Course plan

Year: 2024-2025	**Semester:** ■ First ☐ Second	**Number of students:**
Major: MD, MBBS	■ Basic sciences ☐ Physiopathology	**Department:** Physiology
Course Title: Cell physiology	■ Theoretical ☐ Practical	**Credit:** 0.8
Prerequisite: none	**Day & Time:** Wednesday, 8-10	**Place:** Shahid Soleimani
Instructor: Prof. Parham Reisi	**Office address:** School of Medicine, Department of physiology	**Tel:** 031-3792 9033
Email: parhamzh@gmail.com	**Response Hours and Days:** 12-14 every day	**Student representative name and mobile number:**

Main objective: Understanding the basic concepts of cell physiology and the function of excitable cells

Specific objects:

1. Understanding the concept of physiology (knowledge domain)
2. Familiarity with the internal environment and mechanisms of body control, homeostasis, and stress (knowledge domain).
3. Familiarity with the structure of the cell membrane and transport of substances through cell membranes (knowledge domain).
4. Familiarity with how the cell membrane resting potential is created and the basis of its physical foundation (knowledge domain).
5. Familiarity with how the action potential is created and its features in the neural and muscular cells (knowledge domain).
6. Familiarity with the physiological structure of skeletal muscle and its contraction mechanism (knowledge domain).
7. Familiarity with stimulation/contraction coupling and contractile characteristics in skeletal muscle (knowledge domain).
8. Familiarity with the physiological structure of smooth muscle and its types (knowledge domain).
9. Familiarity with contraction mechanism and its features in smooth muscle (knowledge domain).

References (Text books):

1- Guyton and Hall Textbook of Medical Physiology, (Latest version)
2- Berne & Levy Physiology (Latest version)
3- The slides and contents in the class

Student evaluation and the value related to each evaluation:
(The assessment tools that will be used to test student ability to understand the course material and gain the skills and competencies stated in learning outcomes)

ASSESSMENT TOOLS	**From**
Class activities and quiz	2
Final Exam (Written and Multiple-choice questions)	18
TOTAL MARKS	**20**

Students responsibilities:

1- Study the topics before and after the class
2- Observe the class order and rules
3- Attend all classes

Discipline and educational rules:

1- For each unplanned absence, 0.5 points will be deducted from 20, and in case of absence exceeding the permissible limit, the score will be zero.
2- The maximum permission time to participate in the class is 5 min after the start.
3- Mobile phone use is prohibited during class.

Other important notes for students:

1- Studying the rules and rights of the professor and the student

Mid-exam date: In accordance with the schedule **Final exam date:** In accordance with the schedule

Row	date	Topic	Professor	Theoretical or practical	References	Chapter	Pages
1	Sep 11	Understanding the concept of Physiology, Body fluids, Homeostasis, and Control systems of the body	Prof. Parham Reisi	Theoretical	Textbook of Medical Physiology (Guyton and Hall)	1	3-10
2	Sep 18	Membrane Physiology and Transport of Substances Through Cell Membranes	Prof. Parham Reisi	Theoretical	Textbook of Medical Physiology (Guyton and Hall)	4	47-54
3	Sep 25	Basic physics of membrane potentials, resting membrane potential and action potential, propagation of the action potential	Prof. Parham Reisi	Theoretical	Textbook of Medical Physiology (Guyton and Hall)	4, 5	54-64
4	Oct 2	Neuronal signal and factors affecting neuronal conductive velocity, myelin, features of action potential and how membrane potential is recorded	Prof. Parham Reisi	Theoretical	Textbook of Medical Physiology (Guyton and Hall)	5	65-71
5	Oct 9	Physiological structure of skeletal muscle and molecular mechanism of contraction, metabolism of energetics of muscle contraction	Prof. Parham Reisi	Theoretical	Textbook of Medical Physiology (Guyton and Hall)	5, 6	71-81
6	Oct 16	Characteristics of whole muscle contraction, Remodeling of muscle, neuromuscular junction, action potential and	Prof. Parham Reisi	Theoretical	Textbook of Medical Physiology (Guyton and Hall)	6, 7	82-96

		excitation-contraction coupling in skeletal muscle, and other features					
7	Oct 23	Excitation and Contraction of Smooth Muscle, Neuronal and Hormonal Control of contraction in smooth muscle, and other features	Prof. Parham Reisi	Theoretical	Textbook of Medical Physiology (Guyton and Hall)	8	97-105