula: *Caiet de lucrări practice în ORL*, Editura Medicală Universitară „Iuliu Hațieganu" Cluj-Napoca, 2005
4. B.J. Bingham, M. Hawke, P. Kwok: *Atlas of clinical otolaryngology*, Mosby, 1992

Evaluation:

- Written exam 50%
- Practical exam 50%

ONCOLOGY

Study domain	**Medicine**
Study program	**Medicine**
Course	**Oncology**
Discipline holder	**Prof. Tudor Ciuleanu, MD, PhD**
	Assoc. Prof. Cainap Calin, MD, PhD
Department	**Oncology**
Discipline	**Medical Oncology**
Course code	**MED 5 2 07 EN**

Semester	Courses Type	Lectures	Practical activities		Lectures	Practical activities		Individual study	TOTAL	Credits	Evaluation
		hours / week			hours/ week						
		L	PA	CI	L	PA	CI				
II	Compulsory	1	-	2	7	-	14	19	40	2	Written+ practical exam

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

Pre-requisites: Anatomy, Pathophysiology, Morphopathology, Imaging, Methodology of scientific research

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:

- Analyze the socio-economic impact of cancer at population level
- Synthesize and exemplify the exogenous and endogenous factors of cancer etiology as well as primary, secondary, tertiary prevention methods.
- Be aware of the oncology screening guidelines, application methodology and the necessary elements to direct oncological patients to genetic counseling if appropriate.
- Know basics of direct and indirect signs of suspected malignancy, confirmation of malignancy , investigations necessary for staging and patient initial work-up in different tumor localizations
- Know the common acute and chronic toxicities (neutropenia, nausea/vomiting, alopecia, extravasation, etc.) specific to a chemotherapy

regimen, hormone therapy, targeted therapy, and know the principles to combat / prevent them
- Correctly recognize acute and / or delayed oncological treatment adverse events and know the necessary measures to combat / prevent them
- To know the types of pain, methods of qualitative and quantitative assessment of pain, indications of different stages of pain drugs and adjuvant drugs
- To diagnose an oncological emergency
- To acquire knowledge about the particularities of the terminal oncologic patient and principles of palliative care.

Course content:
1. Cancer epidemiology and etiology.
2. Cancerogenesis. The tumor cell.
3. Pre-malignant conditions. Cancer prevention and risk factors.
4. Cancer diagnosis. Treatment decision. Work-up. Evaluation of treatment results.
5. Principles and indications for chemotherapy, hormonal, biological and targeted therapy.
6. Principles and indications for surgery and radiotherapy.
7. Oncologic emergencies. Pain treatment.

Practical activities:
1. Overview
2. Diagnosis of malignant adenopathy. Head and neck cancers.
3. Lung Cancer
4. Breast Cancer
5. Gynecological cancers.
6. Gastrointestinal cancers
7. Genitourinary cancers
8. Bone and soft tissue sarcomas
9. CNS Tumors
10. Review. Practical cases.

Bibliography:
Nagy V. (sub redactia). *Principii de Cancerologie Generala*. Editura Medicala Universitara „Iuliu Haţieganu" Cluj, 2007
Nagy V. (sub redactia). *Propedeutică Oncologică*. Editura Medicala Universitara „Iuliu Haţieganu" Cluj, 2008
Ghilezan N. (sub redactia). *Oncologie generală*. Editura Medicală, Bucureşti, 1992
Courses of the discipline held at the students' series during the study year.

Evaluation:

- Written exam 50%
- Practical exam 50%

RADIOTHERAPY

Study domain	**Medicine**
Study program	**Medicine**
Course	**Oncology**
Discipline holder	**Prof. Viorica Nagy, MD, PhD**
Department	**Oncology**
Discipline	**Oncology - Radiotherapy**
Course code	**MED 5 2 07 EN**

Semester	Courses Type	Lectures	Practical activities		Lectures	Practical activities		Individual study	TOTAL	Credits	Evaluation
		hours / week			hours/ week						
		L	PA	CI	L	PA	CI				
II	Compulsory	1	-	2	7	-	14	19	40	2	Written+ practical exam

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

Pre-requisites: Internal Medicine, Imaging

General objective:
At the end of the module students will be able to enunciate an oncologic diagnosis and the correct management for specific clinical situation.

Specific objectives:
At the end of the module students will be able to

- analyze the socio-economic impact of cancer at population level
- exemplify exogenous and endogenous risk factors for cancer
- differentiate the methods of primary, secondary and tertiary prevention for specific cancers (breast, colorectal, cervix etc)
- make recommendations for lifestyle changes that can decrease the risk of cancer (breast, lung, skin etc)
- identify direct/indirect signs of suspicion ; elaborate a complete diagnostic plan (biopsy, staging, performance status)
- prioritize investigations according to utility, invasiveness, cost
- plan post treatment follow-up, justify necessary examinations
- evaluate acute and late toxicities of radiotherapy ; recommend measures to prevent/treat specific toxicities
- justify the use of radiotherapy for specific cases

- explain how radiotherapy is administered : total dose, number of fraction, total treatment time, acute and late toxicities in order to obtain the informed consent from the patient
- understand the rationale for multidisciplinary approach in cancer treatment
- diagnose oncologic emergencies
- evaluate qualitatively and quantitatively chronic pain and prescribe pain medication and adjuvants for specific cancers
- critically evaluate literature information
- integrate ethics principles towards the oncologic patient (respect, empathy, confidentiality).

Course content:

Carcinogenesis. The tumor cell. Hallmarks of cancer
Premalignant conditions. Cancer prevention and risk factors.
Cancer diagnosis. Treatment decision. Pretreatment workup. Evaluation of treatment results.
Principles and indications for surgery, radiotherapy
Oncologic emergencies.

Practical activities:

1. Overview
2. Diagnosis of malignant adenopathy. Head and neck cancers.
3. Lung Cancer
4. Breast Cancer
5. Gynecological cancers.
6. Gastrointestinal cancers
7. Genitourinary cancers
8. Bone and soft tissue sarcomas
9. CNS Tumors
10. Review. Practical cases.

Bibliography:

Nagy V. (sub redactia). *Principii de Cancerologie Generala,* Editura Medicala Universitara „Iuliu Haţieganu" Cluj, 2007
DeVita VT et al. (Editors) *Cancer.Principles & Practice of Oncology*, 9th ED, LWW Philadelphia, 2011.

Evaluation:

- Written exam 50%
- Practical exam 50%

RHEUMATOLOGY AND MEDICAL REHABILITATION

A. RHEUMATOLOGY

Field of study:	**Medicine**
Study program:	**Medicine**
Course title:	**Rheumatology**
Course coordinator:	**Lecturer Muntean Laura, MD, PhD**
Department:	**Medical Specialties**
Discipline:	**Rheumatology**
Course code:	**MED 5 2 08 EN**

Sem.	Course type	Lectures	Practical activities		Lectures	Practical activities		Individual study	TOTAL	Credits	Evaluation
		Hours/week			Hours/semester						
		L	PA	CI	L	PA	CI				
II	Compulsory	2	-	2	14	-	14	-	28	2	Written + practical exam

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

Pre-requisites:

- Anatomy, Physiology, Pathophysiology, Medical Semiology, Internal Medicine year 4, Clinical Farmacology
- Identification of the signs and symptoms of the disease, establishing the correlations between the topography of the pain and the anatomical site, the diagnostic classification, the analysis of the systemic disorders and the drug interactions within the pathology of internal medicine known and included in the rheumatological diseases.

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 imagistic 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 imagistic 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 ($DMARD_S$ - *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 imagistic 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 poplyteal 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) andantiphospholipid 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 polychondritis, 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 an severity of the disease in patients with systemic scleroderma
- To know and identify clinical manifestations and relevant clinical associations in patients with dermatomyositis/polymiositis
- To explain the benefits and risks of the drugs commonly used in the management of patients with inflammatory myopathies - mainly corticosteroids, but also other immunosupresors
- To know and identify clinical manifestations, associated comorbidites and complications related to Sjogren syndrome
- To know rare diseases that has to be differentiated from other systemic connective tissue diseases (recurrent polychondritis, 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 gigantocellular 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, imagistic tests, biopsy)
- To be able of outlining the appropriate treatment plan with immunosupresor 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. Polyarthritis and Rheumatoid arthritis (RA)
3. Oligoarthritis, Low back pain, Spondylarthritis (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. Clinical internship in the patient rooms
2. Principles of musculoskeletal system evaluation
3. Rheumatological history
4. Objective examination of musculoskeletal system screening (GALS - Gait, Arms, Leg, Spine) according to European recommendations
5. Evaluation, description of subcutaneous nodules
6. Description of characteristic facies in rheumatic diseases
7. Analyzing the difference between soft tissue swelling and bone deformities
8. Evaluation and interpretation of synovitis of the joints of the hands
9. Detection of the presence of knee hydarthrosis - knee shock
10. Palpation detection of joint and periarticular sensitivity
11. Performing and interpreting the Lasegue test
12. Performing and interpreting the Gaenslen sign
13. Recognition and description of characteristic changes in the hands in advanced rheumatoid arthritis
14. Recognition and interpretation of the Heberden and Bouchard nodules
15. Recognition of varus and valgus deformities in the knees and hallux valgus
16. Performing and interpreting passive and active movements of large joints
17. Performing and interpreting the Schober test

18. Detection and interpretation of cracks in the knees
19. Evaluation and interpretation of the functional capacity of the hand - the prehensile capacity and precision movements
20. Evaluation and interpretation Test Tinnel, Phallen
21. Full examination of the specialized cases, with the support of the positive diagnosis, the differential diagnosis and the principles of treatment and monitoring.

