



**CD 8.5.1 CURRICULUM DISCIPLINĂ PENTRU
STUDII UNIVERSITARE**

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FACULTY OF MEDICINE

STUDY PROGRAM 0912.1 MEDICINE

**DEPARTMENT OF INTERNAL MEDICINE
GERIATRICS AND OCCUPATIONAL MEDICINE**

APPROVED

at the meeting of the Quality Commission for Assurance and Evaluation of the Curriculum faculty Medicine

Minutes No. 1 of 16.09.21

Chairman PhDH med., prof.
Suman Serghei

APPROVED

at the Council meeting of the Faculty Medicine II

Minutes No. 1 of 21.09.21

Dean of Faculty PhDH med., assoc. prof.
Placintă Gheorghe

APPROVED

approved at the meeting of the chair of
geriatrics and occupational medicine

Minutes No. 3 of 16.10.21

Head of chair professor, doctor, PhDH

Nicolae Bodrug

SYLLABUS

DISCIPLINE GERIATICS

Integrated studies

Type of course: **Compulsory**

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I. INTRODUCTION

- **General presentation of the discipline: place and role of the discipline in the formation of the specific competences of the professional / specialty training program:**

Geriatrics is the branch of internal medicine that studies the pathological aspects of aging processes. Geriatrics is a compulsory discipline of the university education program that implements fundamental knowledge such as anatomy, human physiology, pathophysiology, pharmacology in elderly patients, needed for clinical activity. Elderly are an important segment of the total population worldwide. They have a more immunological, metabolic, vascular, and bone fragility than young adults. This expresses the importance of geriatrics in the general medical practice of the physician. The geriatric discipline has a program of training for future specialists.

The beneficiaries will study the most important aspects of geriatrics such as notions of geriatrics and gerontology, physiological and pathological human aging, demographic data and the world and national socio-economic aspects of the elderly population, geriatrics from the context of other specialties, theories of aging, the criteria of aging, geriatric syndromes, etc.

Such way, the student acquires practical skills for geriatric patient assessment, interpretation of clinical and laboratory assessment, establishing a geriatric diagnosis and appropriate treatment for the elderly.

- **Mission of the curriculum (purpose) for professional training:**

The purpose of the curriculum is to provide theoretical and practical support by cultivating skills, habits and attitudes for practical medicine as an important part in maintaining the health and quality of life of the elderly.

- **Language (s) of the course:** Romanian, Russian, English.;
- **Beneficiaries:** 6th year students, faculty of Medicine II.

II. MANAGEMENT OF THE DISCIPLINE

Code of discipline		S.11.O.095	
Name of the discipline		Geriatrics	
Person(s) in charge of the discipline		Head of discipline - professor, doctor, PhDH Nicolae Bodrug	
Year	VI	Semester/Semesters	XI
Total number of hours, including:			60
Lectures	10	Practical/laboratory hours	12
Seminars	13	Self-training	25
Clinical internship			-
Form of assessment	E	Number of credits	2



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III. TRAINING AIMS WITHIN THE DISCIPLINE

At the end of the discipline study the student will be able to:

- ***at the level of knowledge and understanding:***

- to know the importance of geriatrics, the particularities and conceptual problems of geriatrics in a multidisciplinary context;
- to know the principles of determining the geriatric diagnosis in the elderly patient;
- to know the elderly autonomy, objective examination, laboratory examinations and clinical features on organ systems;
- acquire knowledge in the direction of complex geriatric examination, interpretation of geriatric scores and definition of geriatric syndromes, aging criteria, theories of aging;
- to develop clinical thinking; deciphering and interpreting the results of clinical and laboratory assessment in the geriatric patient, establishing the presumptive clinical diagnosis, establishing and justifying the necessary investigation plan, differential diagnosis and differentiation criteria of the existing pathologies;
- to know to prescribe individual treatment, etiological and symptomatic treatment in elderly patients;
- to know principles of geriatric pharmacotherapy (pharmacokinetics, pharmacodynamics, drug actions, pharmacological accidents, drugs associations, geriatric iatrogenic pathology, frequent side reactions, etc.);
- to know the recommendations for elderly patients (diet, physical regimen, specific medication).

- ***at the application level:***

- to distinguish the specific features of pathologies in geriatric patient, the complex geriatric assessment in the context of different medical conditions, the evaluation of geriatric problems and the degree of dependence;
- to obtain the necessary skills to perform specific geriatric scores and their correct interpretation;
- use the knowledge gained in the study process by strengthening, enriching and implementing in clinical practice.

