FACULTY OF PHARMACY

ERASMUS+ PROGRAM BOOKLET

TÜRKİYE ULUSAL AJANSI
TURKISH NATIONAL AGENCY

Co-funded by
the European Union

FENERBAHÇE UNIVERSITY
2016
FBU
FENERBAHÇE UNIVERSITY

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VICE DEAN

ASST. PROF. DR. CAN AKPOLAT

VICE DEAN

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Pharmaceutical Toxicology

PROF. DR. Ş. GÜNİZ KÜÇÜKGÜZEL

Pharmaceutical Chemistry

PROF. DR. GÖKSEL ŞENER

Pharmacology

ASST. PROF. DR. TUĞRUL MEHTİYEV

Pharmaceutical Toxicology

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Pharmaceutical Chemistry

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Pharmacology

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Pharmacology

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Pharmacognosy

ASST. PROF. DR. SERHAT DEMİR

Pharmacognosy

ASST. PROF. DR. MUHAMMED ABDUR RAUF

Pharmaceutical Technology

ASST. PROF. DR. NAHİDE ZEREN ARDA ÖZTÜRK

Pharmaceutical Technology

ASST. PROF. DR. BEYZA ŞAHİNÖZÜ

Pharmaceutical Technology

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VICE DEAN

PROF. DR. AZİZE ŞENER

Biochemistry

ASST. PROF. DR. ŞEYDA KARAMAN ERSOY

Analytical Chemistry

ASST. PROF. DR. MAHDI MARZI

Pharmaceutical Microbiology

ASST. PROF. DR. DERYA DİLEK KANÇAĞI

Biochemistry

ASST. PROF. DR. DUYGU TUNCEL TURAN

Analytical Chemistry

ASST. PROF. DR. CAN AKPOLAT

Pharmaceutical Microbiology

R. A. ASLI AKGÜL

Pharmaceutical Technology

R. A. ECE GELİM

Pharmaceutical Chemistry

R. A. ESRA NUR SOYDAN

Pharmacognosy

R. A. ÇİĞDEM KAYRA ONGUN

Pharmaceutical Technology

R. A. SÜMEYYE KÖŞKER

Pharmaceutical Chemistry

R. A. EMİRHAN ARTAR

Analytical Chemistry

GENERAL INFORMATION

Student Admissions:

- 2022-2023 Academic Year (Turkish Programme)
- 2023-2024 Academic Year (English Programme)

Languages of instruction:

- Turkish
- English

Duration of instruction:

- 1 year (Preparatory for English Programme)
- 5 years (Undergraduate)

Links:

- Web Page
- Academic Staff
- Academic Calendar

LABORATORY FACILITIES

Analytical Chemistry Lab

Pharmaceutical Chemistry Lab

Pharmaceutical Microbiology Lab

Pharmaceutical Toxicology Lab

Pharmaceutical Technology Lab

Biochemistry Lab

Pharmacognosy Lab

Cosmetology Lab

Practice Pharmacy

Herbarium

DIVISIONS

Basic Pharmaceutical Sciences

- Analytical Chemistry
- Biochemistry
- Pharmaceutical Microbiology

Pharmaceutical Technologies

- Pharmaceutical Techonology

Professional Pharmaceutical Sciences

- Pharmacognosy
- Pharmacology
- Pharmaceutical Chemistry
- Pharmaceutical Toxicology

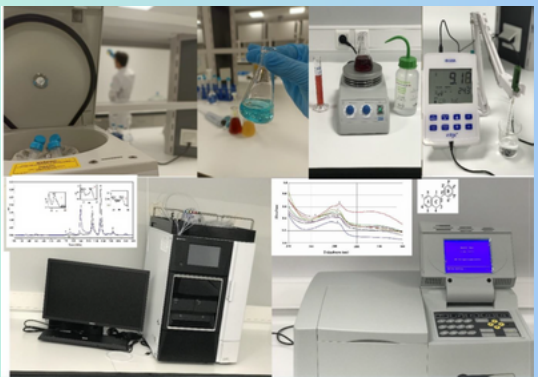
BASIC PHARMACEUTICAL SCIENCES

Analytical Chemistry

Analytical Chemistry is the branch of chemistry that deals with the separation, identification, and determination of the chemical components of natural and synthetic materials. Qualitative analysis in analytical chemistry provides an indication of the identity of the chemical species in a sample, while quantitative analysis determines the amount of specific components that make up the sample. The separation of components is often carried out as a primary step for analysis. In analytical chemistry, classical (wet) and instrumental analytical methods are researched, applied, and developed to identify substances and determine analyte quantities. The primary aim of the Analytical Chemistry Department is to educate students who possess sufficient theoretical and methodological knowledge to perform chemical and instrumental (spectrophotometric and chromatographic) analyses of inorganic and organic substances, including drugs, to apply validation studies, to acquire analytical thinking skills, to become internationally qualified scientists, and to generate ideas applicable to industry. Therefore, analytical chemistry education is primarily focused on explaining the theoretical aspects of chemical and instrumental methods, their application, method development, and problem-solving.

Research Areas:

- Developing various devices and methods based on the needs of science, technology, and clinics.
- Developing new methods for pharmaceutical raw materials.
- Developing and applying methods for the qualitative and quantitative analysis of natural or synthetic samples (such as pharmaceuticals, plant extracts, food samples).
- Conducting research in the fields of pharmaceuticals, environment, and health using molecular and atomic spectroscopic methods, such as trace element analysis and capacity determination of antioxidant substances.
- Conducting analytical validity (validation) studies for the developed methods.
- Green Analytical Chemistry applications.



BASIC PHARMACEUTICAL SCIENCES

Biochemistry

Biochemistry has played an important role in the progress of chemistry and contributed significant impact on the modernization of biology. By the mid-20th century, biochemistry was widely recognized as a subject distinct from other branches of chemistry and biology. Broadly defined, biochemistry is the study of the chemical composition of living matter and the biochemical processes that underlie life activities during growth and maintenance. Biochemistry therefore works on the chemical structures, mechanisms, and processes observed in all organisms and the regulation of these pathways. Although biochemistry makes important knowledge and practical applications available to medicine, agriculture, nutrition, and industry, its ultimate focus concerns the miracles of life itself. As the widest basic science, biochemistry contains many subbranches such as nutritional biochemistry, physical biochemistry, molecular genetics, neurochemistry, biological organic chemistry, clinical biochemistry, pharmacology biochemistry and immunochemistry. Recent developments in these fields have showed connection between technology, chemical engineering, and biochemistry. Scientists in this field have focused on studying the chemical properties of living organisms by studying the cellular components of these organisms in terms of the chemical composition of these components, the scope their existence and important functions, as well as the study of the various biological interactions that occur in these living cells in terms of metabolism and energy production.

