DISCIPLINE SHEET

ACADEMIC YEAR

2022- 2023

1. DATA ABOUT THE STUDY PROGRAM

1.1 Institution of higher education	UNIVERSITY OF MEDICINE AND PHARMACY CRAIOVA
1.2 Faculty	**MEDICINE**
1.3 Department	**2**
1.4 Study Domain	HEALTH
1.5 Study cycle	LICENCE
1.6 Study program/ Qualification	MEDICINE

2. DATA ABOUT THE DISCIPLINE

2.1. Discipline name				**PHYSIOLOGY**	
2.2. Discipline code				MED1202	
2.3 The holder of course activities				Tudor Adrian Bălşeanu/ Citto Iulian Taisescu / Smaranda Ioana Mitran/ Emilia Burada	
2.4 The holder of seminar activities				Citto Iulian Taisescu/ Smaranda Ioana Mitran/ Andreea Tănasie	
2.5. Academic degree				**Course:** Prof./Prof./ Lecturer/Lecturer **Seminar activities:** Prof./Lecturer/Assistant	
2.6. Employment (base norm/associate)				Base norm	
2.7. Year of study	**I**	2.8. Semester	**II**	2.9. Course type (content) 2.10. Regime of discipline (compulsoriness)	**CFD**

3. THE ESTIMATED TOTAL TIME (teaching hours per semester)

3.1 Number of hours per week	**6**	3.2 From which: course	**3**	3.3 seminary/laboratory	**3**
3.4 Total hours in curriculum	**84**	3.5 From which: course	**42**	3.6 seminary/laboratory	**42**
Time found distribution (hours):					
Study from manual, course support, bibliography, and notes					**24**
Additional documentation in the library, specialized electronic platforms and, on the field					**24**
Training seminars / labs, homework, reports, portfolios, and essays					**20**
Tutoring					**4**
Examinations					**24**
Other activities, counselling, student scientific programs					**20**

3.7 Total hours of individual study	**116**
3.9 Total hours per semester	**200**
3.10 Number of credits	**8**

4. PREREQUISITES (where appropriate)

4.1 curriculum	The students have to have general background knowledges of anatomy, biochemistry, biophysics and cell biology
4.2 competency	-

5. CONDITIONS (where appropriate)

5.1. of course deployment	Lecture Hall with projector / online
5.2. of seminary/ lab deployment	Physiology Lab / online

6. SPECIFIC COMPETENCES ACCRUED

PROFESSIONAL COMPETENCE	**C1** - Identification the disease state and establishing the correct diagnosis **C4** – To address health issues/illness from the perspective of community specifics, directly related to the social, economic and/or the cultural specificity. **C5** – To address health issues/illness from the perspective of community specifics, directly related to the social, economic and/or the cultural specificity.

TRANSVERSAL COMPETENCES	**CT1**. Autonomy and responsability • the acquisition of moral reference points, the formation of professional and civic attitudes, that will allow to the students to be fair, honest, helpful, understanding, unconflictuals,to cooperate and to be comprehensive in the face of suffering, to be available to help people, and to be interested in community development; • to know, to respect and to contribute to the development of moral values and professional ethics; • to learn how to recognize the problems when they arise, and provide solutions for solving them. **CT2**. Social interaction • to recognize and to have respect for diversity and multiculturalism; • to have or to learn how to develop teamwork skills; • to communicate orally and in writing the manner of work requirements, the obtained results, to consult with the team; • to engage themselves in voluntary activities, to know the essential problems of the community. **CT3.** Personal and professional development • to have opening to lifelong learning; • to be aware for self-study as a basis of personal autonomy and professional development; • to derive the optimum and creative potential in their own collective activities; • to know how to use information and communication technologies.

