

**ZERO SEMESTER
MPhil Physiology**

Duration:

3 Months (12 Weeks)

Time: Monday to Thursday 08:00-02:00pm in Sheikh Zayed Medical College

Friday: 08:00-12:00 noon in Sheikh Zayed Medical College

Time: Monday to Friday: 02:00-05:00pm in UHS city campus University based re
enforcement in Department of Physiology UHS

Credit Hours:

0 (noncredit hours)

Assessment:

Daily attendance + formative assessments + summative assessments

Overview:

The Zero Semester for M Phil Physiology is designed as a preparatory phase to orient newly inducted scholar towards post graduate academic culture, strengthen core physiological concepts, and develop foundational research competencies. The program also incorporates structured academic and clinical exposures through rotations in affiliated medical colleges, enabling scholars to contextualize physiology with in undergraduate teaching, clinical departments, and research environments.

Setting:

UHS Department of Physiology

Physiology Department of Affiliated Medical College (proposed: Sheikh Zayed)

Course Rationale

To harmonize baseline physiological understanding, strengthen integrative thinking, and prepare MPhil scholars for advanced systems physiology, experimental/translational research, and teaching.

Course Learning Outcomes (CLOs)

By the end of this course, students will be able to:

1. Explain core physiological principles using systems-based reasoning.
2. Relate physiological mechanisms to disease and research questions.
3. Develop readiness for experimental and translational research.
4. Develop an academic orientation to post graduate physiology education.
5. Gain familiarity with teaching, clinical relevance and translational aspects of physiology
6. Develop strong insight into the concepts of Biosafety and animal handling through courses offered by UHS

Distribution & Course Outline

TO BE COVERED IN AFFILIATED COLLEGE(SHEIKH ZAYED)

1. Introduction to Physiology
2. Homeostasis and control mechanisms
3. Cell membrane, functions and transport mechanisms
4. Cell organelles and their functions
5. Functional systems of the cell (digestion, protein synthesis, endocytosis)
6. Transport mechanisms (classification and examples)
7. Normal body temperature and its regulation: role of hypothalamus

8. Composition of blood
9. Plasma proteins and their functions
10. Edema
11. Red cell synthesis
12. Regulation of erythropoiesis
13. Anemias
14. White blood cells
15. Inflammation
16. ABO groups and transfusion

Reinforcement in Department of Physiology UHS

1. Journal Clubs
2. Research writing
3. Cardiovascular system
4. Respiratory system
5. Practicals of Blood Physiology
6. Practicals of CVS

Two Mandatory workshops in UHS City Campus/ Jinnah Campus)

1. Introduction to Microscope and Its Handling
2. Steps of PCR

Biosafety and Animal Handling Courses (to be covered in UHS City Campus/ Jinnah Campus)

- To be covered in collaboration with UHS Biosafety Officer and Incharge Animal House

Teaching Strategies

- Interactive sessions
- Case-based discussions
- Student-led mini-presentations
- Practicals

Assessment Scheme (Suggested)

- Attendance & participation
- Short quizzes / assignments
- Final integrative test / presentation

Recommended Resources

- Guyton & Hall – *Textbook of Medical Physiology* 15th ed
- Review articles from *Physiological Reviews*
- Relevant research papers aligned with student interests

Distinctive Strength of This Zero Semester

- Bridges diverse academic backgrounds
- Aligns physiology with research
- Reduces first-semester cognitive overload
- Enhances analytical and interpretative skills

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