References:

- Simona Rednic. *Reumatologie clinică – ghid de studiu*. Editura Medicală Universitară Iuliu Haţieganu, Cluj-Napoca, 2018
- The Toronto notes
- Jose Da Silva and Anthony Woolf. *Rheumatology in practice*, Springer Verlag, London, 2010
- Bulstrode Christopher. *The musculoskeletal system at a glance*. Blackwell Publishing, Oxford, 2007
- Walji, Anil H. *Musculoskeletal system. Crash Course*. Mosby, Inc, Philadelphia, 2006
- Stone JH. *A clinican's pearls and myths in rheumatology*, Springer, Heidelberg, 2009
- Klippel JH. *Primer on rheumatic diseases*, Springer New York, 2008

Evaluation: Complex exam together with Medical Rehabilitation specialty

- Written exam 60%
- Practical exam 40%

B. MEDICAL REHABILITATION

Field of study:	**Medicine**
Study program:	**Medicine**
Course title:	**Medical rehabilitation**
Course coordinator:	**Lecturer Irsay Laszlo, MD, PhD**
	Lecturer Ileana Monica Borda, MD, PhD
Department:	**Medical Specialties**
Discipline:	**Medical rehabilitation**
Course code:	**MED 5 1 08 EN**

Sem.	Course type	Lectures	Practical activities		Lectures	Practical activities		Individual study	TOTAL	Credits	Evaluation
		hours/week			hours/semester						
		L	PA	CI	L	PA	CI				
II	Compulsory	2	-	2	14	-	14	32	60	2	Written exam

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

Pre-requisites: Anatomy of the locomotory system. 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:
Presentation of clinical cases, therapeutic maneuvers, rehabilitation protocols, physiotherapy techniques, organization and functioning of the rehabilitation section and the treatment base.

References:

1. L. Irsay, L. Pop: *Masajul medical clasic*, suport DVD, ISDN 973-693-127-7, DACIN SARA 1060/2005, Ed. Medicală Universitară „Iuliu Haţieganu" – Cluj
2. L. Pop, L. Irsay: *Textbook of Physiotherapy*. Ed. Medicală Universitară „Iuliu Haţieganu" – Cluj, 2006
3. L. Irsay, L. Pop: *Textbook of Rheumatological Rehabilitation*. edit. Medicală Universitară „Iuliu Haţieganu" – Cluj, 2006
4. I. Onac, L Pop: *Biostimulare Laser. Efecte biologice şi terapeutice*. Editura Medicală Universitară "Iuliu Haţieganu", Cluj, 2001
5. Joel A DeLisa, Bruce M Gans, Nicolas E Walsh et al: *Physical Medicine and Rehabilitation: Principles and Practice*, 2 Vol, ediţiile 1998 or 2004
6. Randall L. Braddom: *Physical Medicine and Rehabilitation*. ed 1996 or 2000 or 2004 or 2006
7. Randall L. Braddom*: Medicină Fizică și de Reabilitare*, ediția a IV-a, București, 2015
8. AS Nica: *Recuperare Medicala*. Ed. Universitara "Carol Davila". ediţiile 2002 or 2004
9. M Mihailov, M Cevei: *Recuperare funcţională în boli reumatologice*. Ed Universităţii din Oradea, 2006
10. Ioan Onac: *Masajul medical*, Editura Universitara "Iuliu Hațieganu", Cluj-Napoca, 2009
11. Ioan Onac: *Reabilitare medicala*: caiete de curs 1, Editura Medicalã Universitarã "Iuliu Hațieganu" Cluj-Napoca, 2013
12. Ioan Onac, Monica Borda, Viorela Ciortea, Gabriela Dogaru, Laszlo Irsay, Rodica Ungur - *Reabilitare Medicala*, Editura Medicala Universitara "Iuliu Hațieganu", Cluj-Napoca, 2018
13. Written form of lectures of the Departement/handouts

Evaluation:

- Written exam 60%
- Practyical exam 40%

6th YEAR

FAMILY MEDICINE

Field of study:	**Medicine**
Study program:	**Medicine**
Course title:	**Family Medicine**
Course coordinator:	**Assoc. Prof. Mira Florea, MD, PhD**
	Lecturer Codruţa Mărginean, MD, PhD
Department:	**Community Medicine**
Discipline:	**Family Medicine**
Course code:	**MED 6 1 01 EN**

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	4	-	7	28	-	42	69	139	5	Written + practical exam

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

Pre-requisites:

- Semiology, Internal medicine, Pediatrics, Pharmacology 4th year, Methodology of scientific research
- Primary and secondary prophylaxis of diseases
- Diagnosis and management of acute and chronic diseases in primary care
- Correct writing of therapeutic prescriptions
- Monitoring of long-term chronic treatments
- Home and child care at home.

General objectives:

- Getting the basic theoretical and practical knowledge in the field of primary care medical practice necessary in medical training and useful in future exams.
- Assessing the basic practical skills in clinical judgment, diagnosis and disease management
- Getting ability to design preventive medicine interventions, health promotion campaigns

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) - definitions, content. Differences between family medicine and other specialties. Particularities of consultation, diagnosis and treatment in family medicine
2. The place of FM in the Health Insurance System. Basic, minimal and optional medical services packages
3. Preventive medical services for prevalent diseases. Assessment of the asymptomatic child and adult by the family doctor
4. Vaccinations in the family doctor's office: catagraphy, mobilization, vaccination practice, combating the refusal to vaccinate
5. Child Care in family medicine
6. Child fever: causes, diagnosis and treatment principles in family practice
7. Thoracic pain diagnosis algorithms and treatment principles in family medicine
8. The attitude of the family doctor towards a dyspneic patient
9. Adult fever: causes, diagnosis and treatment principles
10. Chronic cough-evaluation and treatment in family practice
11. Hepato-splenomegaly syndrome: causes, diagnosis and treatment principles
12. Adult jaundice: causes, diagnosis and treatment principles
12. Evaluation and treatment of the patient with nausea and vomiting
13. Evaluation of the patient with unintentional weight loss
14. Joint manifestations in various diseases in family practice
15. Pain in extremities- diagnostic algorithm and treatment
16. Home visit of family doctor: advantages, disadvantages.

Practical activities:

1. Carry out, record and interpret examinations of balance in children and adults of different ages and present recommendations on the identified risk of disease
2. Apply risk reduction strategies by: screening, early detection, immunizations and counseling
3. To acquire communication skills with the patient, to record the medical history
4. To take and register the physical examination
5. To apply the clinical thinking in the interpretation of data from the anamnesis and objective examination, formulating the clinical diagnosis
6. To use appropriate means of paraclinical investigation
7. To elaborate and apply a treatment and monitoring plan for the most common conditions in the FM
8. To participate in pregnancy monitoring and risk identification
9. To interpret ecg, laboratory tests
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 of prescribing the electronic prescription
13. To complete specific medical documents of the Ministry of Health
14. To develop home care programs for chronic patients.

References:

1. Buzoianu Anca, Mureşan Daniel (coordinators), Mira Florea, Claudia Gherman, Sorin Man, Carmen Mihu, Petru Mircea, Valentin Muntean, Dana Pop, Cosmin Puia, Ioana Rotar, Şoimita Suciu şi colaboratorii - *Practical Medicine Practicebook for medical students*, Cluj, 2015
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5. Rakel R.E., Rakel D.P.,Textbook of Family Medicine, 9th Edition, Elsevier Saunders 2015
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8. *Global Strategy for the Diagnosis, Management and Prevention of Chronic Obstructive Pulmonary Disease*, UPDATED, 2014.
9. *Global Strategy for Asthma Management and Prevention, Global Initiative for Asthma (GINA*), 2015. Available from:http://www.ginasthma.org/
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11. *WHO recommendatoins on child health*. Guidelines approved by the WHO GUIDELINES REVIEW COMMITTEE. Updated May 2017
12. American Academy of Pediatrics, American College of Obstetricians and Gynecologists. Care of the Newborn. In: *Guidelines for Perinatal Care*, 7th ed, Riley LE, Stark AR (Eds), American Academy of Pediatrics, Elk Grove Village, IL 2012. p.265.
13. Lapointe M[1], Barrington KJ[1,2], Savaria M[1], Janvier A[1,2,3]. Acta Paediatr. 2016 Feb; 105(2): e54-9 *Preventing postnatal growth restriction in infants with birthweight less than 1300 g*.