- ***at the integration level:***

- to address the clinical importance of geriatrics, national and international geriatric problems;
- be competent to evaluate their own knowledge in the field of geriatrics and gerontology;
- be prepared for the evaluation of a geriatric patient in the context of different specialities;
- be able to apply the knowledge in later clinical practice.

IV. PROVISIONAL TERMS AND CONDITIONS

Geriatrics is a necessary medical field for integration and implementation of basic medical sciences (anatomy, human physiology, microbiology etc.) in clinical practice.

Geriatrics is one of the disciplines of the university training for students, regardless of specialty that they will choose later. It is the widest field of integration and implementation of fundamental knowledge in medical practice. In this discipline, along with studying the etiology, pathogenesis, clinical manifestations, evolution, treatment diseases in elderly patients, students accumulate practical skills for investigating and assessing patient outcomes, assess the impact that new technologies have on the body, put the basis of clinical, which ensures proper diagnosis, appropriate treatment and early detection of diseases.



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Geriatrics has a distinct position in establishing the foundations of clinical thinking, which will provide the future doctor the necessary skills and knowledge to put the correct diagnosis and treat the disease as well as fix emergency situations related to geriatric patients.

V. THEMES AND ESTIMATE ALLOCATION OF HOURS

Lectures, practical hours/ laboratory hours/seminars and self-training

No. d/o	THEME	Number of hours		
		Lect ures	Pract ical hour s	Self - train ing
1.	Aging. Demographical data and socio-economical aspects. Definitions of geriatrics and gerontology.	2	4	6
2.	Aging criteria. Geriatric diagnosis. The approach and evaluation of old patient.	2	4	6
3.	Neurological changes in the elderly. Confusion, dementia and depression in elderly patients.	2	4	6
4.	Frailty and falls in elderly.	2	4	6
5.	Principles of geriatrics pharmacotherapy.	2	4	6
Total		10	20	30

VI. PRACTICAL TOOLS PURCHASED AT THE END OF THE COURSE

Mandatory essential practical tasks are:

- to know the correct interpretation of laboratory examinations of the elderly
- to apply the formulation of the gerontological diagnosis through the prism of existing polypathologies
- to integrate the association of gerontological diagnosis with clinical diagnosis, after obtaining clinical and paraclinical data needed for it
- to know the neuro-psycho changes of the elderly (macroscopic, histological, neurochemical, vascular)
- to know the specific changes of the intellectual performances depending on aging process
- to know the conduct tactics of the geriatric patient of the confusing condition, indicating the necessary informative investigations
- to apply the concept of fragility in the context of gerontological diagnosis
- to define the notion of falls in the elderly
- to know the correlation between aging and the ability to maintaining balance and gait
- to know the pharmacological particularities in senescence



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- to know the mechanisms of absorption, distribution, metabolism, excretion of drugs in the elderly
- to know the action of the used drug groups in geriatrics
- to interpret possible pharmacological accidents in the elderly

VII. REFERENCE OBJECTIVES OF CONTENT UNITS

Objectives	Content units
Theme (chapter) 1. Aging. Demographical data and socio-economical aspects. Definitions of geriatrics and gerontology.	
<ul style="list-style-type: none"> • To define: the notion of geriatrics and gerontology, the definition of aging, geriatrics - the interdisciplinary aspects • To know demographic data and the socio-economic aspects of the elderly population. Historical data. • Familiarize with classification of age groups, aging mechanisms, biological and chronological age, physiological and chronological aging, accelerated aging • Demonstrate the theories of aging, the involutive segment of life • Apply the knowledge for interrogation and evaluation of geriatric patients • To integrate general knowledge into geriatric practice 	<p>The definitions of geriatrics and gerontology.</p> <p>Geriatrics - interdisciplinary aspect.</p> <p>Demographical data and socio-economical aspects of geriatrics.</p> <p>Classification of age groups.</p> <p>The theories of aging.</p>
Theme (chapter) 2. Aging criteria. Geriatric diagnosis. The approach and evaluation of old patient.	
<ul style="list-style-type: none"> • Define the criteria for physiological aging • Know the process of aging of different organs and systems of internal organs • To know the elderly autonomy, the elderly approach and evaluation, the biological age assessment scale, the geriatric diagnosis • To demonstrate particularities of the clinical examination • To be able to interpret laboratory data and diagnostic imaging results • To formulate geriatric diagnosis • To associate geriatric and clinical diagnosis 	<p>Aging criteria.</p> <p>Complex geriatric evaluation of the elderly patient.</p> <p>The clinical and laboratory examination of the geriatric patient. Results interpretation.</p> <p>Geriatric diagnosis.</p>