In our Biochemistry Department, “Biochemistry, Clinical Biochemistry and Nutritional Biochemistry courses and elective courses” are given. Within the scope of these areas:

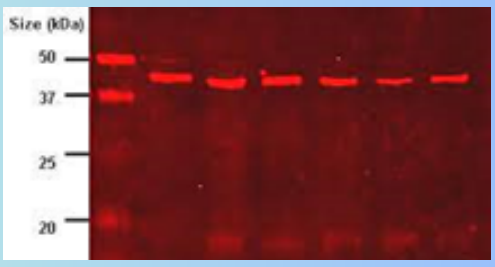
- In the **Biochemistry** course, information is given about the use of macromolecules in our human body for the maintenance of energy and vitality and their interactions with each other, while the cellular roles of vitamins and minerals and their importance for health are emphasized.
- In the **Clinical Biochemistry** course, information is given on the diagnosis of diseases, their differentiation from each other, and the diagnostic tests to be used in the monitoring of treatment and the evaluation of test results.
- In the **Nutritional Biochemistry** course, the effect of nutrition on chemical and physiological processes in the body, its use in the body, and the importance of nutrition in health and disease are emphasized.

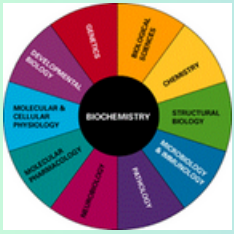
BASIC PHARMACEUTICAL SCIENCES

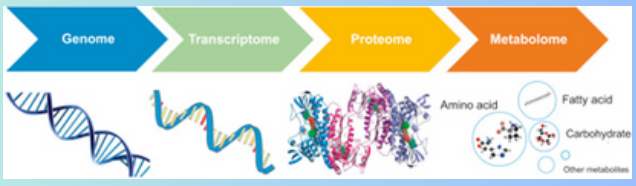
Biochemistry

The knowledge and methods developed by biochemists are applied in all fields of medicine, chemistry and health-related industry. Some of the research areas listed below:

- Cell biology
- Metabolism, including pathways
- Cellular signaling, endocytosis and trafficking
- Membranes and transport mechanisms
- Regulation of gene expression
- Structural biology and enzymology
- Protein structure and dynamics
- Metabolomics
- Nutrition and biochemistry
- Oxidative stress and its relation with diseases
- Chromatin biology, nucleic acid chemistry
- Development and genetics
- Microbiology
- Systems biology
- Neurobiology and neurobiochemistry
- Molecular medicine and drug discovery
- Infection and disease processes
- Cancer biology, biomarkers for detection and prognosis of cancer
- Biochemical processes underlying the aging of the skin
- Developing sustainable solutions for production in industry
- Development of diagnostic kits







Reference:

1. Singh P, Batra HS, Naithani M. History of biochemistry. Bull Indian Inst Hist Med Hyderabad. 2004 Jan-Jun;34(1):75-86. PMID: 17152615.
2. Lehninger Principles of Biochemistry (International Edition) Eighth by David L. Nelson, Michael M. Cox (ISBN: 9781319381493)

BASIC PHARMACEUTICAL SCIENCES

Pharmaceutical Microbiology

The Department of Pharmaceutical Microbiology at the Department of Basic Pharmaceutical Sciences, Faculty of Pharmacy, Fenerbahçe University, studies the structure and properties of microorganisms that cause diseases in humans and the microbiological methods used to diagnose these diseases. It also covers the production, quality control, and use of antimicrobial agents and microbial-derived products, as well as sterilization and disinfection methods and general hygiene. Our department aims to produce graduates who understand the basic concepts of pharmaceutical microbiology, which is a multidisciplinary sub-branch of microbiology, and who can use this knowledge effectively in all areas of their profession.

Research Areas:

- Classification of microorganisms
- Production of microorganisms
- Identification of microorganisms
- Antibiotic susceptibility testing
- Mechanisms of action of antibiotics
- Serological and immunological tests
- Infections
- Disinfection and sterilization

PHARMACEUTICAL TECHNOLOGIES

Pharmaceutical Technology

Pharmaceutical Technology is concerned with the scientific and technological aspects of the design and manufacture of dosage forms and drug delivery systems. Examples of traditional drug dosage forms are solutions, suspensions, emulsions, injectables, gels, ointments, creams, pastes, suppositories, powder, granules, capsules, tablets etc. Modern drug delivery systems include controlled drug release systems (e.g., transdermal patches, ophthalmic inserts, osmotic pumps etc), particulate systems (micro-, nano-spheres/capsules), vesicular systems (liposome, niosomes etc), and drug delivery techniques (nebulizer, iontophoresis, phonophoresis, intra-uterine devices, micro-needles, insulin pump, patient-controlled analgesia-PCA-pump etc).

Successful formulation of dosage forms follows a systematic research and development stage wherein active drug substance and different excipients are mixed and processed checking out their compatibility. Their chemical, physical and microbiological stability are also ensured through stability testing program. Dosage forms can be prepared on a small scale based on physicians' prescription for individual patients (magistral /compounding) or on a large/industrial scale for distribution and sales through pharmacies and hospitals. To ensure the safety, efficacy and quality, medicines are produced under strict Good Manufacturing/Compounding Practices.

All the above aspects are covered through several theoretical and practical courses in the Pharmacy curriculum. These are PHAR2006 Pharmaceutical Technology-I, PHAR2008 Pharmaceutical Technology I Laboratory (Semester 4), PHAR3005 Pharmaceutical Technology II, PHAR3007 Pharmaceutical Technology II Laboratory (Semester 5), PHAR3004 Pharmaceutical Technology III, PHAR3006 Pharmaceutical Technology III Laboratory (Semester 6) and PHAR5005 Pharmaceutical Quality Management (Semester 9). Some more related courses are also offered in the ninth semesters as elective courses.