Evaluation:

- Written exam 50%
- Practical exam 50%

EPIDEMIOLOGY

Field of study:	**Medicine**
Study program:	**Medicine**
Course title:	**Epidemiology, prevention and control of diseases**
Course coordinator:	**Assoc. Prof. Amanda Radulescu, MD, PhD**
Department:	**Community Medicine**
Discipline:	**Epidemiology**
Course code	**MED 6 1 02 EN**

Sem.	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	-	32	60	2	Written exam

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

Pre-requisites: -

General objectives:

The mission of the discipline is to provide training in the practice of epidemiology, to contribute to the understanding of the etiology and prevention of frequent infectious and noncommunicable diseases and an introduction into molecular and behavioral epidemiology. To provide a comprehensive understanding of the healthcare-associated infections as a significant source of complications across the continuum of care and the main preventive and control measures. To improve the students knowledge and communication skills towards better active immunizations acceptance and coverage to achieve health promotion and disease prevention.

Specific objectives:

- To understand the significance and uses of epidemiology in the prevention and control of the main infectious diseases and cardiovascular diseases.
- To recognize the need of molecular and behavioral epidemiology within the concepts of population health and personalized medicine.
- To recognize the need of active immunizations against common communicable diseases of childhood and other recommendations in adolescents, adults and patients with comorbidities.
- To consider chemoprophylaxis in specific exposures.

- To acknowledge the significance of healthcare-associated infections and the need of limiting their occurence by applying standard, additional precautions and waste management.

Course content:

Courses = 14 hours

1. Epidemiology, prevention and control of respiratory infectious diseases;
2. Epidemiology, prevention and control of gastrointestinal infections;
3. Epidemiology, prevention and control of nosocomial infections;
4. Epidemiology, prevention and control of acute viral hepatitis;
5. Epidemiology, prevention and control of HIV infection and AIDS;
6. Behavioral epidemiology;
7. Epidemiology of cardiovascular diseases;
8. Molecular epidemiology.

Practical activities:

1. Characteristics of the prophylactic anti-epidemic activity adopted in the medical care in the ambulatory and hospital units
2. Characteristics of combative anti-epidemic activity in individual situations and in epidemic outbreaks. Case studies
3. Active and passive immunoprophylaxis with presentation of individual and population benefits
4. Passive immunoprophylaxis - indications, method of administration and adverse reactions of passive immunoprophylaxis - case study
5. The main types of vaccines recommended in the National Immunization Program in Romania and the European Union
6. Immunizations of adults and other categories with professional, behavioral or medical conditions
7. Vaccine efficiency and population immunity as a consequence of immunoprophylaxis activities at community level
8. Contraindications and adverse reactions of vaccinations, the importance of these activities in primary health care
9. Chemoprophylaxis - individual and group recommendations for exogenous monoetiological infections
10. Chemoprophylaxis - individualized recommendations for exogenous or endogenous plurietiological infections, evolving applications dependent on evidence-based medicine
11. Standard precautions - the main components, hand hygiene, wearing protective gear
12. Additional precautions based on the path of transmission - aerogenous, through drops of secretions, contact - case studies
13. Attitude of case of accident with exposure to blood of medical personnel - hepatitis B and C viruses and human immunodeficiency virus

14. Interpretation and delimitation on specific cases of infections associated with medical care and those gained in the community.

References:

1. Materials/handouts from lectures and tutorials.
2. Mandel G.L., Bennett J.E., Dolin R. *Principles and Practice of Infectious Disease* 8th Edition, Elsevier Saunders 2015, ISBN 978-1-4557-4801-3.
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. Jones & Bartlett Learning. 2013. ISBN 9781449665487.
5. Hebel JR, McCarter R. *Study guide to Epidemiology and Biostatistics* 7th Ed. Jones & Bartlett Learning. 2012. ISBN9781449604752.
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7. Nelson KE, Williams C. *Infectious Disease Epidemiology Theory and Practice* 3rd Ed. Jones & Bartlett Learning. 2014. ISBN 9781449683795.
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11. ECDC Surveillance reports. Available from: https://ecdc.europa.eu/en/home.

Evaluation:

- Written exam

DERMATOLOGY. ALLERGOLOGY

A. DERMATOLOGY

Field of study:	**Medicine**
Study program:	**Medicine**
Course title:	**Dermatology and Venerology**
Course coordinator:	**Prof. Rodica Cosgarea, MD, PhD**
	Conf. Loredana Ungureanu, MD, PhD
Departament:	**Medical specialties**
Discipline:	**Dermatology**
Course code:	**MED 6 1 03 EN**

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	4	-	4	28	-	28	58	114	4	Written + practical exam

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

Pre-requisites:

- Histology, Morphopathology, Physiology, Pathophysiology, Semiology, Microbiology, Internal Medicine, General Surgery, Rheumatology, Oncology, Gynecology
- Carry out the anamnesis and the general objective examination; correct writing of therapeutic prescriptions.

General objectives:

- To recognize the elementary skin lesions
- Running into good theoretical and practical issues in diagnosis and therapeutical management of different skin diseases.

Specific objectives:

- To acquire the knowledge connected with pathology of the skin.
- To integrate the theoretical and practical knowledge acquired in previous years of study
- To recognize common skin lesions
- To make the diagnosis and therapy of common skin diseases

Course content:

1. General data about skin

1.1 The structure and function of the skin
1.2 Basic morphologies: skin lesions
1.3 Tests and techniques for diagnosis
1.4 Histopathology of the skin
1.5 Immunology of the skin

2. Viral diseases
3. Bacterial diseases
4. Fungal diseases. Infestations
5. Genodermatoses
6. Urticaria
7. Eczematous dermatoses
8. Vasculitis
9. Psoriasis and other papulosquamous dermatoses
10. Vesiculobullous diseases
11. Connective tissue disorders
12. Adnexal diseases
13. Leg ulcer. Vascular disorders
14. Neoplasm of the skin
15. Sexually transmitted diseases

References:

1. Rodica Cosgarea, Alexandru Tataru, Adrian Baican, Daniela Vornicescu, *Dermato-Venerologie clinica,* Editura Medicală Universitară ''Iuliu Haţieganu'', Cluj-Napoca, 2011;
2. Rook's *Textbook of Dermatology*, Vol. I-IV, 7th edition;
3. J.L. Bolognia, J.L. Jorizzo, R.P. Rapini *Dermatology***,** Vol. I-II, 2th edition**;**
4. O. Braun-Falco, G. Plewig, H.H. Wolff, W.H.C. Burgdorf *Dermatology*

Evaluation

- Written exam 60%
- Practical exam 40%

B. ALLERGOLOGY

Field of study:	**Medicine**
Study program:	**Medicine**
Course title:	**Allergology**
Course coordinator:	**Prof. Diana Deleanu MD, PhD**
Departament:	**Functional Sciences**
Discipline:	**Immunology and Allergology**
Course code:	**MED 6 1 03 EN**

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	7	-	14	3	24	2	Written+ practical exam

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

Pre-requisites: Immunology, Physiology, Internal medicine

General objectives:

There are 3 main general objectives in learning Allergology by the medical students in the 6th year:

- Develop deep knowledge related to various types of allergies presentation
- Ability to diagnose an allergic condition
- Acute or chronic adequate therapy and prophylaxis in allergy diseases

Specific objectives:

- A greater understanding of the immune pathomechanism of hypersensitivity diseases.
- Know the allergens,
- Acquiring knowledge related to diagnosis.
- Learning how to treat the allergic diseases (emergency, long term therapy, specific therapy and prevention).

Course content:

1. Allergology – general: medical history, immune deficit, importance, epidemiology

2. Mechanism of type I -IV hypersensitivity (immunological)
3. Allergens. Diagnostic
4. Respiratory diseases: rhinitis, asthma (+ conjunctivitis), food allergy (symptomatology, diagnostic, treatment)
5. Skin diseases: atopic dermatitis, urticaria, contact dermatitis, drug allergies (symptomatology, diagnostic, treatment)
6. Anaphylaxis (allergen, symptomatology, diagnostic, treatment)
7. Allergen-specific immunotherapy.

Practical activities:
1. In vitro investigation methods (ELISA, Immuno-CAP, ISAC etc)
2. In vivo diagnostic methods.
- Skin testing (prick, idr, epicutane, prick-to-prick)
- Simple blind challenge tests
- Double blind challenge tests
3. Case presentations: food allergy
4. Case presentations: drug allergy (diagnosis)
5. Case presentations: drug allergy (treatment)
6. Case presentations: respiratory allergy (rhinitis, conjunctivitis, asthma)
7. Case presentations: skin allergy
8. Case presentations: atopic dermatitis
9. Allergy treatment
10. Topical allergen-specific immunotherapy
11. Specific subcutaneous allergen immunotherapy
12. Biological therapies in allergies.