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Objectives	Content units
Theme (chapter) 3. Neurological changes in elderly. Confusion, dementia and depression in elderly patients.	
<ul style="list-style-type: none"> • To know neurological changes (microscopic, macroscopic and vascular) • To know the specific changes in intellectual performance depending of aging • To define the notion of confusion • To know the causes, clinical symptoms and laboratory assessment of confusion • To demonstrate the mechanisms of confusion progress • To know predisposing factors of confusion • To establish the differential diagnosis of confusion and diagnostic criteria • To know the clinical manifestations and management of confusion • To integrate all the knowledge for establishing the correct treatment for confusion • To define the notion of dementia • To know the classification of dementia • To demonstrate the etiology of Alzheimer dementia • To know the clinical manifestations and laboratory assessment of Alzheimer dementia • To demonstrate geriatric assessment in elderly patients with dementia • To know the diagnostic criteria and management of dementia • To demonstrate the roles of risk factors in the development of the dementia • To know the differential diagnostic of dementia and confusion • To integrate all the knowledge for establishing the treatment for dementia • To define the notion of depression • To know the causes and the clinical symptoms of depression • To know types of depression • To demonstrate geriatric assessment in elderly patients with depression • To integrate all the knowledge for establishing the treatment for depression 	<p>Neurological changes in elderly.</p> <p>Confusion: the notion of confusion, cause, mechanisms and clinical manifestations of confusion.</p> <p>The predisposing factors and laboratory assessment of confusion.</p> <p>Diagnostic criteria of confusion.</p> <p>The management and treatment of confusion.</p> <p>Dementia: definition, classification, cause, mechanisms and clinical manifestations of dementia.</p> <p>Diagnostic criteria and geriatric assessment in patients with dementia.</p> <p>Risk factors in the development of dementia.</p> <p>The management and treatment of dementia.</p> <p>Depression: definition, causes, clinical manifestations of depression.</p> <p>The types of depression.</p> <p>The management and treatment of depression.</p>



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Objectives	Content units
Theme (chapter) 4. Frailty and falls in the elderly.	
<ul style="list-style-type: none"> • To define notion of frailty • To know the causes of frailty • To demonstrate the geriatric assessment in elderly patients with frailty syndrome • To define the notion of falls • To know the causes of falls (neurological, cardiovascular, iatrogenic, metabolic) • To know the risk factors of falls • To evaluate living conditions of patients with falls (furniture, bathrooms) • To evaluate the predictor factors of falls • To study the potential consequences of falls (traumatic, psychological, psychological consequences) • To integrate all the knowledge for necessary treatment for elderly patients after falls • To interpret the medical and social assessment of the elderly with risk of falling • To apply the gained knowledge in clinical activity 	<p>Frailty –general approach in elderly patients.</p> <p>Geriatric assessment in elderly with frailty syndrome.</p> <p>Falls: definition of falls, causes, risk factors and predictor factors of falls.</p> <p>Living conditions of patients with falls.</p> <p>The consequences of falls.</p> <p>The management and specific therapy for patients with falls.</p>
Theme (chapter) 5. Principles of geriatrics pharmacotherapy.	
<ul style="list-style-type: none"> • To know the pharmacological particularities of senescence • To know the mechanisms of absorption, distribution, metabolism, excretion of drugs in the elderly • To know the action of drugs used in geriatrics • To interpret possible pharmacological accidents in the elderly • To know the terms of overdose and iatrogenic pathology • To know the most common side effects seen in the elderly patient (neurological, cardiovascular and digestive side effects) • To know the general principles of geriatric pharmacotherapy • To know the aspects of non-pharmacological therapy • To know the therapy against aging process (vitamin therapy, metabolic stimulants, antioxidants, immunomodulators) • To demonstrate the particularities of geriatric pharmacotherapy in some classes of drugs (beta- 	<p>Pharmacological characteristics in the elderly.</p> <p>Pharmacokinetics and pharmacodynamics in the elderly.</p> <p>Pharmacological accidents in geriatrics.</p> <p>Secondary side effects reported in geriatric practice.</p> <p>The aspects of pharmacotherapy in geriatrics, non-pharmacological therapy, and therapy used to inhibit the aging process.</p> <p>The classes of drugs used in the geriatric department.</p>