PHARMACEUTICAL TECHNOLOGIES

Pharmaceutical Technology

Biotechnology uses biological systems (eg, cell, tissue), living organisms, or their derivatives (eg, enzyme), to make or modify products or processes for specific usage. Pharmaceutical Biotechnology focuses on biotechnology of pharmaceutical relevance. In contrast to small molecule chemical drugs, biotechnology-derived drugs are large molecule drugs, either protein or nucleic acid in nature. PHAR4008 Pharmaceutical Biotechnology (Semester 8) course covers related basic concepts, recombinant DNA technology, hybridoma technology, anti-sense technology, gene therapy, vaccine, and down-stream production, formulation and manufacturing of dosage forms.

Radiopharmaceuticals are drug which emits radiation and are used as a diagnostic or therapeutic agent. Radiopharmacy, also known as Nuclear Pharmacy, involves preparation of radioactive materials for patient administration. This is a regulated by multiple regulators and legislation, because this involves occupational exposure of staff to ionizing radiation, preparation of medicines, patient exposure to ionizing radiation, transport of radioactive materials, and environmental exposure to ionizing radiation. Radiopharmacy is covered in the pharmacy curriculum by elective courses offered in the Semester 9.

Cosmetics are substances or mixture intended to be placed in contact with the external parts of the human body (epidermis, hair system, nails, lips and external genital organs) or with the teeth and the mucous membranes of the oral cavity with a view exclusively or mainly to cleaning, protecting, keeping in good condition, changing appearance, perfuming, or correcting body odors. Cosmeticology is concerned with the design and manufacturing of cosmetic products. PHAR4009 Cosmeticology (Semester 7) covers systematic classification of cosmetic products, cosmeceuticals and innovative cosmetic delivery systems, their desired characteristics, safety and efficacy, manufacturing, licensing and regulatory affairs.

Research Interest

- Molecular pharmaceutics
- Pre-formulation
- Formulation
- Innovative drug delivery systems
- Industrial production
- Up-stream and down-stream processing of biopharmaceuticals
- Radiopharmaceuticals
- Cosmeceuticals and cosmetic delivery systems
- Quality Assurance, QbD, PAT

PROFESSIONAL PHARMACEUTICAL SCIENCES

Pharmacognosy

Pharmacognosy is one of the basic disciplines of pharmacy and It is the branch of science that studies and analyzes the biological effects of drugs of biological origin (plants, animals, microorganisms and marine creatures). It conducts research on obtaining pharmaceutical raw materials from natural resources, plant chemistry and analysis techniques, public use of medicinal plants, herbal resources used in treatment in the field of phytotherapy, aromatherapy and homoepathy. Medicinal and aromatic plants not only contribute to the field of phytotherapy but also play an important role in the production of synthetic drugs used in modern medicine. Pharmacognosy is also closely related to botany, plant chemistry, microbiology and pharmacology.

As a result, the science of pharmacognosy conducts research to obtain new drugs used in the treatment (therapeutic) and preventive (prophylactic) of diseases from effective compounds obtained from natural sources (plants, animals).

Research Areas

- Pharmaceutical raw materials and auxiliary raw materials obtained from natural resources
- Active substance isolation and structure determinations
- Pharmacopoeia analyzes of plants and drugs
- Use of secondary metabolites obtained from natural origin compounds as precursor compounds in the synthesis of new drug molecules and development of their formulations
- Analytical Pharmacognosy (Quality Control Studies, Active Ingredient Quantification Studies)

PROFESSIONAL PHARMACEUTICAL SCIENCES

Pharmacology

Pharmacology is the study of the interactions that occur between a living organism and chemicals that affect normal or abnormal biochemical function.
The two main areas of pharmacology are pharmacodynamics and pharmacokinetics. **Pharmacodynamics** studies the effects of a drug on biological systems, and **pharmacokinetics** studies the effects of biological systems on a drug. In broad terms, **Pharmacodynamics** is the study of the biochemical and physiological effects of drugs and their mechanisms of action which mainly involve interaction with macromolecular components termed receptors, while **pharmacokinetics** discusses the absorption, distribution, metabolism, and excretion (ADME) of chemicals from the biological systems.

Research areas:
Preclinical studies
Deciding whether a drug is ready for clinical trials involves extensive preclinical studies that yield preliminary efficacy, toxicity, pharmacokinetic and safety information. Wide doses of the drug are tested using in vitro (test tube or cell culture) and in vivo (animal) experiments.

Clinical studies
For drug development, the clinical phases start with testing for drug safety in a few human subjects, then expand to many study participants (potentially tens of thousands) to determine if the treatment is effective. If the drug successfully passes through the first 3 phases I, II, and III, it will usually be approved by the national regulatory authority for use in the general population. Phase IV trials are 'post-marketing' or 'surveillance' studies conducted to check the drug's performance in real life scenarios, to study the long-term risks and benefits of using the drug and to discover any rare side effects.



PROFESSIONAL PHARMACEUTICAL SCIENCES

Pharmaceutical Chemistry

Pharmaceutical Chemistry, also known as the science of active pharmaceutical ingredients (APIs), aims to design new drug candidate molecules targeting biological macromolecular structures. Development of synthetic methods for the manufacture of APIs is also one of the important areas of pharmaceutical chemistry.

The goal of pharmaceutical chemistry is to evaluate the in vitro and in vivo biological structure-activity relationships of newly designed compounds, and to move the optimized molecules to the pre-clinical drug candidate stage.

Pharmaceutical Chemistry is a field of science suitable for conducting joint research with disciplines such as Organic Chemistry, Biochemistry, Molecular Biology, Microbiology, Pharmacology, Pharmaceutical Technology, Pharmaceutical Toxicology, Computational Chemistry and Statistics.

In addition, it deals with the qualitative and quantitative analysis of drug active ingredients in drug products and biological matrices using spectral and chromatographic methods.