7. DISCIPLINE OBJECTIVES (based on the grid of specific competences acquired)

7.1 The general objective of the discipline	The goal of the Physiology Department is to provide first and second year students informational and logistical support so as to understand and explain the normal functioning of the human body and how it adapts to variations of internal and external environment. We wish to instill students respect for the intelligence and complexity of the physiological mechanisms, appreciation for the beauty of the human body and the curiosity to explore, in the following years, the underlying imbalances of physiological mechanisms that lead to disease.
7.2 The specific objectives of the discipline	Through the curricula adapted to European quality standards, through the teaching and assessment methods used, involving students in research and patient evaluation, the Physiology Department aims to develop cognitive skills, abillities and attitudes that form the basis of any medical act, whether it is preventive, diagnostic, curative or rehabilitative. Upon completion of the Physiology theoretical and practical courses, students will acquire the following types of skills: ***COGNITIVE***, which will allow the student to: ▪ Describe the physiological mechanisms underlying the functioning of organs and systems that make up the human body; ▪ Describe, explain and evaluate the mechanisms by which the body adapts to changes in internal or external environment; ▪ Analyze critically the variations of biological parameters and identify factors that induce these changes: functional pulmonary parameters, biliary pigments, pancreatic enzymes, glucose, anthropometric parameters, sex hormones. ▪ Interpret variations of biological parameters (functional pulmonary parameters, biliary pigments, pancreatic enzymes, glucose, anthropometric parameters) and determine their clinical relevance; ▪ Interpret charts, diagrams, graphs of different body functions and functional parameters; ▪ Integrate theoretical and practical knowledge acquired from Physiology courses with those obtained from other fundamental disciplines and use them as a platform for clinical training; ▪ Communicate clearly, confidently the knowledge acquired or the obtained results; ▪ Issue working hypotheses and verify them through experiments ***PRACTICAL SKILLS*** ▪ Organize themselves for practical activities: forming a team, assigning tasks, collaborating, communicating requirements, preparing materials, following a given protocol, recording results, communicating results, discussions within the team; ▪ Use specific teaching materials and equipment provided by the Physiology laboratory; ▪ Perform various techniques for determining or identifying certain biological parameters, such as: biliary pigments, pancreatic enzymes, gastric enzymes, saliva components; ▪ Execute maneuvers to record volumes, capacity and pulmonary flow; ▪ Measure the anthropometric parameters and calculate Body Mass Index and Waist-Thigh Index;

	▪ Determine base glucose level and interpret the results; ▪ Perform and interpret a pregnancy test. ***ATTITUDES*** • the acquisition of moral reference points, the formation of professional and civic attitudes, that will allow to the students to be fair, honest, helpful, understanding, unconflictuals, to cooperate and to be comprehensive in the face of suffering, to be available to help people, and to be interested in community development; • to know, to respect and to contribute to the development of moral values and professional ethics; • to learn how to recognize when a problem arises and to provide solutions for solving it; • to recognize and to have respect for diversity and multiculturalism; • to have or to learn how to develop teamwork skills; • to communicate orally and in writing the manner of work requirements, the results obtained, to consult with the team; • to engage in voluntary activities, to know the essential problems of the community; • to have the opening for lifelong learning; • to be aware of the need of self-study as a basis of personal autonomy and professional development; • to derive the optimum and creative potential in their own collective activities; • to know how to use information and communication technologies; • to take initiative, to engage in educational and scientific activities of the discipline.