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Objectives	Content units
blockers, cardiac glycosides, antiarrhythmics, antihypertensives, diuretics, antibiotics) • To apply knowledge in clinical case demonstration	

VIII. PROFESSIONAL (SPECIFIC (SC)) AND TRANSVERSAL (TC) COMPETENCES AND STUDY OUTCOMES

✓ Professional (specific) (SC) competences

- SC1. Responsible execution of professional tasks with the application of the values and norms of professional ethics, as well as the provisions of the legislation in force.
- SC2. Adequate knowledge of the sciences about the structure of the body, physiological functions and behavior of the human body in various physiological and pathological conditions, as well as the relationships between health, physical and social environment
- SC3. Resolving clinical situations by developing a plan for diagnosis, treatment and rehabilitation in various pathological situations and selecting appropriate therapeutic procedures for them, including providing emergency medical care.
- SC4. Promoting a healthy lifestyle, applying prevention and self-care measures
- SC5. Interdisciplinary integration of the doctor's activity in a team with efficient use of all resources.
- SC6. Carrying out scientific research in the field of health and other branches of science.

✓ Transversal competences (TC)

- TC1. Independency and responsibility;

✓ Study outcomes

- Teaching students according to the strictness of the medical act and the understanding of basic sciences for the particular level, as well as for the professional formation.
- Obtaining of the practical skills to perform correctly various medical tests, and understand their real value;
- Theoretical and practical training for helping students put the correct diagnosis for geriatric patients.

Note. Study outcomes (are deduced from the professional competencies and formative valences of the informational content of the discipline).

IX. STUDENT'S SELF-TRAINING

No.	Expected product	Implementation strategies	Assessment criteria	Implementation terms
1.	Interacting with patients	Evaluation of the geriatric patient and put a presumptive diagnosis, with subsequent recommendation for a more complex	The ability to create conclusions and the correctitude of writing the medical report.	During the course



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		assessment and treatment.		
2.	Preparation of presentations, posters and reports.	Selected the research subject, determining the plan and deadline. Electing the plan for PowerPoint presentation, poster or report – subject, scope, results, conclusions, practical applications, references.	The degree of insight of the project's subject, the level of scientific support, the quality of conclusions, ingenuity elements; the formation of personal attitude, coherence and the correctness of scientific data; graphical representation, mode of presentation.	Until the end of the course
3.	Using different teaching methods	Conversation, explanation, discussion, problem-solving, simulation of situations, methods of group work and individual study curriculum documents and references.	The volume of work, the degree of insight of the project's subject, the level of scientific support, the quality of conclusions, ingenuity elements; the formation of personal attitude.	During the course

X. METHODOLOGICAL SUGGESTIONS FOR TEACHING-LEARNING-ASSESSMENT

• Teaching and learning methods used

Geriatrics is a mandatory discipline and it is taught according to the classical university standards: courses, seminars and practical lessons. The discipline reserves the rights to hold the practical lessons and courses in an interactive manner.

Methods of teaching - learning: lecture, heuristic conversation, explanation, discussion, problem-solving, simulation of situations, methods of group work and individual study curriculum documents and references.

Discipline of Geriatrics is taught in a classical manner: with lectures and practical work. The theoretical lectures will be read during the current holders. Department reserves the right to spend the practical work and lectures in an interactive manner (answers to questions on the topic by the teacher, work independently with patients, topic discussion using teaching and illustrative materials, further topic discussion bedside clinical case specific and based on type of situation problems with the results of laboratory and instrumental investigations, estimate practical properties of the theme, conclusions).

Theoretical courses are taught as classical, slides, interactive. Practical lessons are spent at high methodically, using widely different illustrative clinical material. Depending on the time dynamics of the educational process, apply various types of seminar sessions, such as: introductory workshops, seminars basic overview seminars, discussion, lecture, applications, making instructional objective (informative) - education (formative), which is based on such characteristics as: mobility, diversification, specialization.



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Practical works are proposed:

- examination of patients together with students, and laboratory interpretation of laboratory investigations, assessment of the work;
- periodic testing of practical knowledge;
- student involvement in the preparation of clinical cases or exposures theoretical topics;
- presentation of materials with different disease conditions generating professional work, concrete ways positive diagnosis of occupational diseases
- the development of clinical reasoning: assessing the clinical examination of patient outcomes in the context of individual clinical case, the argument presumptive diagnosis, preparation and laboratory investigations program arguments and advice of other doctors - specialists, making the differential diagnosis, formulate a positive diagnosis (clinical) practice.