Research Areas:

- Development of synthesis and purification methods for APIs
- Elucidating the structures of APIs and related compounds (such as metabolites, impurities) by spectroscopic methods
- Development of chromatographic methods to determine the purity of APIs
- Development of spectroscopic and chromatographic quantification methods of drug substances in body fluids and drug products
- Production of pharmaceutical raw materials on an industrial scale,
- Pharmacopoeia analysis and quality control of pharmaceutical raw materials
- Determination of in vivo and in vitro metabolites of drugs and metabolite formation mechanisms
- Determination of physicochemical parameters (such as log P and pKa) of drug substances
- Stability studies on APIs
- Computer-aided rational drug design and modeling

PROFESSIONAL PHARMACEUTICAL SCIENCES

Pharmaceutical Toxicology

Toxicology literally means the science of poison (toxicon = poison, logos = knowledge). Toxicology is the branch of science that studies the negative effects of xenobiotics (all foreign chemicals, including drugs) on living organisms.

Areas of interest in toxicology: sources of poisons, their physical, chemical and biological properties, isolation, qualitative and quantitative analysis, toxic effects (acute, subacute, subchronic, chronic), toxicokinetics (routes of entry, absorption, distribution, metabolism and excretion), special toxicological effects (carcinogenesis, mutagenesis, teratogenesis), immunotoxic effects, systemic toxicology, treatment principles and antidotes in acute poisoning, toxicological risk assessment for the safe use of chemical substances, doping control in sports, drug toxicity, substance abuse and addiction, drug safety and pharmacovigilance, metals, organic solvents, food additives, pesticides, phytotoxins, mushroom poisoning, poisons of animal origin and poisons formed in the air constitute the research subjects.

Toxicology, a multidisciplinary branch of science, is divided into different sub-branches due to the diversity of toxic effects of chemical substances: forensic toxicology, disaster toxicology, analytical toxicology, biochemical toxicology, environmental toxicology and ecotoxicology, behavioral toxicology, regulatory toxicology, economic toxicology, industrial/occupational toxicology, pharmaceutical toxicology, phytotoxicology, food toxicology, ray toxicology, accidental toxicology, clinical toxicology, molecular and cellular toxicology, pesticide toxicology. We can list them as aquatic toxicology, descriptive toxicology, toxicology and veterinary toxicology.

COURSE STRUCTURE

Year 1

Semester 1						
Course Code	**Course Name**	**Language**	**Theoretical**	**Practical**	**Credit**	**ECTS**
ENG103	Advanced English I	EN	2	0	2	2
MATH1005	Mathematics	EN	3	0	3	4
PHAR1001	Pharmaceutical Terminology	EN	2	0	2	3
PHAR1003	General Chemistry	EN	3	0	3	4
PHAR1005	Anatomy	EN	3	0	3	4
PHYS1003	Physics	EN	3	0	3	4
PSYC1001	Basic Psychology	EN	2	0	2	3
SPE1005	Fundamentals of Physical Education and Sports	EN	2	0	2	2
TURK103	Turkish Language I	TR	2	0	2	2
UNI103	University Life and Career Planning	EN	1	2	2	2
TOTAL					24	30

Semester 2						
Course Code	**Course Name**	**Language**	**Theoretical**	**Practical**	**Credit**	**ECTS**
COMP104	Information Technologies	EN	1	2	2	4
ENG104	Advanced English II	EN	2	0	2	2
PHAR1018	Medical Biology and Genetics	EN	2	0	2	3
PHAR1002	Organic Chemistry	EN	3	0	3	4
PHAR1004	Analytical Chemistry I	EN	3	0	3	4
PHAR1008	Analytical Chemistry I Laboratory	EN	0	3	2	2
PHAR1010	Pharmaceutical Botany	EN	2	0	2	2
PHAR1012	Pharmaceutical Botany Laboratory	EN	0	3	2	2
PHAR1014	Physiopathology	EN	2	0	2	3
PHAR1016	Pharmacy History	EN	2	0	2	2
TURK104	Turkish Language II	TR	2	0	2	2
TOTAL					24	30

COURSE STRUCTURE

Year 2

Semester 3						
Course Code	**Course Name**	**Language**	**Theoretical**	**Practical**	**Credit**	**ECTS**
HIST203	Atatürk's Principles and Revolution History I	EN	2	0	2	2
PHAR2015	Medical First Aid	EN	2	0	2	2
PHAR2001	Biochemistry	EN	3	0	3	4
PHAR2003	Analytical Chemistry II	EN	3	0	3	4
PHAR2005	Analytical Chemistry II Laboratory	EN	0	3	2	2
PHAR2007	Pharmaceutical Microbiology and Immunology	EN	3	0	3	4
PHAR2009	Pharmaceutical Microbiology Laboratory	EN	0	3	2	2
PHAR2011	Deontology and Ethics	EN	2	0	2	3
PHAR2013	Public Health	EN	3	0	3	4
STAT2082	Biostatistics	EN	2	0	2	3
TOTAL					**24**	**30**

Semester 4						
Course Code	**Course Name**	**Language**	**Theoretical**	**Practical**	**Credit**	**ECTS**
HIST204	Atatürk's Principles and Revolution History II	EN	2	0	2	2
INTS2002	Internship I	EN	0	8	4	4
PHAR2002	Pharmacognosy I	EN	3	0	3	4
PHAR2004	Pharmacognosy I Laboratory	EN	0	3	2	2
PHAR2006	Pharmaceutical Technology I	EN	3	0	3	4
PHAR2008	Pharmaceutical Technology I Laboratory	EN	0	3	2	2
PHAR2010	Pharmaceutical Chemistry I	EN	3	0	3	4
PHAR2012	Drug Metabolism	EN	2	0	2	2
PHAR2014	Pharmacology I	EN	3	0	3	4
PHAR2016	Nutritional Biochemistry	EN	2	0	2	2
TOTAL					**26**	**30**

COURSE STRUCTURE

Year 3

Semester 5						
Course Code	**Course Name**	**Language**	**Theoretical**	**Practical**	**Credit**	**ECTS**
PHAR3001	Pharmacognosy II	EN	3	0	3	4
PHAR3003	Pharmacognosy II Laboratory	EN	0	3	2	2
PHAR3005	Pharmaceutical Technology II	EN	3	0	3	4
PHAR3007	Pharmaceutical Technology II Laboratory	EN	0	3	2	2
PHAR3009	Pharmaceutical Chemistry II	EN	3	0	3	4
PHAR3011	Pharmaceutical Chemistry I Laboratory	EN	0	3	2	2
PHAR3013	Pharmacology II	EN	3	0	3	4
	General Elective	EN			2	4
	General Elective	EN			2	4
TOTAL					**24**	**30**