References:
1. Cristea V, Monica Crișan (sub red.). *Curs de Imunologie* – Facultatea de Medicină. Ed. a IVa, Ed. Medicală Universitară „Iuliu Haţieganu", Cluj-Napoca, 2011, 2013
2. Roitt's *Essential Immunology*. 2014
3. Abbas *Basic Immunology*. 2015
4. Middleton's *Allergy Principles and practice* 2015

Evaluation:
- Written exam 60%
- Practical exam 40%

OBSTETRICS-GINECOLOGY, NEONATOLOGY

A. OBSTETRICS-GINECOLOGY

Field of study:	**Medicine**
Study program:	**Medicine**
Course title:	**Obstetrics and Gynecology**
Course coordinator:	**Assoc. Prof. Dr. Răzvan Ciortea, MD, PhD, Lecturer** **Todea Cezarin, MD, PhD**
Departament:	**Mother and child**
Discipline:	**Obstetrics and Gynecology Clinic II**
Course code:	**MED 6 1 04 EN**

Sem.	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	8	-	20	56	-	140	79	275	11*	Theoretical + practical exam

L=lectures: PA=practical activities; CI=clinical internship
*with the Discipline Neonatology

Pre-requisites:
- Anatomy, Physiology, Pathophysiology
- Monitoring of vital signs, notions of asepsis and antisepsis, notions of small surgery.

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 moneuvers 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. Clinical Gynecological Examination. Obstetrical clinical examination.
2. Paraclinical examinations in obstetrics and gynecology.
3. Gametogenesis, ovulation, fecundation, egg migration. Morphophysiology of placenta, amniotic fluid, umbilical cord.
4. Diagnosis of pregnancy. Morphological changes of the maternal body during pregnancy.
5. Pregnancy monitoring. Prenatal counseling. High risk pregnancy.
6. Bony pelvis. Term fetus from obstetrical point of view. Fetal accommodation rules in uterus. Attitude, lie, position, presentation, variety of position.
7. Physiology of labor. Birth determinism, clinical stages of birth.
8. Delivery in cephalic presentation. Delivery in other cranial presentations. Delivery in breech presentation.
9. Transverse lie. Multiple pregnancy.
10. Third and Fourth Periods of Delivery - Physiological and pathological aspects. Fetal and maternal trauma.
11. Physiological puerperium. Lactation. Pathological puerperium.
12. Bleeding in the first half of pregnancy: abortion, ectopic pregnancy, gestational trophoblastic disease.
13. Bleeding in the second half of pregnancy: placenta praevia, premature detachment of the normally inserted placenta. Hieremesis gravidarum.
14. Premature rupture of membranes. Premature delivery.
15. Prolonged pregnancy. Artificial induction of labor. Rhessus and ABO isommunization. Diabetes and pregnancy.
16. Distocic labor.
17. Medical and surgical diseases associated with pregnancy.
18. Hypertensive disorders in pregnancy.
19. Acute and chronic fetal distress. Fetal intrauterine growth restriction. Intrauterine death.
20. Women's physiological stages: puberty, menopause. Menstrual flow disorders by excessive bleeding. Menstrual flow disorders by insufficient bleeding.
21. Pathology of the vulva. Pathology of the vagina.
22. Pelvic floor disorders. Stress urinary incontinence.
23. Pathology of the cervix.

24. Pathology of the uterine body: endocervical polyps, uterine fibroids, endometrial cancer. Female genital malformations.
25. Endometriosis. Pelvic inflammatory disease. Dysmenorrhea. Dyspareunia.
26. Conjugal sterility.
27. Ovarian pathology.
28. Contraception and family planning.

Practical activities:

1. Gynecological examination
2. Obstetric examination
3. First trimester ultrasound
4. Pelvis
5. Pregnancy at term
6. Birth assistance
7. Laboratory - Obstetrics and Gynecology - current tests
8. Newborn in the birth room
9. Bleeding during 3-4 period of birth
10. Puerperal period
11. Ectopic pregnancy
12. Placenta praevia
13. Preeclampsia
14. Prolonged pregnancy
15. Obstetric ultrasound of 2nd trimester
16. Fetal suffering, fetal hypotrophy
17. Ultrasound in gynecology
18. Menopause
19. Primary amenorrhea
20. Menometroragia
21. Genital prolapses
22. Pelvic inflammatory disease
23. Sterility
24. Contraception and family planning
25. Ovarian tumors
26. Uterine fibroma
27. Endometriosis
28. Diagnosis and screening of cervical cancer
29. Clinical activity during the emmergency services.

References:

1. Merali Z, Woofine JD. Toronto Notes 2016. 32nd edition. *Toronto Notes for Medical Students*, Inc. Toronto, Ontario, Canada

2. F. Gary Cunningham, Kenneth J. Leveno, Steven L. Bloom, Jodi S. Dashe, Barbara L. Hoffman, Brian M. Casey, Catherine Y. Spong. Williams *Obstetrics*, 25e. 2018 by McGraw-Hill Education.
3. Barbara L. Hoffman, John O. Schorge, Karen D. Bradshaw, Lisa M. Halvorson, Joseph I. Schaffer, Marlene M. Corton. Williams *Gynecology*, 3e. 2016, 2012, 2008 by McGraw-Hill Education.
4. The John's Hopkins University School of Medicine - The Johns Hopkins *Manual of Gynecology and Obstetrics*, Lippincott Williams Wilkins, 2007
5. Kenneth.J Leveno – William *Manual of Obstetrics*, Mcgraw-Hill, 2003
6. Ronald S. Gibbs, Beth Y. Karlon, Arthur F. Haney, Ingrid Nygaard – Danforth's *Obstetrics and Gynecology* 10th ed. – Lippincott Williams & Wilkins 2008
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8.Lawrence Impey – *Obstetrics and Gynecology* Ed. Blackwell Science 2003
9. Decherney AH, Nathan L – *Current obstetrics and gynecology - Diagnosis and Treatment* - 9th edition. The McGraw - Hill Companies 2003
10. Symonds EM, Symonds 1M - *Essential obstetrics and gynecology* - 4th edition. Churchill Livingstone. 2004

Evaluation:

- Written exam 40%
- Practical exam 50%
- Neonatology 10%

B. NEONATOLOGY

Field of study:	**Medicine**
Study program:	**Medicine**
Course title:	**Neonatology**
Course coordinator:	**Prof. Gabriela Zaharie, MD, PhD**
Departament:	**Mother and child**
Discipline:	**Neonatology**
Course code:	**MED 6 1 04 EN**

Sem.	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	0,5	-	0,5	7	-	14	18	39	11*	Written + practical exam

L= lectures; PA=practical activities; CI=clinical internship
*with the Discipline Obstetrics- Ginecology

Pre-requisites:
- Pediatrics and Puericulture
- Notions of childcare, notions of asepsis and antisepsis, monitoring of vital functions, general notions of resuscitation.

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. Presentation on mannequins of specific maneuvers used in neonatal resuscitation: positive pressure ventilation, orotracheal intubation, chest compression external , drug administration.
8. Video presentation of neonatology maneuvers.

Course content:
1. Newborn at term
Definition, newborn classification, gestational age assesment
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. Clinical observation sheet in neonatology, the particularities of the anamnesis. Organization of the neonatology section. Interpretation of growth curves
2. Objective clinical examination of the newborn. Evaluation of gestational age
3. Presentation of a case of respiratory distress. Introduction of neonatal intensive care equipment
4. Monitoring the newborn in non-intensive therapy. 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. Gabriela Zaharie, *Neonatology,* Editura Didactica si Pedagogica, R.A. Medicala 2007
2. Coordonator Zaharie G Blaga L, Matyas M., *Noțiuni practice în neonatologie*. Editura Medicală Universitară „Iuliu Hațieganu", Cluj Napoca. 2016
3. John P. Cloherty, Ann R. Stark *Manual of neonatal care*, Lippincott Raven 2017

Evaluation:

- Written exam 50%
- Practical exam 50%

FORENSIC MEDICINE

Field of study:	**Medicine**
Study program:	**Medicine**
Course title:	**Forensic Medicine**
Course coordinator:	**Lecturer Ştefan Aniţan, MD, PhD**
Department:	**Community Medicine**
Discipline:	**Forensic Medicine**
Course code:	**MED 6 1 05 EN**

Semester	Course Type	Lectures	Practical activities		Lectures	Practical activities		Individual study	TOTAL	Credit	Evaluation
		hours/week			hours/sem.						
		L	PA	CI	L	PA	CI				
II	Compulsory	3	3	-	21	21	-	-	42	3	Written + practical exam

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

Pre-requisites: Anatomy, Pathological Anatomy, Pathophysiology, Semiology, Orthopedics, Neurosurgery, Radiology, Psychiatry.