Clinic reserves the right to spend some practical work in interactive and modern approach: teaching strategies focused on active learning and interactive:

- Centered and activity of student
- Multidirectional communication
- With an emphasis on developing thinking
- With training skills
- To encourage participation, initiative, creativity
- To assess their own work
- Transformed student of learning object and subject
- Predominantly formative component, cognitive component balanced evaluative component.

- ***Methods of assessment (including the method of final mark calculation)***

Current:

- During practical lessons – at each practical lesson, the students obtain a mark based on the pretest (usually imprompt), the performance at the patient's bedside, the communication of the report at the respective topic.
- Medical report is marked at the end of the discipline and its discussion is performed in front of the colleagues during the course.

Final:

Students who have an average mark lower than 5 or did not recover the absences, are not admitted to the final exam.

The discipline of geriatrics during the studies evaluating students' knowledge is made:

- The assessment of theoretical knowledge (oral);
- The completion of the module by performing practical tests by examining and discussing a clinical case;
- By assessing the clinical observation sheets (staff);
- Is carried out according to the course work and practical lessons;
- By checking periodically tests and oral knowledge grid.
- Practical lessons - every lesson student is rated at under estimate pretest (most commonly in the form of pop quiz), worked at the bedside, communication, refer to the theme, and the theme of practical properties;



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At promotion examination of the subject students are not admitted with yearly grade average under 5 and students who have not recovered absences from the practical work.

At the end of subject it has finished with the exam.

The final mark is composed from the following: the average mark during the course \times 0.5 coefficient; oral exam \times 0.3 coefficient; multiple-choice tests \times 0.2 coefficient.

Rating Scale

Assessment of the knowledge is marked with grades from 10 to 1, without decimals:

- Mark 10 or “excellent” (ECTS equivalent – A) is given for studying of 91-100% of the material;
- Mark 9 or “very good” (ECTS equivalent – B) is given for studying of 81-90% of the material;
- Mark 8 or “good” (ECTS equivalent – C) is given for studying of 71-80% of the material;
- Mark 6 and 7 or “fair” (ECTS equivalent – D) is given for studying of 61-65% and 66-70% respectively, of the material;
- Mark 5 or “poor” (ECTS equivalent – E) is given for studying of 51-60% of the material;
- Mark 3 and 4” (ECTS equivalent – FX) is given for studying of 31-40% and 41-50% respectively, of the material;
- Mark 1 and 2 or “insufficient” (ECTS equivalent – F) is given for studying of 0-30% of the material;

Method of mark rounding at different assessment stages

Intermediate marks scale (annual average, marks from the examination stages)	National Assessment System	ECTS Equivalent
1,00-3,00	2	F
3,01-4,99	4	FX
5,00	5	E
5,01-5,50	5,5	
5,51-6,0	6	
6,01-6,50	6,5	D
6,51-7,00	7	
7,01-7,50	7,5	C
7,51-8,00	8	
8,01-8,50	8,5	B
8,51-8,00	9	
9,01-9,50	9,5	A
9,51-10,0	10	

The average annual mark and the marks of all stages of final examination (test, oral) - are expressed in numbers according to the mark scale (according to the table), and the final mark obtained is expressed in number with two decimals, which is transferred to student's record-book.



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*Absence on examination without good reason is recorded as "absent" and is equivalent to 0 (zero).
The student has the right to have two re-examinations.*

XI. RECOMMENDED LITERATURE:

A. Compulsory:

1. Hazzard's Geriatric Medicine and Gerontology, Sixth Edition (Principles of Geriatric Medicine & Gerontology), 2009.

B. Additional

1. Negară A. și coautorii/ Compendium de geriatrie / Chișinău, 2012.
2. Ghidrai O. / Geriatrie și Gerontologie / Editura Casa Cărții de Știință / Cluj Napoca, 2002.
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5. Bălăceanu-Stolnici C. / Geriatrie practică / Editura Medicală / București, 1998.
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8. Чеботарёва Д. Ф., Маньковский Н. Б. /Руководство по гериатрии / Москва / Медицина, 1982.
9. Ярыгин В.Н., Мелентьев А.С., Основы геронтологии. Общая гериатрия, Москва, 2010, TOM I-IV.