T.C.
MERSİN UNIVERSITY
INSTITUTE OF HEALTH SCIENCES

DEPARTMENT OF BIOPHYSICS

GRADUATE PROGRAMS

2025

HISTORY

- Biophysics is an interdisciplinary field that studies living organisms using physical methods.
- The Department of Biophysics at Mersin University Faculty of Medicine was established in 1998.
- The department offers undergraduate medical physics and biophysics courses for first- and second-year medical students.
- The department offers undergraduate medical physics and biophysics courses to the first and second year students of the Faculty of Medicine, biophysics courses to the second year students of the Faculty of Dentistry, and physics courses to the first year students of the Faculty of Pharmacy.
- The master's program was launched in 2000 and the Phd program in 2002. Numerous students have graduated from these programs.
- Prof. Dr. Nurten Erdal, who made valuable contributions to the Department of Biophysics for 25 years, retired in January 2025.

ACADEMIC STAFF

- Prof. Dr. Belgin BÜYÜKAKILLI (Department Head)
- Prof. Dr. Ülkü ÇÖMELEKOĞLU
- Asst. Prof. Dr. Çağatay Han TÜRKSEVEN
- Res. Asst. Yılmaz DEMİR

FILEDS OF RESEARCH

Our department hosts advanced research laboratories that support both educational purposes and scientific investigations. Within our laboratories;

- Electrobiophysics Recording Systems enable the measurement of electromyography (EMG), electroencephalography (EEG), electrocardiography (ECG), electrooculography (EOG), nerve stimulation and conduction velocities, muscle contractions, as well as arterial and venous pressures in humans and experimental animals.
- Biomechanical Testing Devices allow for the evaluation of tensile and compressive performance of hard and soft tissues.
- Microelectrode Recording Systems make it possible to investigate bioelectrical events at the single-cell level.
- Patch Clamp Systems are used to record and analyze ion channel currents.
- Magnetic Field Setups provide the opportunity to study the effects of electric and magnetic fields, to which we are continuously exposed, on biological systems.
- Electrical Bioimpedance Systems enable the measurement of body impedance and the assessment of hemodynamic parameters.

PROGRAM COMPETENCIES

1. Gains knowledge and experience that includes a strong scientific approach to the basic principles, physical laws and concepts related to the field of biophysics.
2. Knows and applies advanced laboratory methods used in the field of biophysics theoretically and practically, can derive new approaches and transfer knowledge to students.
3. Have the knowledge, attitude and experience related to the necessary scientific and ethical approach to research in laboratory animals.
4. Recognizes electrodiagnostic methods and gains the ability to apply these methods and analyze the results in terms of electrobiophysics.
5. Defines the mechanism of force production in the muscle and recording techniques of the mechanical and electrical activity of the muscle.
6. Defines the basic features and principles of molecular biophysics, gains the ability to apply molecular processes.
7. Defines the biophysical basis of ion channels and ion channel diseases.
8. Defines current recording and analysis methods from a single ion channel and gains the ability to apply and analyze patch clamp technique.
9. Knows how intercellular signal transmission occurs and defines the molecular properties of the systems involved in signal transmission and the biophysical mechanisms of these systems.
10. Defines the basic interaction mechanisms of electromagnetic fields and relates them to their biological effects.
11. Defines the physical laws, biomechanical properties and test techniques related to body compartments (bone, joint, spine, tendon, ligament, muscle and nerve) and gains the ability to apply these techniques.
12. Can prepare and conduct a scientific project and defend the results in the scientific environment.
13. Learns the basic principles of microelectrode technique and thus gains the ability to apply and analyze the technique.
14. Gains knowledge about the synthesis, characterization and safety of nanoparticles and gains a new perspective on their use in diagnosis and treatment.

EMPLOYMENT OPPORTUNITIES

- Our master's degree graduates have the opportunity to find employment in the healthcare sector and universities as "Scientist.«

- Our doctoral degree graduates have the opportunity to find employment in the healthcare sector and universities as "Doctor."

CONTACT

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