8. CONTENTS

8.1 Course (content units)	hours
F1C.1. Introduction to physiology: definitions, the topics covered in human physiology, the physiology branches, history. Ethical principles imposed by the Hippocratic school of medicine. The hierarchical organization of the body. Internal environment and body-fluid compartments. The composition of living matter.	**3**
F1C.2. The composition of living matter. The value of reference in biology. Homeostasis: definitions, concept of balance; Normal Range and variation of physiological parameters. Mechanisms for maintaing homeostasis: negative and positive feedback, neural and endocrine regulation. Functional antagonism.	**3**
F1C.3. Morpho-functional organization of the membrane. Cell membrane functions. Mechanisms of transport across the plasma membrane: passive transport.	**3**
F1C.4. Membrane transport function – active transport. Membrane excitability. The resting membrane potential. Action potential.	**3**
F1C.5. Regulation and control mechanisms: The autonomic nervous system - Generalities, functional anatomy, synaptic physiology, roles, control.	**3**
F1C.6. Regulation and control mechanisms: endocrine system. Overview of the endocrine glands.	**3**
F1C.7. Physiology of the endocrine hypothalamus. Physiology of the pituitary gland. Functions of thyroid hormones. Physiology of the adrenal glands: functions of mineralocorticoid hormones, glucocorticoids; sex steroids. Regulation of adrenal cortex hormone secretion.	**3**
F1C.8. Physiology of the Adrenal Medulla. Physiology of the endocrine pancreas: insulin and its metabolic effects, glucagon-functions, somatostatin-functions, regulate blood sugar. Physiology of Pineal Gland. Parathyroid gland physiology. Effects of parathyroid hormone: calcitonin and vitamin D in regulating metabolism of bones and teeth. Physiology of the gonads.	**3**
F1C.9. Physiology of the digestive system. The functions of gastrointestinal tract. Physiology of the salivary and gastric secretion	**3**
F1.C10. Stomach physiology: functional anatomy of the stomach, secretory function of the stomach, phases of gastric secretion, motor function of the stomach, endocrine function of the stomach, regulation of gastric secretion, pathological aspects.	**3**
F1.C11. Physiology of the exocrine pancreas: functional anatomy of the pancreas, pancreatic exocrine secretion - pancreatic juice, regulation of pancreatic secretion, pathological aspects.	**3**
F1.C12. Physiology of the small intestine: functional anatomy of the small intestine, secretory function of the intestine - intestinal juice, regulation of intestinal secretion, absorption in the small intestine.	**3**
F1.C13. Physiology of the large intestine: functional anatomy of the large intestine, fermentation / putrefaction processes in the large intestine. Intestinal motility. Defecation. Endocrine function of the intestine.	**3**
F1.C14. Liver physiology: functional anatomy of the liver, liver functions, bile secretion, regulation of bile secretion, pathological aspects.	**3**

BIBLIOGRAPHY 1. Fiziologia aparatului digestiv, 2016. Autori: Sfredel Veronica, Iancău Maria, Badea Daniela, Iancu Ionela, Mitran Smaranda Ioana, Romanescu Florin, Taisescu Citto, Bălșeanu Adrian, Dinescu Venera, Burada Emilia, Cătălin Bogdan, Corîci Andreea, ISBN 978-606-11-72-47-4, Editura Sitech, Craiova, 2016 2. The course teached during the semester 3. Walter Boron: Fiziologie medicală, ed. 3, 2016 4. Ioan Haulică, Fiziologie umana, ediţia.2010	
8.2 Practical work (topics / themes)	**hours**
F1.LP1. Introduction in physiology. Description of the laboratory. Rules for safety work in the laboratory. Rules of the Department of Physiology.	**3**
F1. LP2. Transmembrane transport mechanisms. Water transport - osmosis.	**3**
F1. LP3. Membrane polarity. The potential for rest and action.	**3**
F1. LP4. Integrative physiology. The importance of osmotic and electrical balance in medical practice.	**3**
F1. LP5. Physiology of the endocrine glands: exploration of the endocrine pancreas. The assessment of nutritional status.	**3**
F1. LP6. Exploration of the thyroid gland. The pregnancy test. Integrative physiology: the clinical implications of altered endocrine secretion	**3**
F1. LP7. Motility of the digestive gut. Recording the response of the gastric circular muscle of the frog. The influence of chemical mediators on intestinal motility - SimMuscle.	**3**
F1. LP8. Highlighting salivary components and digestive functions of saliva: enzymatic activity of ptyalin. Highlighting of inorganic substances normally present (Ca_2^+) and accidentally in saliva: lead, mercury, bismuth.	**3**
F1. LP9. Gastric secretion. highlighting the HCl in gastric juice. Highlighting the activity of pepsin in gastric juice; coagulation of milk under the action of the labferment. Integrative physiology: the clinical implications of altered HCl secretion.	**3**
F1. LP10. Coagulation of milk under the action of the labferment. Integrative physiology: the clinical implications of altered HCl secretion	**3**
F1. LP11. Pancreatic juice: dosing of amylolytic activity in pancreatic juice and evidence of trypsin activity.	**3**
F1. LP12. Bile secretion: highlighting the action and presence of bile salts; highlighting the presence of bile pigments in the urine.	**3**
F1. LP13. Integrative physiology: the clinical implications of altered biliary secretion.	**3**
F1. LP14. Integrative physiology: the clinical implications of altered pancreatic secretion.	**3**
BIBLIOGRAPHY 1. Discipline protocols 2. Fiziologia aparatului digestiv - Aplicații practice, 2020, ediția a IV-a revizuită. Autori: Sfredel Veronica, Iancău Maria, Badea Daniela, Iancu Ionela, Mitran Smaranda Ioana, Romanescu Florin, Taisescu Citto, Bălșeanu Adrian, Dinescu Venera, Burada Emilia, Cătălin Bogdan, Corîci Andreea, ISBN 978-606-11-72-47-4. Editura Sitech, Craiova. 3. MetaNeuron, Interactive neuron simulation program, metaneuron.com 4. Hirsch, M. et al, Virtual Physiology: SimHeart, SimVessel, SimMuscle - program pentru simularea experimentelor efectuate pentru studiul fiziologiei aparatului cardiovascular, Edit. Thieme, 1997. 5. G. Cotor et al, Luprafisim, lucrări practice de Fiziologie Virtuală, ed. Monitor, Bucuresti, 2002.	