Semester 6						
Course Code	**Course Name**	**Language**	**Theoretical**	**Practical**	**Credit**	**ECTS**
INTS3002	Internship II	EN	0	8	4	4
PHAR3002	Phytotherapy	EN	2	0	2	4
PHAR3004	Pharmaceutical Technology III	EN	3	0	3	4
PHAR3006	Pharmaceutical Technology III Laboratory	EN	0	3	2	2
PHAR3008	Pharmaceutical Chemistry III	EN	3	0	3	4
PHAR3010	Pharmaceutical Chemistry II Laboratory	EN	0	3	2	2
PHAR3012	Pharmacology III	EN	3	0	3	4
PHAR3014	Clinical Biochemistry	EN	2	0	2	4
PHAR3016	Clinical Biochemistry Laboratory	EN	0	2	1	2
TOTAL					**24**	**30**

COURSE STRUCTURE

Year 4

Semester 7						
Course Code	**Course Name**	**Language**	**Theoretical**	**Practical**	**Credit**	**ECTS**
PHAR4001	Pharmaceutical Toxicology I	EN	2	0	2	4
PHAR4003	Medical Device	EN	2	0	2	2
PHAR4005	Clinical Pharmacy I	EN	2	0	2	3
PHAR4007	Clinical Pharmacy Applications I	EN	0	3	2	4
PHAR4009	Cosmetology	EN	3	0	3	4
PHAR4011	Pharmacotherapy	EN	3	0	3	4
PHAR4013	Pharmacokinetics	EN	3	0	3	4
PHAR4015	Biopharmacutics	EN	2	0	2	3
	Departmental Elective	EN			2	2
TOTAL					**21**	**30**

Semester 8						
Course Code	**Course Name**	**Language**	**Theoretical**	**Practical**	**Credit**	**ECTS**
INTS4002	Internship III	EN	0	8	4	4
PHAR4002	Pharmaceutical Toxicology II	EN	2	0	2	3
PHAR4004	Clinical Pharmacy II	EN	2	0	2	4
PHAR4006	Clinical Pharmacy Applications II	EN	0	3	2	4
PHAR4008	Pharmaceutical Biotechnology	EN	3	0	3	4
PHAR4010	Pharmaceutical Toxicology Laboratory	EN	0	3	2	3
PHAR4012	Pharmacy Management	EN	3	0	3	4
	Departmental Elective	EN			2	2
	Departmental Elective	EN			2	2
TOTAL					**22**	**30**

COURSE STRUCTURE

Year 5

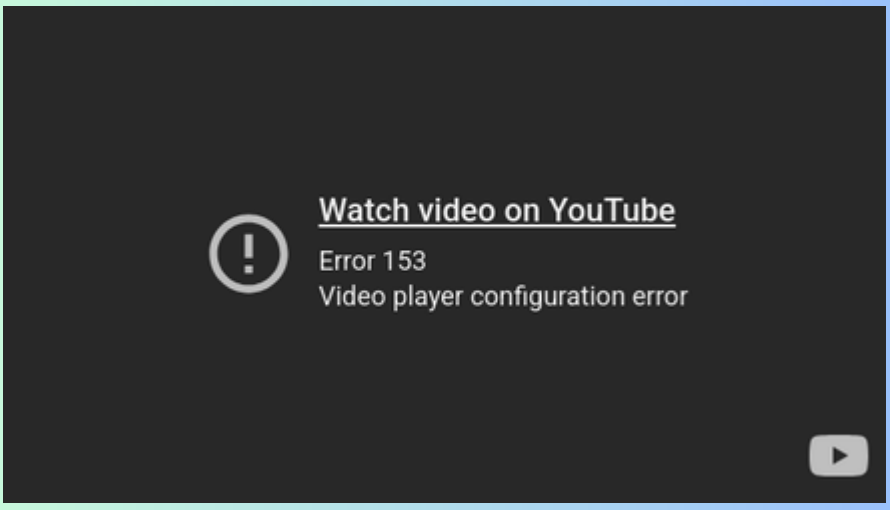
Semester 9						
Course Code	**Course Name**	**Language**	**Theoretical**	**Practical**	**Credit**	**ECTS**
PHAR5001	Graduation Project I	EN	0	16	8	9
PHAR5003	Pharmaceutical Legislation	EN	3	0	3	3
PHAR5005	Quality Management in Pharmaceuticals	EN	3	0	3	3
PHAR5009	Pharmacoeconomics	EN	3	0	3	3
	Departmental Elective	EN			2	3
	Departmental Elective	EN			2	3
	Departmental Elective	EN			2	3
	Departmental Elective	EN			2	3
TOTAL					**25**	**30**

Semester 10						
Course Code	**Course Name**	**Language**	**Theoretical**	**Practical**	**Credit**	**ECTS**
INTS5002	Internship IV	EN	0	8	4	18
PHAR5002	Graduation Project II	EN	0	16	8	9
PHAR5004	Communication Skills	EN	2	0	2	3
TOTAL					**14**	**30**

FOUNDING DEAN'S MESSAGE

In the video, the Founding Dean of Fenerbahçe University Faculty of Pharmacy, Prof. Dr. Ş. Güniz KÜÇÜKGÜZEL, introduces the faculty. Fenerbahçe University Faculty of Pharmacy aims to train pharmacists who are lifelong learners, and entrepreneurs and will contribute to the improvement of public health after a privileged education life with expert academicians, advanced technological facilities, and equipped laboratories.