General objectives:

At the end of the course the students:

- Will be able to understand the basic concept of the subject and its importance.
- Will know the practical aspects of death investigation, forensic pathology, and clinical forensic medicine.
- Will be able to recognize a forensic situation and act in accordance with the legislation.

Specific objectives:

At the end of the course students will be able:

- To know the types of medico-legal activities
- To examine and document wounds and injuries, both at autopsy and in a clinical setting.
- To establish the 'manner of death', the circumstances surrounding the cause of death, which in most jurisdictions include: nonviolent death and violent death (homicide, suicide or accident)
- To understand the pathological process, injury or disease that directly results in or initiates a series of events which lead to a person's death (also called mechanism of death), such as a bullet wound to the head,

exsanguination due to a stab wound, manual or ligature strangulation, myocardial infarction due to coronary artery disease, etc.)

- To diagnose and manage the cases of poisoning
- To preserve and dispatch specimens in medico-legal/postmortem cases and other concerned materials to the appropriate government agencies for necessary exams.

Course content:

1. Definition of Forensic Medicine, definition of terms
2. Thanatology, Definition of death. Stages of terminal state. Types of death – Somatic/Clinical/Cellular, Molecular and Brain death including cortical death and Brainstem death. Suspended animation Moment of death.
3. Signs of death. Cadaveric changes - Body Cooling, Dehydration, Lividity, Rigidity, Autolysis, Putrefaction, Adipocere, Mummification, and Lignification. Estimation of time since death.
4. The medico-legal classification of death. Suspect death and Sudden natural deaths. Causes of Sudden natural deaths
5. Forensic death investigation. Scene Investigation. Forensic Autopsy. Death Certification. Autopsy Report.
6. Traumatology –generalities. Death due to Mechanical Agents. Wounds. Classification of wounds. Description of wounds. Blunt trauma wounds. Wounds caused by pointed and sharp –edged weapons.
7. Head injuries. Skull fractures. Intracranial hemorrhages. Contusion of the brain.
8. Traffic accidents. Road traffic Accidents. Pedestrian. Vehicular Occupants. Train accidents. Plane accidents.
9. Mechanical Asphyxia. Classification. Hanging. Strangulation. Suffocation. Thoraco-abdominal compression. Drowning.
10. Fire arms injuries
11. Fatal Falls from Height
12. Death due to Physical Agents. Fire/Thermal injuries. Death Due to Hypothermia. Electrocution
13. Death due to Chemical Agents. Generalities. The Ethyl alcohol intoxication. Carbon Monoxide intoxication. Acids and Alkalis intoxication. Cyanide intoxication
14. Medico-legal Sexology – The rape / Sexual offences
15. Battered child syndrome.

Practical activities:

1. Tanatology
2. Primary traumatic injuries

3. Mechanical asphyxiation
4. Physical agents
5. Chemical agents
6. Road accident
7. Methodology of forensic expertise. Notions of medical liability.

Reference:

- Stefan Mihai Anitan - *Forensic medicine for English students* (under editing)
- Vincent J. DiMaio, Dominick DiMaio, *Forensic Pathology* 2nd Edition, 2001 D.C. CRC Press
- Pekka Saukko, Bernard Knight, KNIGHT'S *Forensic Pathology* – 3rd Edition, 2004 Edward Arnold (Publishers) Ltd.
- Margaret M. Stark, *Clinical Forensic Medicine: A Physician's Guide* – 2nd Edition 2005 Humana Press Inc.
- Jason Payne-James, *Encyclopedia of Forensic and Legal Medicine,* 2005 Elsevier Ltd.

Evaluation:

- Written exam 66%
- Practical exam 34%

GERIATRICS

Field of study:	**Medicine**
Study program:	**Medicine**
Course title:	**Geriatrics and Gerontology**
Course coordinator:	**Lecturer Valer Donca, MD, PhD**
Department:	**Medicine**
Discipline:	**Geriatrics and Gerontology**
Course Code:	**MED 6 2 07 EN**

Sem.	Type of course	Lectures	Practical activities		Lectures	Practical activities		Individual Study	TOTAL	Credits	Evaluation
		hours/ week			hours / sem / module						
		L	PA	Cl	L	PA	Cl				
II	Compulsory	2	-	2	14	-	14	28	56	2	Written+ practical exam

L=lectures; PA=Practical Activities; St= stages

Pre-requisites: -

General objectives:

- Distinction between so-called normal aging and pathological changes of aging
- Avoid both curable pathology interpretation as simple manifestation of aging and the attempt to treat the natural process of aging such as diseases.

Specific objectives:

- Knowledge of the physiological changes of systems in aging process
- Identification and management of special problems of elderly patients.

Course content:

1. History of geriatrics
2. Demographics
3. Theories of aging: theory of wear, intercatenare theory, radical free theory, the theory of catastrophic errors, the theory of mitochondrial, accumulation theory, neuro-endocine theory
4. Physiological changes of systems in aging: sense organs, respiratory tract, cardiovascular, renal, digestive and endocrine systems
5. Geriatric assessment: medical, functional, cognitive, emotional, nutritional and socio-economic assessment

6. Special problems in geriatric practice: nutrition, dehydration, constipation, urinary incontinence, delirium, tremor, pressure sores, instability, falls, hypothermia, immobilization, sleep disorders
7. Pharmacotherapy in elderly patients. Quality indicators in elderly pharmacotherapy (ACOVE - Assessing Care of Vulnerable Elders). Beers Criteria to avoid the improper use of medication in the elderly.

Practical activities:

1. The medical and functional evaluation of the elderly
2. Comprehensive geriatric evaluation
3. Aging of the cardiovascular, respiratory and osteomuscular systems
4. Aging of the urinary tract. Urinary incontinence
5. Nutrition
6. Delirium. Bedsores
7. Instability and falls.

References:

1. Donca V. *Gerontologie şi Geriatrie*, Ed. Casa Cărţii de Stiinţă, Cluj Napoca, 2008.
2. Bălăceanu-Stolnici C. *Geriatrie practică*. Ed. Amaltea, Bucureşti, 1998.
3. Fillit HM, Rockwood K, Woodhouse K. Brocklehurst's *Textbook of Geriatric Medicine and Gerontology*. Saunders Elsevier, 2011.

Evaluation:

- Written exam 80%
- Practical exam 20%

PSYCHIATRY. PEDIATRIC PSYCHIATRY

A. PSYCHIATRY

Field of study:	**Medicine**
Study program:	**Medicine**
Course title:	**Psychiatry**
Course coordinator:	**Prof. Ioana Micluţia, MD, PhD**
	Lecturer Ramona Paunescu, MD, PhD
Departament:	**Neurosciences**
Discipline:	**Psychiatry and pediatric psychiatry**
Course code:	**MED 6 2 08 EN**

Semester	Course Type	Lectures	Practical activities		Lectures	Practical activities		Individual study	TOTAL	Credit	Evaluation
		hours/week			hours/sem.						
		L	PA	CI	L	PA	CI				
II	Compulsory	6	-	6	42	-	42	109	193	8*	Written + practical exam

L=lectures; PA=practical activities; CI=clinical internship
*with the Discipline Pediatric psychiatry

Pre-requisites: Anatomy and physiology of the SNS, Behavioral sciences, Neurology, Clinical Psychology, Psychiatric Semiology, Basis of communication

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:
-form diagnosis and clinical assessment abilities
-to apply clinical scales of assessment for a specific syndrome
-to develop advances competences regarding the establishment and maintenance of the therapeutically alliance
-to follow the outcome of the clinical case
-to develop the capacity to adjust the clinical interventions to the patent's needs
-to explain the importance of the age of onset, family history, family and social support, treatment adherence for the evolution and prognosis of psychiatric disorders.

Course content:

1. The history of psychiatry-Introductive notions: concepts of health, illness, normality and psychiatric abnormality
2. Aspects of psychiatric semiology
3. Schizophrenia and other psychotic disturbances
4. Mood disorders. Suicide
5. Organic psychiatric disorders (including dementias). Psychiatric disorders with postpartum onset.
6. Alcohool and psychoactive substances related disorders
7. Psychiatric emergencies. The intervention in crisis
8. Neurotic disorders, stress related disorders, somatization disorders
9. Personality disorders
10. Impulses control disorders. Sleep disorders. Eating disorders.
11. Sexuality disorders
12. Pharmacological and other biological therapies in psychiatry.
13. Psychotherapies - definition elements. Main directions and indicationsl
14. Rehabilitation methods for mental patients. Notions of legal expertise. Law related aspects. Assessment of working capacity of patients diagnosed with mental illness.

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. Cohen RI, Hart JJ, (1995) *Student Psychiatry Today. A comprehensive Textbook* (2nd edition), Elsevier Health Sciences, Kidlington, Oxford
2. Chen YA., (2011) 2011 Toronto notes: comprehensive medical reference & review for MCCQE I & USMLE II: McGraw-Hill Education; Toronto.
3. Gelder M, (1994) *Concise Oxford Textbook of psychiatry*, Oxford University Press, Oxford.