9. CORROBORATING THE DISCIPLINE CONTENT WITH THE EXPECTATIONS OF EPISTEMIC COMMUNITY REPRESENTATIVES, PROFESSIONAL ASSOCIATIONS AND EMPLOYEE REPRESENTATIVES RELATING TO THIS PROGRAM

- Physiology is a fundamental discipline, mandatory for a student in his preparation for becoming a doctor.
- The knowledges, practical skills and the attitudes learned on this discipline are offering the basics of the pathological processes that will be studyed in other disciplines and it is the basis for comprehension and understanding and learning of every medical attitude regarding the prevention, diagnosis, curative and the recovery processes.

10. MHETODOLOGICAL LANDMARKS

Forms of activity	Techniques of teaching / learning, materials, resources: lecture, interactive group work, learning based problems / projects audio-video recordings, etc.

Cours	In case of special situations (alert states, emergency states, other types of situations that limit the physical presence of people) the activity can be carried out online using computer platforms approved by the faculty / university. The online education process will be adapted accordingly to ensure the fulfillment of all the objectives set out in the discipline sheet.
Practical work	The following combined methods are used: experiments, debate, problematization.
Self-study	For the online version: lecture, debate, problematization based on materials provided in advance.

11. RECOVERY PROGRAM

	No. absences that can recover	**Location of deployment**	**Period**	**In charge**	**Scheduling of topics**
Absences recoveries	**3**	Physiology lab / online	The last week of the semester	Teaching Assistant	According to the internal schedule
Schedule consultations / Students' Scientific Program	**2** hours /week	Physiology lab / online	Weekly	All teaching assistants	The theme of the week. Student workshop: neurosciences - the brain ageing researches.
Program for students poorly trained	**2** hours/ week	Physiology lab / online	Weekly	All teaching assistants	According to the situation of each student Theme from that specific week

12. ASSESMENT

Activity	**Types of assesment**	**Methos of evaluation**	**Percentage from final grade**
Lecture	Formative assesment through essays, projects and surveys during the semester Summative assesment during the exam	Written exam/ Answering System (MCQ)/MCQ with the help of the IT platform in the online version.	60%
Practical work	Formative assesment through Multiple Choice Questions Answering System (MCQ) or/and descriptive, projects, survey during the semester. Periodic assesment during the semester Summative assesment during the exam	Practical work exam / with the help of the video platform in the online version.	20%
Periodic assesment		Multiple choice questions or descriptive works	10%
Assement of individual activities		Evaluating individual homework	10%
Minimum performance standard	Grade 5 for each component of the evaluation		

13. GUIDANCE AND COUNSELLING PROGRAMS

Professional guidance and counselling programs (2 hours/monthly)

Scheduling the hours	**Location**	**In charge**
Every last Friday of the month	Physiology lab. /online	Lecture holders

Endorsement date in the department: 27.09.2022

Department Director, **Prof. Eugen Osiac**	**Study program coordinator,** **Prof. Marius Eugen Ciurea**	**Discipline holder,** **Prof. Veronica Sfredel**