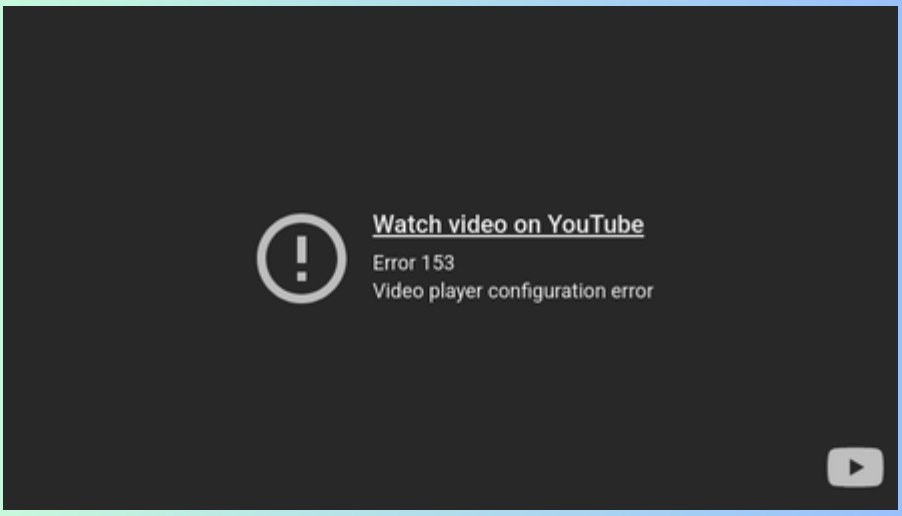
Prof. Dr. Ş. Güniz KÜÇÜKGÜZEL's Message



DEAN’S MESSAGE

In the video, Prof. Dr. İlkay KÜÇÜKGÜZEL, Dean of the Faculty of Pharmacy at Fenerbahçe University, introduces the faculty to prospective students and their families, highlighting its academic vision and educational excellence. Emphasizing innovation, research opportunities, and professional development, the Faculty aims to prepare future pharmacists as competent and responsible healthcare leaders.

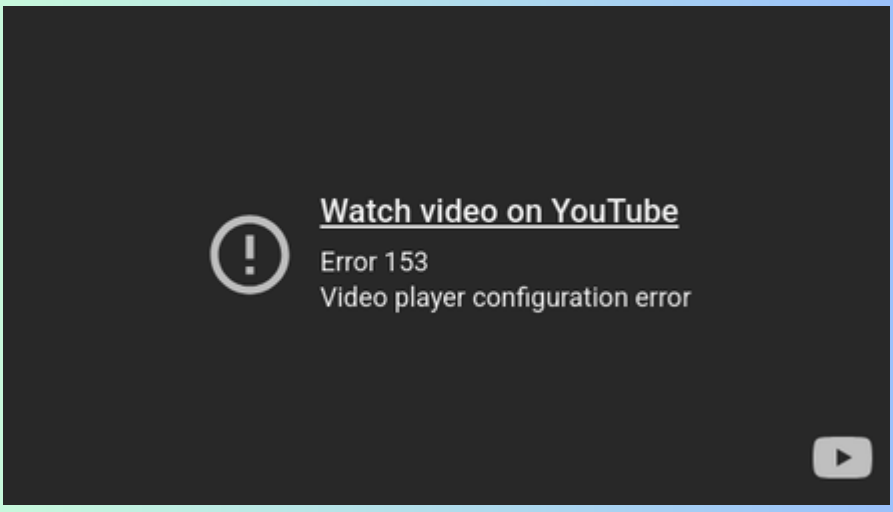
Prof. Dr. İlkay KÜÇÜKGÜZEL’s Message



FACULTY INTRODUCTION

The video presents an overview of the Faculty of Pharmacy at Fenerbahçe University, showcasing its classrooms and laboratory facilities where students will pursue their higher education journey on the path to becoming pharmacists. It further emphasizes the faculty's commitment to providing a modern learning environment that integrates scientific knowledge with practical training.

Fenerbahçe University Faculty of Pharmacy



THE MOST INFLUENTIAL SCIENTISTS

Prof. Dr. Ş. Güniz KÜÇÜKGÜZEL, Founding Dean of the Faculty of Pharmacy, and Prof. Dr. Göksel ŞENER, Head of the Division of Pharmaceutical Sciences and Department of Pharmacology, have been recognized among the world's most influential scientists according to the evaluations conducted by Prof. Dr. John P. A. Ioannidis of Stanford University and his research team.

SCIENCE HOUR ACTIVITIES

Science Hour Activities are organized regularly by the Science Hour Coordinator in our faculty. In these events, academicians who are experts in their fields on different subjects are invited to our faculty and various presentations are made with the participation of our students and faculty members.

- The First Science Hour Event, the presentation titled "TUSEB R&D Project Supports Information Seminar" presented by Ms. Mehtap SERT, who works as an Engineer in the Project Support and Decision Unit at TUSEB Project Management and Support Directorate, was held with the participation of our students and faculty members.
- The Second Science Hour Event, a presentation titled "Genetic Engineering and Biotechnological Advances" presented by Asst. Prof. Dr. Cihan TASTAN, who works at Uskudar University, Department of Molecular Biology and Genetics and TRGENMER Director, was held with the participation of our students and faculty members.
- The Third Science Hour Event was held with the presentation titled 'Cellular Immunotherapy' with the valuable participation of Prof. Dr. Ercument Ovali, Director and Managing Director of Acıbadem Labcell Cell Laboratory.

SCIENCE HOUR ACTIVITIES

- The Fourth Science Hour Event, the presentation titled "Translational Nanomedicine" was presented by Asst. Prof. Dr. Özgül GÖK ÖZATAY, who works as an academician at Acıbadem Mehmet Ali Aydınlar University, Faculty of Engineering and Natural Sciences, Department of Biomedical Engineering, was held with the participation of our students and faculty members.
- The Fifth Science Hour Event, the presentation titled "Can TG2 be a biological marker in the diagnosis of endometriosis?" was presented by Asst. Prof. Dr. İnci KURT CELEP, who works as an academician at Acıbadem Mehmet Ali Aydınlar University, Faculty of Pharmacy, was held with the participation of our students and faculty members.
- The Sixth Science Hour Event, the presentation titled "Plant-Drug, Propolis-Drug Interaction" presented by Prof. Dr. Sevim ROLLAS, who is an Emeritus Professor from Marmara University, Faculty of Pharmacy, was held with the participation of our students and faculty members.

SCIENCE HOUR ACTIVITIES

- The Seventh Science Hour Event, the presentation titled "Personalized Treatment" was presented by Prof. Dr. Gül ÖZHAN, who works as an academician at Istanbul University, Faculty of Pharmacy, and was held with the participation of our students and faculty members.
- The Eighth Science Hour Event, the presentation titled "Discovery of Protein Biomarkers in the Health Sector Using New Technologies" was presented by Asst. Prof. Dr. Bora TÜZÜNER, who works as an academician at Istanbul Health and Technology University Faculty of Pharmacy, was held with the participation of our students and faculty members.
- The Ninth Science Hour Event, the presentation titled "A Current Perspective on Cellular Therapies" was presented by Dr. Fatma EYÜBOĞLU, who is laboratory coordinator at Stembio Cell and Tissue Technologies Inc., and was held with the participation of our students and faculty members.