4. Karila L., (2011) *Le book de ECN*. France: Wolters Kluwer Healyh. Global Media Sante, Neuilly-sur-Seine.
5. Waldinger RJ, MD. (1997) *Psychiatry for Medical Students*, 3rd Edition, American Psychiatric Press/Publishing, Arlington.
6. Stoudemire A. (1990) *Clinical psychiatry for medical students*. J P Lippincott Comp, Philadelphia.

Evaluation:

- Written exam 50%
- Practical exam 50%

B. PEDIATRIC PSYCHIATRY

Field of study:	**Medicine**
Study program:	**Medicine**
Course title:	**Child and adolescent psychiatry**
Course coordinator:	**Lector Roxana Sipos, MD, PhD**
Department:	**Neurosciences**
Discipline:	**Psychiatry and Pediatric Psychiatry**
Course code:	**MED 6 2 08 EN**

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	2	-	2	14	-	14	20	48	8*	Written + practical exam

L = lectures; PA = practical activities; CI = clinical internship
*with the Discipline Psychiatry

Pre-requisites: Neuroanatomy, Neurophysiology, Medical Psychology, Psychiatric Semiology, Pediatrics, Pediatric 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 inchildren 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 managementfor 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 developtheir 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. Enurezis and encoprezis. 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.

References:
Diagnostic and Statistical Manual of Mental Disorders, 5th ed. Text Revision. Washington (DC). American Psychiatric Association, 2013.
*International classification of mental and behavioral disorders. Clinical descriptions and diagnostic guideline*s, 10th ed. Geneva: World Health Organization,1992.
Holiff, J, White, M, (2011) *Psychiatry*, in Yinming, A, Tran, C, *Toronto Notes for Medical Students*, Toronto.
www.nice.org
http://ktclearinghouse.ca/cebm/. Centre for Evidence-Based Medicine
Course support

Evaluation:
- Written exam 50%
- Practical exam 50%

INFECTIOUS DISEASES

Field of study:	**Medicine**
Study program:	**Medicine**
Course title:	**Infectious Diseases**
Course coordinator:	**Assoc. Prof. Lupşe Mihaela, MD, PhD,** **Lecturer Monica Muntean, MD, PhD**
Departament:	**Medical specialities**
Discipline:	**Infectious Diseases**
Course code:	**MED 6 20 9 EN**

Sem.	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	6	-	10	42	-	70	85	197	8	Written+ practical exam

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

Pre-requisites:

- Microbiology, Morphopathology, Physiology, Pharmacology, Semiology, Internal Medicine, Neurology, Pediatrics
- To know how to take the general clinical examination, to know how to complete the observation sheet, to interpret the result of the paraclinical examinations.

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
   - 4.1 Principles of Anti-Infective Therapy
   - 4.2 Pharmacokinetics of antiinfective agents, clinical prophylactic use, untowards reactions
   - 4.3 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
   - 4.4 Antiviral drugs (other than antiretrovirals)
   - 4.5 Systemic antifugal agents
5. Therapy with hyperimmune antiserum, interferons, immunoglobulins, glucocorticosteroids, immunomodulatory agents

Infectious Diseases

1. Acute Pharyngitis
   - 1.1. Viral Pharyngitis
   - 1.2. Bacterial Pharyngitis (group A beta-hemolytic streptococci, group C and G beta-hemolytic streptococci, mixed aerobic/anaerobic infection)
   - 1.3. 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. Diphteria
11. Pertussis
12. Community acquired Pneumonia
13. Central Nervous System Infections
    - 13.1. Viral and Bacterial Meningitis
    - 13.2. Acute Encephalitis
14. Gastrointestinal Infections
    - 14.1. Shigellosis
    - 14.2. Foodborne Disease
    - 14.3. Botulism
    - 14.4. Cholera
    - 14.5. Trichinosis
15. Acute Viral Hepatitis
16. Cardiovascular Infections: Endocarditis
17. Thetanus
18. Anthrax
19. Rhabie
20. Sepsis and sepsis shock
21. Leptospirosis
22. Lyme disease
23. HIV infection

Clinical Practice:

Clinical cases (case presentations with infectious pathology)

2. Streptococcal Infections
3. Staphylococcal Infections
4. Infections with Varicella-Zoster Virus
5. Mumps
6. Measles
7. Rubeola
8. Infectious Mononucleosis
9. Influenza
10. Pneumonia
11. Meningitis
12. Viral Encephalitis
13. Acute Viral Hepatitis
14. Gastrointestinal Infections
15. Foodborne Disease

16. Trichinosis
17. Leptospirosis
18. Anthrax (clinical practice or images)
19. Thetanos (clinical practice or images)
20. Sepsis
21. HIV infection/AIDS
22. Diphteria (clinical practice or images)

References:

1. *Toronto Notes for Medical Students* Essential Med Notes 2016
2. Lupse Mihaela - *Lecture Notes on Infectious Diseases,* Ed. Medicală Universitară "Iuliu Haţieganu" Cluj-Napoca 2011
3. Lecture handouts

Evaluation:

- Written exam 50%
- Practical exam 50%

ANESTHESIA AND INTENSIVE CARE

Field of study:	**Medicine**
Study program:	**Medicine**
Course title:	**Anaesthesia and Intensive Care**
Course coordinator:	**Assoc. Professor Bodolea Constantin MD, PhD**
	Assoc. Professor Petrișor Cristina, MD, PhD
Department:	**Surgery**
Discipline:	**Anesthesia and Intensive Care 2 (ATI 2)**
Course code:	**MED 6 2 10 EN**

Sem.	Course type	Lectures	Practical activities		Lectures	Practical activities		Individual study	TOTAL	Credit	Evaluation
		Hours/week			Hours/sem						
		L	PA	CI	L	PA	CI				
II	Compulsory	1,5	1,5	-	21	21	-	46	88	3	Written + practical exam

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

Pre-requisites: Internal Medicine

General objectives:

1. Understanding anaesthesia as a way to prevent somatic and psychological effects induced by surgery.
2. Intensive therapy at interference between specialties: from pathophysiology to diagnosis and current therapy of major organ failure.
3. Developing practical skills by learning techniques, manoeuvres and intensive care procedures.
4. Learning general concepts of perioperative medicine valid for all medical-surgical specialties
5. Awakening interest in the specialty of anaesthesia and intensive care.

Specific objectives:

1. Acquiring notions regarding general pharmacology of anaesthetic drugs and anaesthesia equipment.
2. Understanding preoperative assessment and patient classification in anaesthetic risk score.
3. Understanding anaesthesia technique in accordance with preoperative evaluation and surgical techniques.
4. Understanding clinical features and treatment measures in various types of shock (hypovolemic, cardiogenic, septic, anaphylactic, neurogenic shock.

5. Understanding practical aspects of hemodynamic monitoring in different types of shocks.
6. Acquiring clinical features and treatment options in acute respiratory failure (hypoxemic and hypercapnic): oxygen therapy, non-invasive and invasive ventilatory support.
7. Understanding the main hydro electrolytic imbalance and acid-base disorders and their treatment.
8. Learning the main types of fluid solutions, blood products and transfusion indications.
9. Acquiring the principles of acute and chronic pain management
10. Perioperative medicine principles (pre and postoperative rehabilitation, continuation/stopping of chronic medication during perioperative period, knowledge of perioperative risk scores).

Course content:
1. General anaesthesia
2. Regional anaesthesia (spinal, epidural anaesthesia)
3. Acute respiratory failure
4. Acute and chronic pain
5. Shock
6. Hydroelectrolytic imbalance and acid base disorders. Fluid therapy and blood transfusion.
7. The concepts of perioperative medicine.

Practical activities:
1. Recognition of rhythm disorders. Activity on Simulator.
2. Airway management.
Non-instrumental methods of desobstruction of the airways
Instrumental methods of desobstruction of the airways
Orotracheal intubation
Supraglottic devices
Devices required for difficult intubation
3. Acid-basic and hydroelectrolyte balance disorders
Volemic therapy crystalloid solutions, colloids, blood products
4. Clinical internship in the operating unit
Pre-anesthetic evaluation, preparation, patient monitoring
Discusses anesthetic features
View general and regional anesthesia techniques
5. Clinical internship. The critical patient in the Intensive Care section
Section features, patient evaluation and monitoring.
Critical patient hemodynamic monitoring (TA, EKG, other minimally invasive modalities)
Volemic therapy and vasoactive support to the critical patient

6. Clinical internship. The critical patient in the Intensive Care section
Addressing and monitoring the patient with respiratory failure
Modalities of oxygen therapy, non-invasive and invasive mechanical ventilation.

