



2026-2027 Academic Year
List of Courses Offered in Foreign Language
2026-2027 Akademik Yılı
Yabancı Dilde Açılacak Dersler Listesi

Institute of Health Sciences
Sağlık Bilimleri Enstitüsü

	Department <i>Bölüm</i>	Course Code <i>Ders Kodu</i>	ECTS <i>AKTS</i>	Course Title <i>Dersin Adı</i>	Semester <i>Dönem</i>	Course Content <i>Dersin İçeriği</i>	Academic Staff <i>Dersi Veren Öğretim Elemanı</i>	Online Available <i>Çevrimiçi</i>
1	Master's degree in Gene and Cell Therapy	GHT 5001	7	Gene Therapy Vectors: Methods	Fall	Gene therapy, on a basic level, is defined as the delivery of nucleic acids to a cell in order to produce a desired effect. There are many methods that can be utilized in order to deliver nucleic acids to cells; however, the most efficient and adaptable method is the use of viral vectors. Viruses have naturally evolved over millennia to develop elegant mechanisms used to evade host immunity, gain entry to a cell, deliver their genetic material, and hijack host cell machinery in order to produce progeny virions. Viral vector-based gene therapy harnesses this awesome power of nature in order to efficiently deliver a desired genetic payload to cells of interest. The fundamental concept of a viral vector is relatively simple.	Prof. Dr. Salih ŞANLIOĞLU	Face-to-face
2	Master's degree in Gene and Cell Therapy	GHT 5003	7	Principles of Gene Editing	Fall	The study of natural DNA repair pathways in bacteria and yeast, as well as the mechanisms of DNA recombination, showed that cells have endogenous machinery to repair DNA double-strand breaks that would otherwise be lethal. Thus, methods for introducing precise breaks in the DNA at desired editing sites were recognized as a valuable strategy for targeted genomic engineering as described in this lecture.	Prof. Dr. Salih ŞANLIOĞLU	Face-to-face
3	Master's degree in Gene and Cell Therapy	GHT 5007	7	Nanotechnology-based Gene Delivery Systems	Fall	Therapeutic application of DNA pharmaceuticals is limited due to the stability problems of DNA in the circulation. Naked DNA is rapidly eliminated from the circulation after intravenous administration, due to the digestion by nucleases and to the hepatic uptake clearance. The development of effective and safer systems useful for in vivo transfection is needed in order to develop medicines for gene therapy. Gene delivery systems include viral and non-viral vectors. Viral vectors are the most effective, but their application is limited by their immunogenicity and oncogenicity.	Assoc. Prof. Dr. Devrim DEMİR DORA	Face-to-face
4	Master's degree in Gene and Cell Therapy	GHT 5009	7	Human Molecular Genetics	Fall	Molecular genetics is the field of biology and genetics that studies the structure and function of genes at a molecular level. The field studies concern how genes are transferred from generation to generation. Molecular genetics employs the methods of genetics and molecular biology. Therefore, the aim of this course is to deliver fundamental principals of human molecular genetics to prospective students.	Prof. Dr. Ahter Dilşad ŞANLIOĞLU	Face-to-face
5	Master's degree in Gene and Cell Therapy	GHT 5012	7	Expression Systems for Manufacturing of Recombinant Pharmaceutical Proteins	Fall	The therapeutic use of recombinant proteins has increased during the last years. The aim of the course is to teach the efficient expression systems for the production of various recombinant therapeutic proteins such as recombinant human antithrombin (rhAT), Factor VIII, recombinant human growth hormone, erythropoietine, albumin, etc.	Assoc. Prof. Dr. Devrim DEMİR DORA	Face-to-face
6	Phd in Gene and Cell Therapy	GHT 7003	7	Gene Delivery Systems and Therapeutic Strategies	Fall	Covering the general, structural and functional features, and production methods of the viral vector systems which are most frequently preferred in vitro, in vivo, and ex vivo gene transfers, and discussion of the advantages and disadvantages of the related therapeutic strategies.	Prof. Dr. Salih ŞANLIOĞLU	Face-to-face
7	Phd in Gene and Cell Therapy	GHT 7005	7	Pharmaceutical Biotechnology	Fall	This course aims to provide basic knowledge about the production and formulation of pharmaceuticals derived by recombinant DNA technology, peptide protein delivery systems, non-viral DNA delivery systems and regulatory issues about biopharmaceuticals.	Assoc. Prof. Dr. Devrim DEMİR DORA	Face-to-face
8	Phd in Gene and Cell Therapy	GHT 7017	7	Structure and Functions of Biomolecules	Fall	This course reviews basis of nucleic acid, protein, carbohydrate, and lipid structure. Fundamental knowledge regarding the metabolism of these biomolecules is also given. Emphasis is made on areas relevant to human biology and disease.	Prof. Dr. Mutay Aydın ASLAN	Face-to-face

9	Phd in Gene and Cell Therapy	GHT 7029	7	Research in Gene and Cell Therapy*)	Fall	Gene therapy is the use of genetic material to treat genetic diseases. This may involve adding a wild type copy of the gene (gene addition) or altering a gene with mutation to the wild type gene (gene editing). The treatment may take place outside of the body (ex vivo) or inside the body (in vivo). To get the gene into the genome inside the cells, modified viruses or other vectors are used. Cell therapy is the use of cells that are taken either from the patient themselves or a donor to treat diseases. Cells used for cell therapy are often stem cells, cells that can mature into different types of specialized cells. Cells used for cell therapy may or may not be genetically altered. It is sometimes easier to remove cells from the body, treat them with gene therapy and then place them back than treating the cells inside the body. This is the case for gene therapy for blood disorders. Since most of the genetic disorders requires gene modified cells for the treatment, gene and cell therapy are considered to be overlapping fields of medicine. Gene and cell therapy technology is evolving rapidly and we are now closer than ever to gene and cell therapies for many different diseases. However, gene and cell therapies remain experimental medicines and much more research is needed before many of these therapies are available to all patients everywhere.	Anabilim Dalında Görevli Tüm Öğretim Üyeleri	Face-to-face
10	Phd in Gene and Cell Therapy	GHT 8007	7	Advanced Therapy Medicinal Products	Fall	Advanced Therapy Medicinal Products (ATMPs) are medicines for	Assoc. Prof. Dr. Devrim DEMİR DORA	Face-to-face