NAME	**NEUROBIOLOGY OF HOMEOSTATIC BEHAVIORS**	COD:

MASTER DEGREE	YEAR OF STUDY	SEMESTER	STATUS OF THE DISCIPLINE (F-fundamental / S-specialisation / C-complementary)	TYPE OF THE DISCIPLINE (OB-obligatory / opt-optional / fac-facultative)
	1	1	S	OB

TOTAL HOURS/ WEEK				TOTAL HOURS /SEMESTER	TOTAL HOUS INDIVIDUAL ACTIVITY*	NUMBER OF CREDITS	TYPE OF EVALUATION (**P**-on going, **C**-coloquy, **E**-exam, **M**-mixt)	LANGUAGE
C	S	L	Pr.					
2		2		28	28		M	Romanian

TEACHER	TEACHING AND SCIENTIFIC DEGREE, SURNAME, NAME	DEPARTMENT
	ASSOC.PROF. VIOLETA RISTOIU	DAFAB

BACKGROUND	Biology, Medical Biology, Master&PhD in Neurobiology, Electrophysiology, siRNA technology

OBJECTIVES	• Defining the concept of homeostatic behavior. • Understanding the neurobiology of thermoregulation, feeding behavior and anti-nociceptive behavior, as examples of homeostatic behaviors. • Study of the coordination beetween senses and central nervous system in controlling a homeostatic behavior • Prepare the master students for PhD and biomedical studies by developing abilities of scientific analysis and oral presentation.
SUBJECTS	1. Homeostasis. Vegetative nervous system – **2 hours** Defining the concept of homeostasis. Anatomy and the role of the vegetative nervous system in coordinating the activities that help maintain homeostasis. 2. Anatomy of the nervous system and the physiology of neuron – **4 hours** Anatomy of CNS and PNS. Physiology of neuron: excitability and conductibility. Synaptic transmission. Neuronal circuits involved in coordinating behaviors. 3. Maintaining constant temperature. Thermoregulation – **2 hours** Thermogenesis and thermolysis. Thermal sensibility. The role of the hipothalamus and the set-point mechanism. 4. Neurobiology of feeding behavior –Taste – **2 hours** Molecular mechanisms of sensing sweet, bitter, sour, salty, umami, spicy, astringent, fat. Codification of the taste informations at cortical level. 5. Neurobiology of feeding behavior – Olfaction – **2 hours** Molecular mechanism of detecting odorants. Olfactory cortex. 6. Neurobiology of feeding behavior – Visual system – 4 **hours** Physiology of the retina. The mechanism of visual sensation. 3D vision. Optical illusions. 7. Neurobiology of feeding behavior –Weight control – 4 **hours** Long-term and short-term control mechanism of feeding behaviors. The role of leptin and ghrelin. 8. Protection at cellular and tissue level. Mechanisms and the management of pain – 4 **hours** Pain:definition, classification. Neurobiology of pain. 9. Protection at cellular and tissue level.Contribution of immune system at pain pathogenesis – 4 **hours** Glia cells in CNS: microglia and astrocytes. Glia cells in PNS: Schwann cells, satellite cels, endogenous macrophages.
PRACTICAL SESSIONS	1. Case study: The 2000 meter Row: a case in homeostasis. – **6 hours** 2. Resting membrane potential. Simnerve - **4 hours** 3. Electroencefalogram + Electrooculogram+ Cronaximetry - **4 hours** 4. Isolation of the rat spinal cord and dorsal root ganglia (dissection) - **4 hours** 5. Final essay as a scientific paper + 10 min presentation in the last session - 8 **hours**
TEACHING METHODS	At the course: speaking, discussing problems. Practical sessions: demonstrations of neurobiology and physiology processes, papers' presentations, free discussions to verify if they understood the terms.

REFERENCES	
	1. Eric R. Kandel, James H. Schwartz, Thomas M. Jessell, Principles of Neural Science, McGraw-Hill Medical, 2000 2. Purves Dale, Augustine GJ, Fitzpatrick D, Hall WC, Lamantia AS, McNamarra JO, Williams SM, Neuroscience, 2004 3. Walter Boron, Medical Physiology, W.B. Saunders Company, 2005 4. Arthur C. Guyton, John E. Hall, Textbook of Medical Physiology ,W.B. Saunders Company, 2005 5. Nicholls JG, Martin A.R, Wallace B.G, Fuchs P.A, From Neuron to Brain, Sinauesr Associates, Inc., 2001

EVALUATION	conditions	The answers to the final evaluation (100%)

	criteria	1. Precise knowledge on the principles and methods presented, including the use of international terminology. 2. Capacity to summarise the taught information and to elaborate concise answers 3. Presentation of a scientific paper or their own results.
	forms	Written evauation – final exam
	formula of the final grade	Case study - 20% Paper presentation - 15% Final essay (peer-review): 30% Written exam: 35%.

Specific competences *	
1. Competences about learning and understanding	- knowing and correctly using specific terms for this subject - undestanding fundamental processes in physiology - identification of terms, relationships, processes based on the knowledge acquired - correct use of physiology terms - defining /naming physiology concepts - acquire basic and specific knowledge
2. Competences about explanation and interpretation	- explaining and interpreting processes and theoretical ideas specific to the subject - generalizing, particularization, integration of the information - making connections between results - ability to analise and synthetise information
3. Instrumental competences	- utilization of methods, techniques and specific intrumenst of investigations - connections between different types of representations, between representations and object - describing states, systems, processes, phenomenons - ability to put into practice the theoretical knowledge - research abilities
4. Competences about atitude	- developing positive atitudes and responsability towards science - getting involved in its own personal development - implication in scientific activities related to the subject - ability to collaborate with other specialists in the field

Associate Professor Violeta Ristoiu