Mandatory reference:

1. Kim J, Mukovozov I, editors. *Toronto Notes 2017*. 33rd ed. Toronto: *Toronto Notes for Medical Students*; 2017
2. Morgan & Mikhail's *Clinical Anesthesiology* 6th ed., 2018
3. www.emedicine.com
4. www.postoppain.org

Optional reference:

Daniel Sloniewsky, *Medical Student's Guide to Intensive Care Medicine*. 2005. https://somwebapps.marshall.edu/ms4courses/Documents/MED833_Guide.pdf.

Evaluation:

- Written exam 50%
- Practical exam 50%

EMERGENCY MEDICINE

Field of study:	**Medicine**
Study program:	**Medicine**
Course title:	**Emergency Medicine**
Course coordinator:	**Associate professor Adela Golea, MD, PhD**
Department:	**Surgery**
Discipline:	**Emergency Medicine**
Course code:	**MED 6 1 10 EN**

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	2	2	-	14	14	-	47	75	3	Written + practical exam

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

Pre-requisites:

- Semiology, Radiology / Imaging, Internal Medicine, Surgery, Cardiology, Orthopedics

- Clinical examination, Cardiac rhythm interpretation, Radiological interpretation.

General objectives:

- Introducing the concept of emergency medical assistance.
- Running into good theoretical and practical issues in therapeutically and diagnosis management of different degrees emergencies.

Specific objectives:

- Knowing the principles in adjustment of proper emergency medical assistance: triage and team work, therapeutically and diagnosis particularities.
- Recognition of the critical patient, the cardiac arrest and the syndromes leading to cardiac arrest.
- Running into good practice of BLS and ALS in pediatric and adult patients. Recognition of particular ALS techniques in special situation.
- Implementation of triage and therapeutic – diagnosis emergency management concepts in vital risk medical emergencies: myocardial infarction, shock, coma and poisonings.

- Running into good practice of primary/secondary evaluation principles and of emergency therapy methods in the multi-system injured patient, burns patients, both in pre hospital care and ER.

Course content:

1. Organization of a hospital and pre hospital emergency service. Team management concept in emergency. Triage issues. Recognition of the critical patient (cardiac arrest, coma, acute respiratory failure, acute coronary syndrome). Cardiac arrest causes recognition. BLS.
2. ALS: administration ways and drugs used in ALS, electrical therapy (cardio version/ defibrillation, pace maker). ALS: resuscitation algorithms.
3. CPR in various special situations (pregnancy, poisonings, electrocution, hanging, hypothermia, drowning). Pediatric CPR particularities.
4. Emergency algorithms for myocardial infarction: pre hospital and hospital (STEMI, non STEMI). Emergency attitude in poisonings: evaluation, emergency therapy (hemodynamic and respiratory support, antagonists).
5. The multi-system injured patient. The trauma producing mechanism. Primary and secondary evaluation in the trauma patient.
6. Hypovolemic and traumatic shock. Mobilization/immobilization and transportation of multi-system injured patients.
7. Emergency attitude in case of burnt patients. Bedside examination in case of emergencies. Emergency team and communication abilities.

Practical activities:

1. The chain of survival, risk situations for the cardio-respiratory stop:
a. Evaluation of the critical patient:
A: Airway desobstruction
B: Check breathing, Sp O2, trachea position
C: Check circulation, central pulse, TA, RC. D: AVPU, blood sugar, pupils
b. Critical patient recognition - triage applications
c. Lateral safety position
2. BLS / ALS in team of 2 persons
- Criteria for requesting the resuscitation team: in clinical cases
- CT / V on the balloon
- Resuscitation team - ALS - team positioning, team roles
- Exercises on SCR with assistance / FV / TV / AEP - context of IMA, AVC, ȘOC
3. ALS in special resuscitation situations in simulated clinical cases: drowned, hanged, pregnant, hypothermic, intoxicated, electrocuted, child
- Resuscitation team - ALS - team positioning, team roles
- Exercises on SCR with assistance / FV / TV / AEP
4. Trauma - primary evaluation: A (trachea, foreign body obstruction); B (pneumothorax, hemothorax), C (bleeding, tamponade, shock), D (GCS, pupils, HTIC)

- Pneumothorax aspiration
- Immobilization / Mobilization: cervical collar, splint, shovel / board

5. Complex case simulations - Critical patient recognition, CPR in trauma context, hemorrhagic shock, severe dyspnea
6. Clinical placement in the emergency department for children
7. Clinical placement in the emergency department for adults.

References:

1. CPR protocols: http://www.erc.edu/index.php/guidelines_download/, 2015
2. Judith E. Tintinalli, *Emergency Medicine: A Comprehensive Study Guide***,** 8e, 2016
3. Marx Rosen, *Emergency Medicine: Concepts and Clinical Practice*, 8th ed., Mosby, 2017

Evaluation:

- Written exam 50%
- Practical exam 50%

TRAINING IN THE PRACTICAL SKILLS CENTER. INTERPROFESSIONAL EDUCATION

Field of study:	**Medicine**
Study program:	**Medicine**
Course title:	**Training in the practical skills center. Interprofessional education**
Course coordinator:	**Assoc. Prof. Gherman Claudia Diana, MD, PhD**
Department:	**Medical Education**
Discipline:	**Skills – Humanistic Sciences**
Course code:	**MED 6 2 11 EN**

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	0,5	1,5	-	7	21	-	35	63	2	Practical exam

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

Pre-requisites: -

General objectives:

The aim of this course is 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 firs 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

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
4. BLS: CT (adult, pregnant woman); Defibrillation (paddles/patch)

5. Intraosseous access
6. Immobilizing the fractures
7. 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. *OSCE Stations for Medical Finals*. Adam Feather, Ashling Lillis, Tony Joy, John S P. Lumle, Pastest, 2012.

2. OSCE Cases with Mark Schemes. Tamara North, Dr., Jeremy F. Lynch, Aneesha Verma, Anshan Publishers, 2012.

3. *Surgery, OSCE and Data Interpretation*. Nadeem Nadeem, Holly Holly, Nadeem Hasan, Holly Sitsapesan Taylor & Francis Group, 29 mar. 2013.

4. Boet S, Granry JC, Savoldelli G. *La simulation en santé - De la théorie à la pratique*. Ed. Springer-Verlag Paris, 2013.

5. 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:

- Evaluation range charts of the clinical performance 80%
- Activity portfolio 20%

PUBLIC HEALTH AND MANAGEMENT

Field of Study:	**Medicine**
Study program:	**Medicine**
Course title:	**Public Health and Management**
Course coordinator:	**Lecturer Gabor-Harosa Florina Maria, MD, PhD**
Department:	**Community Medicine**
Discipline:	**Public Health and Management**
Course code	**MED 6 2 12 EN**

Sem.	Course type	Lectures	Practical activities		Lectures	Practical activities		Individual study	TOTAL	Credit	Evalution
		hours / week			hours / week						
		C	LP	St	C	LP	St				
II	Compulsory	2	1	-	28	14	-	33	75	3	Written+ practical exam

C = courses; LP = workshop; St=internship

Pre-requisites:

- Primary healthcare; Family Medicine; Legislation; Psychiatry; Oncology; Environmental medicine; Ocupational health; Epidemiology; Legal Medicine; Behavioral sciences; Obstetrics-Gynecology; Scientifical Research Methodology
- Critical analysis and interpretation of statistical data of scientific research.

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 and measuring population's health status and its conditioning factors
- Defining and understanding the important demographic events, phenomenon, and trends
- Using the demographic information for measuring the phenomenon
- Describing the principals characteristics of demographic phenomenon

- Understanding the relationships between demographic phenomenon and Public Health
- Identify the factors which are influencing the population reproduction,
- Measuring, describing and comparative analyzing of mortality and identify the principal characteristics of mortality and of the possibilities to control it
- Understanding the importance and actuality of prophylaxis
- Proving the advantages and limits of the principal preventive strategies
- Describing the actions and the preventive strategies at the primary level regarding the important health issues
- Defining the concept of health promotion end health education and understanding the differences between the objectives of this two
- Understanding the notion of communication and behavior in healthcare services
- Defining and understanding the steps of a programming and evaluation of a health education project
- Describing and understanding the impact of demographic transition on the population's health
- Identifying the managerial roles, functions and attributes
- Describing the organizational culture and the development of systemic thinking in healthcare
- Understanding the differences, characteristics, advantages and disadvantages of the main healthcare systems
- Understanding the stages of the project management.

Course content:

- Understanding the importance and content of Public Health
- Defining and measuring population's health status and it's conditioning factors, difference between individual health and public health interventions
- The important demographic events and phenomenon
- Population reproduction
- Morbidity
- Indicators used for measuring the health status
- Preventive strategies, health promotions and health education
- Demographic transition
- Introduction in management of healthcare services, socio-medical marketing and project management
- Communication in healthcare services
- Healthcare systems.

