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	**Course N. & Credit:** 1294019, 0.8
Prerequisite: none	**Day & Time:** Saturday, 8-10 A.M.	**Place:** Shahid Soleimani Building
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 function of excitable cells

Specific objects:

1. Introduction to Physiology Concepts
    - Understanding the fundamental concepts of physiology within the knowledge domain.
2. Internal Environment and Body Control Mechanisms
    - Exploring the mechanisms of homeostasis, stress, and the body's internal environment within the knowledge domain.
3. Cell Membrane Structure and Substances Transport
    - Examining the structure of the cell membrane and the transport of substances through cell membranes within the knowledge domain.
4. Cell Membrane Resting Potential
    - Understanding the creation of cell membrane resting potential and its physical foundation within the knowledge domain.
5. Action Potential in Neural and Muscular Cells
    - Exploring the creation and features of action potentials in neural and muscular cells within the knowledge domain.
6. Physiological Structure of Skeletal Muscle
    - Familiarity with the physiological structure of skeletal muscle and its contraction mechanism within the knowledge domain.
7. Stimulation/Contraction Coupling in Skeletal Muscle
    - Understanding the principles of stimulation/contraction coupling and contractile characteristics in skeletal muscle within the knowledge domain.
8. Physiological Structure of Smooth Muscle
    - Examining the physiological structure of smooth muscle and its various types within the knowledge domain.
9. Contraction Mechanism in Smooth Muscle
    - Understanding the contraction mechanism and its features in smooth muscle within the knowledge domain.

References (Text books):

1- Guyton and Hall Textbook of Medical Physiology (Latest Version)
2- Berne & Levy Physiology (Latest Version)
3- Class Slides and Contents

Student evaluation and the value related to each evaluation:

(The assessment tools employed to evaluate students' comprehension of course content and their attainment of the skills and competencies outlined in the learning outcomes.)

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

Students' responsibilities:

1- Prepare for class by reviewing topics beforehand and afterwards.
2- Adhere to class order and rules.
3- Ensure attendance in all classes.

Discipline and educational rules:

1- Attendance Policy:

- A deduction of 0.5 points from a total of 20 points will be applied for each unplanned absence. If the number of absences exceeds the permissible limit, the overall score for the course will be reduced to zero.

2- Punctuality:

- Participants are allowed a maximum grace period of 5 minutes after the scheduled start time to join the class. Beyond this timeframe, latecomers may not be admitted.

3- Mobile Phone Usage:

- The use of mobile phones is strictly prohibited during class. Participants are expected to keep their phones on silent or vibrate mode and refrain from any phone-related activities to maintain a focused learning environment.

Other important notes for students:

Reading the guidelines and rights governing both professors and students.
Note: In each class session, a quiz may be taken or questions asked.

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

Row	date	Presentation	Topic	Professor	Theoretical or practical	References	Chapter	Pages
1	2025/Feb/1	In-person	Understanding the concept of Physiology, Body fluids, Homeostasis, Control systems of the body	Prof. Parham Reisi	Theoretical	Textbook of Medical Physiology (Guyton and Hall)	1	3-10
2	Feb/8	In-person	Membrane Physiology and Transport of Substances Through Cell	Prof. Parham Reisi	Theoretical	Textbook of Medical Physiology	4	47-54

			Membranes			(Guyton and Hall)		
3	Feb/15	In-person	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	Feb/22	In-person	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	Mar/1	In-person	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	Mar/8	In-person	Characteristics of whole muscle contraction, Remodeling of muscle, neuromuscular junction, action potential and excitation-contraction coupling in skeletal muscle, and other features	Prof. Parham Reisi	Theoretical	Textbook of Medical Physiology (Guyton and Hall)	6, 7	82-96
7	Mar/15	In-person	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