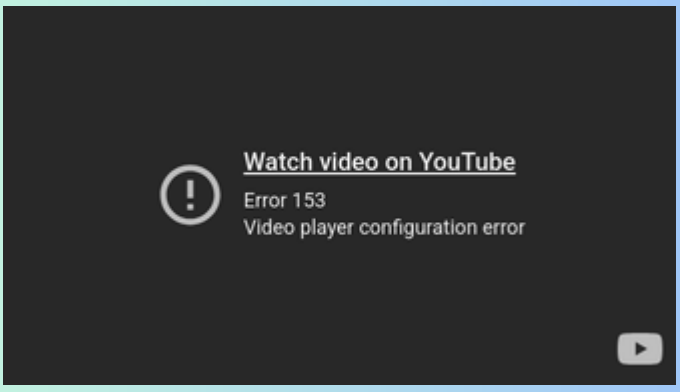
SCIENCE HOUR ACTIVITIES

- The Tenth Science Hour Event, the presentation titled "In the Footsteps of a Bacterium: New Horizons in *Helicobacter pylori* Research" was presented by Assoc. Prof. Dr. Sinem ÖKTEM OKULLU, who works as an academician at Acıbadem Mehmet Ali Aydınlar University, Faculty of Medicine, Division of Basic Medical Sciences, Department of Medical Microbiology, was held with the participation of our students and faculty members.
- The Eleventh Science Hour Event, the presentation titled "My Research Journey as an Amgen Scholar" was presented by Betül AY, who is a student at Fenerbahçe University, Faculty of Pharmacy, Pharmacy (English) programme, and was held with the participation of our students and faculty members.
- The Twelfth Science Hour Event, the presentation titled "Lipid Nanoparticles: The Process from Design to Activity" was presented by Assoc. Prof. Dr. Gülen Melike DEMİRBOLAT, who works as an academician at Acıbadem Mehmet Ali Aydınlar University, Faculty of Pharmacy, Division of Pharmaceutical Technology, Department of Pharmaceutical Technology, was held with the participation of our students and faculty members.

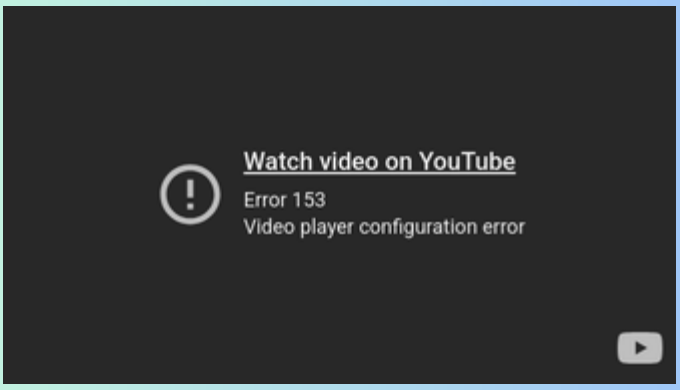
CONGRESS & SYMPOSIUM

A congress and two symposiums were organized in cooperation with various institutions, hosted by our faculty.

- "**VI. National Pharmaceutical Chemistry Congress**" was organized by Fenerbahçe University Faculty of Pharmacy and Turkish Pharmaceutical and Medicinal Chemistry Association.

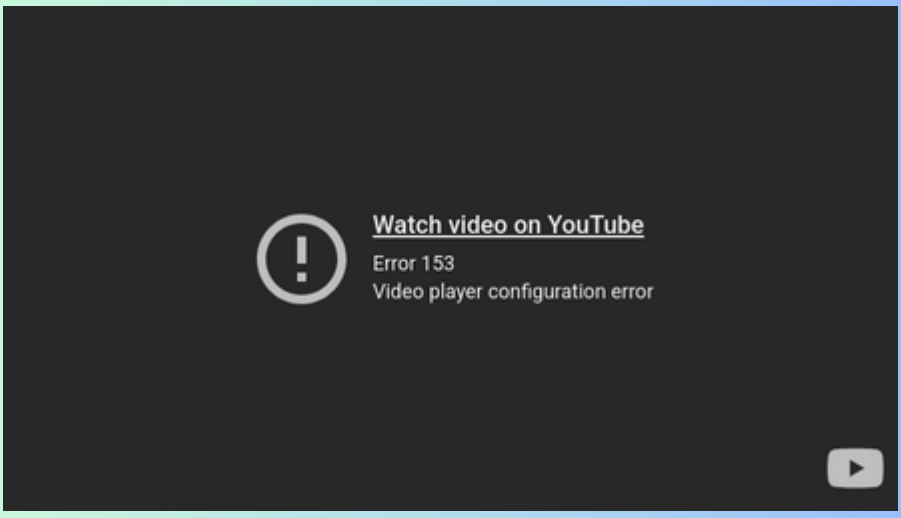


- "**II. Symposium on Pharmacy Services in Disasters and Emergencies**" was organized by Fenerbahçe University Faculty of Pharmacy and Disaster and Emergency Pharmacy (ADEC) Association.



CONGRESS & SYMPOSIUM

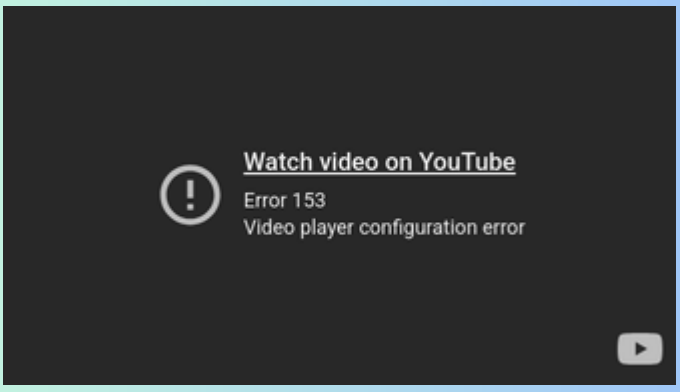
- "**Extracellular Vesicles in Research and Application Symposium**" was organized by Fenerbahçe University Faculty of Pharmacy and the Extracellular Vesicles Association.