Practical activities:

1. Job description and duties of the family doctor. The employment contract and the organizational chart of the work program
2. The information system used by the family doctor for the activity with the patients and the release of medication
3. Patient rights
4. Coding of the morbidity registered by family doctors, specialists in clinics, outpatients and hospitals
5. Ways of financing health care in Romania, compared to EU countries, including DRG system
6. Release of medication for patients from primary, secondary and tertiary care, standardized forms, legal regulations
7. The narcotic substances in medical practice. Ethnobotanical substances - a public health problem among young people
8. Monitoring the chronic patients by the family doctor together with the specialist doctor
9. Expertise of work capacity
9. Medical leave with temporary incapacity for work current legal regulations, forms and codification
10. Medical certificate confirming the birth
11. Prenuptial medical certificate
12. Medical certificate confirming the death
13. Infant mortality, by age subgroups, framing limits according to WHO, death records by age subgroups
14. Elderly - medical-social investigation, degrees of dependency, units of protection at community level
15. Decentralization in community health care and reorganization of the health care system
16. Classical and electronic observation sheet
17. Relief and assistance of the medico-social dependent patients and home care
18. The medico-social supervision of the pregnancy by the family doctor and the specialist doctor.

References:

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3. BORZAN C., MOCEAN F. - *Sănătate Publică*, Editura Medicală Universitară „Iuliu Haţieganu”, Cluj-Napoca, 2002

4. ENĂCHESCU D., MARCU M.GR., *Sănătate publică şi management sanitar*, Editura All, Bucureşti, 1997
5. MARCU M.G., MINCĂ D., *Sănătate publică şi management sanitar*, Editura Universitară "Carol Davila", Bucureşti, 2003
6. MUREŞAN P., *Manual de metode matematice în analiza stării de sănătate*, Editura medicală, Bucureşti, 1989
7. TREBICI V., *Demografie*, Editura Ştiinţifică şi Enciclopedică, Bucureşti, 1979
8. TREBICI V., *Populaţia Terrei*, Editura Ştiinţifică, Bucureşti, 1991
9. VLĂDESCU C. (coord.), *Managementul serviciilor de sănătate*, Editura Expert, Bucureşti, 2000
www.who.com
www.europeanpublichealth.com

Evaluation:

- Written exam 60%
- Practical exam 40%

MALPRACTICE AND MEDICAL LAW. MEDICAL DEONTOLOGY

Field of study:	**Medicine**
Study program:	**Medicine**
Course title:	**Malpractice and medical law. Medical deontology**
Course coordinator:	**Leturer adv. Ionut Vida-Simiti, PhD**
Department:	**Medical Education**
Discipline:	**Skills – Humanistic Sciences**
Course Code:	**MED 6 2 13 EN**

Sem.	Type of course	Lectures	Practical Activities		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	Written exam

C = Course; P. = Practical classes; St. = Stages

Pre-requisite conditions: -

General objectives:
After the course the student will be able:
- Merging medical knowledge with the legal framework
- Acquiring technical and practical knowledge to prevent malpractice
- Use of the acquired notions
- A higher degree of professionalism

Specific objectives:
After the course the student will be able to:
- Acquiring technical and practical knowledge about the juridical framework for exercising medical profession
- To Know 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
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 liabilty
   - 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:

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2. Roxana Maria Călin, *Malpraxis. Răspunderea medicului și a furnizorilor de servicii medicale. Practică judiciară* [Malpractice. Jurisprudence], Ed. Hamangiu, București, 2014
3. Ion Turcu, *Dreptul sănătății. Frontul comun al medicului și juristului* [Healthcare Law], Ed. Wolters Kruger, București, 2010
4. Ionuț Vida-Simiti, *Capacitatea de exercițiu pentru consimțământul la actul medical* [The capacity for exercising medical consent], Pandectele Romane 5 /2017 pag. 81-93
5. Ionuț Vida-Simiti, *Aspecte legislative și jurisprudențiale în legătură cu drepturile medicului* [Legislative and jurisprudential aspects concerning doctors'rights], Rev Dreptul 2 /2018 pag. 79-89
6. Ionuț Vida-Simiti, *Extinderea peste limitele legale a răspunderii pentru malpraxis a personalului medical prin Ordinul Ministrului Sănătății nr. 1411/2016* [Extending over the legal limits the liability for malpractice by the Order of Minister of Health no 1411/2016], Rev Dreptul 5 /2017, pag. 9-17
7. Ionuț Vida-Simiti, *Interventional clinical and chemical studies in Romania, legal garancees*. Revista de Chimie (Bucureşti), 1 / 2018, pag. 267-270

8. Ionuț Vida-Simiti, *Medical liability for Off Label use of drugs in Romania*. Revista de Chimie (Bucureşti), 3 / 2018, pag. 755-757

Evaluation:

- Written exam 100%

B. ELECTIVE COURSES

METHODOLOGY REGARDING THE ELECTIVE COURSES AT THE FACULTY OF MEDICINE Academic year 2019-2020

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 "Noutăţi pentru studenţi"
   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 authomatically 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 2019, the final list of students enrolled in each course will be made available to departments and students.

11. For the first year students (2019-2020), the enrollment for elective courses takes place in October 2019.

DEAN,
Prof. Anca Dana Buzoianu, MD, PhD

ELECTIVE COURSES FREE OF CHARGE

MEDICINE STUDY PROGRAM IN ENGLISH

1st YEAR (2019 - 2020)

No.	*Course title*	*Course coordinator*	*Discipline*
1	Introduction to Romanian Contemporary Culture	Lecturer Horaţiu Crişan, PhD	Skills - Humanistic sciences
2	Introduction to experimental surgery	Assoc. Prof. George Dindelegan, MD, PhD	Surgery I

2nd YEAR (2019 - 2020)

No.	*Course title*	*Course coordinator*	*Discipline*
1	Drugs and addictions	Prof. Anca Dana Buzoianu, MD, PhD	Pharmacology, toxicology and clinical pharmacology
2	Modern methods for the prevention of mental health problems	Lecturer Bogdan Nemeș, PhD	Medical Psychology

3rd YEAR (2019 - 2020)

No.	*Course title*	*Course coordinator*	*Discipline*
1	Applied Pathophysiology	Prof. Alina Elena Pârvu, MD, PhD	PathoPhysiology
2	Neurological examination in medical emergencies	Lecturer Adina Stan, MD, PhD	Neurology and Pediatric Neurology

4th YEAR (2019 - 2020)

No.	*Course title*	*Course coordinator*	*Discipline*
1	Aesthetic medicine	Lecturer Dinu Dumitrașcu, MD, PhD	Anatomy and embryology
2	Psycho-Somatic Medicine	Prof. Dan Dumitrașcu, MD, PhD	Medical Clinic II

5th YEAR (2019 - 2020)

No.	*Course title*	*Course coordinator*	*Discipline*
1	Gynecologic Oncology	Prof. Patriciu Achimaș-Cadariu, MD, PhD	Oncologic Surgery and Oncologic Gynecology
2	Ultrasonography in medical and surgical emergencies (SonoUrg-Pocus)	Lecturer Mihai Socaciu, MD, PhD	Medical Imaging
3	Essential maneuvres in life-threatening emergencies in ENT	Assoc. Prof. Magdalena Chirilă, MD, PhD	ENT

6th YEAR (2019 - 2020)

No.	*Course title*	*Course coordinator*	*Discipline*
1	Clinical and para-clinical assessments of the fetus and newborn	Prof. Daniel Muresan, MD, PhD Lecturer Matyas Melinda, MD, PhD	Neonatology
2	Obstetrical ultrasound – a window to the fetus	Assoc. Prof. Răzvan Ciortea, MD, PhD	Obstetrics-Gynecology II

ELECTIVE COURSES WITH FEES

No.	*Course title*	*Course coordinator*	*Discipline*
1	Synthesis of clinical physiology	Prof. Șoimița Suciu, MD, PhD	Physiology
2	Clinical applications of anatomy in abdomino-pelvic surgery	Lecturer Dana Monica Bartoș, MD, PhD	Anatomy et embryology
3	Metode moderne de prevenire a îmbolnăvirilor legate de sănătatea mintală	Lecturer Bogdan Nemeș, MD, PhD	Medical Psychology
4	Tropical parasitology	Assoc. Prof. Mihaela Lupșe, MD, PhD	Infectious Diseases

OPTIONAL COURSES - with fee

PEDAGOGIC MODULE

No.	*Course title*	*Course coordinator*	*Discipline*
1.	Medical pedagogy (2nd year)	Assoc. Prof. Horia Coman, MD, PhD	Medical Psychology
2.	Teaching Methods (4th, 5th, 6th year)	Prof. Valentin Muntean, MD, PhD	Surgical Clinic IV
3.	Pedagogical Practice (4th, 5th, 6th year)	Prof. Valentin Muntean, MD, PhD	Surgical Clinic IV
4.	Educational Psychology (5th, 6th year)	Assoc. Prof. Horia Coman, MD, PhD	Medical Psychology