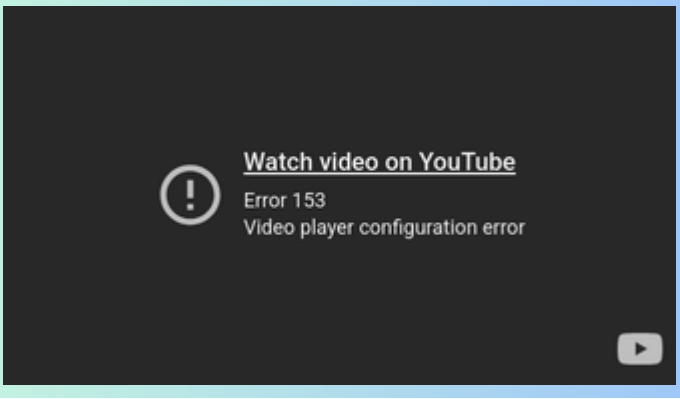
WHITE COAT CEREMONIES

Our Faculty annually organizes the Traditional White Coat Ceremony for first-year students, symbolizing their formal initiation into the pharmacy profession. The event is honored by the esteemed participation of the university's administrative and academic staff, representatives of the Turkish Pharmacists' Association, the Turkish Academy of Sciences, various non-governmental organizations related to pharmacy, as well as the families of our students. During the ceremony, the academic staff of the Faculty bestow the white coats upon the students, thereby instilling in them a profound sense of professional identity, ethical responsibility, and commitment to the values of the pharmacy profession.

I. White Coat Ceremony (January 19, 2023)



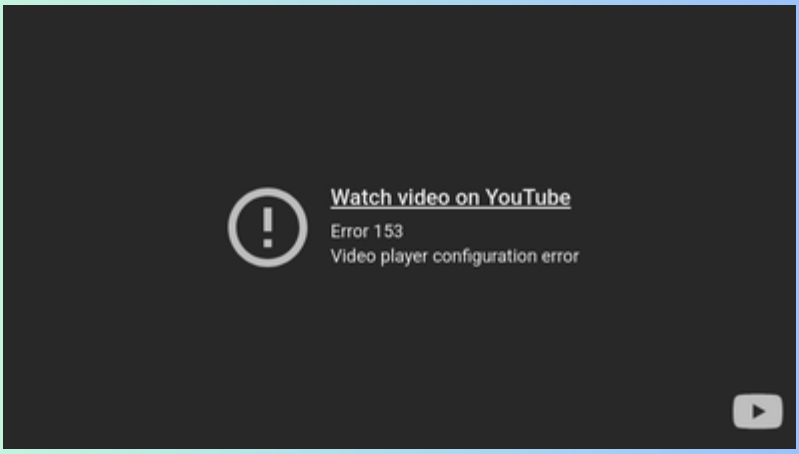
II. White Coat Ceremony (December 27, 2023)



WHITE COAT CEREMONIES

III. White Coat Ceremony (December 19, 2024)

IV. White Coat Ceremony (January 7, 2026)



FBU PHARMACY CLUB

FBUECZACILIKKULUBU

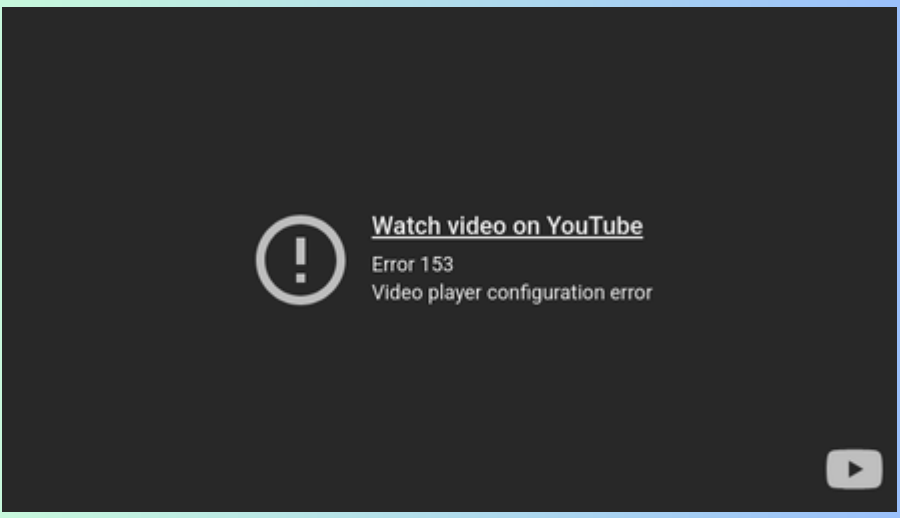
The Pharmacy Club of Fenerbahçe University (FBU Pharmacy Club) is a dynamic student organization that brings together future pharmacists in an intellectually stimulating and socially engaging environment. Through academic seminars, scientific workshops, professional development activities, and social responsibility projects, the Club provides its members with invaluable opportunities to deepen their knowledge, strengthen their professional identity, and cultivate leadership skills. By collaborating with national and international institutions, professional associations, and non-governmental organizations, the Club not only broadens the horizons of its members but also contributes to the advancement of pharmacy as a discipline and a profession. With its dedication to fostering innovation, ethical awareness, and community engagement, the FBU Pharmacy Club continues to be a source of inspiration and motivation for all students aspiring to shape the future of healthcare.

FBU Pharmacy Club

UNIVERSITY INTRODUCTION

The video provides an introduction to Fenerbahçe University, a distinguished institution of higher education committed to academic excellence and innovation. With its strong and highly qualified academic staff, the University offers students not only a solid foundation in theoretical knowledge but also the opportunity to engage in applied learning experiences through a wide range of internship and practice facilities. Equipped with a modern campus that integrates advanced technological infrastructure and student-centered learning spaces, Fenerbahçe University creates an environment where education, research, and social life coexist harmoniously. Furthermore, by offering diverse international collaborations, exchange programs, and global networking opportunities, the University empowers its students to become education and training ambassadors who are prepared to receive a privileged education and to pursue their personal and professional aspirations on both national and international platforms.

Fenerbahçe University Introductory Video

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