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| Course Code | Course Name | ECTS | T+P+L | C/E | Language |
| Fall Semester |
| 522403301 | [MOLECULAR BASIS OF INHERITED](#DERS522401301) DISEASES[DERS522403301](#DERS522401301) | 7,5 | 2+2+0 | COMPULSORY | TURKISH |
| 522403302 | [POPULATION GENETICS](#DERS522401302) | 7,5 | 2+0+0 | ELECTIVE | TURKISH |
| 522403303 | [HYBRIDIZATION TECHNIQUES AND THEIR APPLICATION AREAS](#DERS522401303) | 7,5 | 2+2+0 | ELECTIVE | TURKISH |
| 522403304 | [MOLECULER BASIS OF GENE REGULATION](#DERS522401304) | 7,5 | 2+0+0 | ELECTIVE | TURKISH |
| 522403305 | [PRENATAL DIAGNOSIS TECHNIQUES](#DERS522401305) | 7,5 | 2+2+0 | COMPULSORY | TURKISH |
| 522403306 | [MITOCHONDRIAL GENOME AND MUTATIONS](#DERS522401306) | 7,5 | 2+0+0 | ELECTIVE | TURKISH |
| 522403307 | [METABOLIC DISEASES AND MOLECULER DIAGNOSIS](#DERS522401307) | 7,5 | 2+2+0 | ELECTIVE | TURKISH |
| 522403308 | [MUTATION IN MEDICAL GENETICS](#DERS522401308) | 7,5 | 1+0+0 | ELECTIVE | TURKISH |
| 522403309 | [PCR AND PCR TYPES](#DERS522401309) | 7,5 | 1+1+0 | ELECTIVE | TURKISH |
| 522403310 | [MOLECULAR SCREENING TECHNIQUES](#DERS522401310) | 7,5 | 1+1+0 | ELECTIVE | TURKISH |
| 522403311 | [ADVANCED CYTOGENETIC TECHNIQUES](#DERS522401311)[D522403311](#D522401311) | 7,5 | 2+2+0 | ELECTIVE | TURKISH |
| 522403312 | [IMPORTANCE OF CELL.SIGN. IN MEDCL.GENETICS](#DERS522401312) | 7,5 | 2+0+0 | ELECTIVE | TURKISH |
| 522403313 | [LEUKEMIA CYTOGENETICS](#DERS522401313) | 7,5 | 2+2+0 | ELECTIVE | TURKISH |
| 522403314 | [IMPORT. OF CYTOGENTC AND MOLECL.MARK.IR SOL TUMS](#DERS522401314) | 7,5 | 2+2+0 | ELECTIVE | TURKISH |
| 522403315 | [NEUROMUSCULAR DISEASES AND MOLECL. MARKERS](#DERS522401315) | 7,5 | 3+2+0 | ELECTIVE | TURKISH |
| 522401600 | SPECILIZED FIELD COURSE | 5 | 3+0+0 | COMPULSORY | TURKISH |
|  |  |  |  |  |
| Spring Semester |
| 522404301 | [PRINCIPLES OF TISSUECULTURE](#DERS522402301) | 7,5 | 2+2+0 | ELECTIVE | TURKISH |
| 522404302 | [CANCER GENETICS](#DERS522402302) | 7,5 | 2+2+0 | COMPULSORY | TURKISH |
| 522404303 | [DEVELOPMENTAL GENETICS AND ITS MOLECULAR BASIS](#DERS522402303) | 7,5 | 2+0+0 | ELECTIVE | TURKISH |
| 522404304 | [DNA REPAIR MECHANISMS](#DERS522402304) | 7,5 | 2+0+0 | ELECTIVE | TURKISH |
| 522404305 | [CHROMOSOME DISEASES AND DIAGNOSTIC TECHNIQUES](#DERS522402305) | 7,5 | 2+2+0 | ELECTIVE | TURKISH |
| 522404306 | [PRINCIPLES OF GENETIC COUNSELLING](#DERS522402306) | 7,5 | 2+0+0 | COMPULSORY | TURKISH |
| 522404307 | [LİNKAGE ANALYSIS](#DERS522402307) | 7,5 | 2+0+0 | ELECTIVE | TURKISH |
| 522404308 | [GENE THERAPY](#DERS522402308) | 7,5 | 2+0+0 | ELECTIVE | TURKISH |
| 522404309 | [PRINCIPLES OF PREIMPLANTATION GENETICS](#DERS522402309) | 7,5 | 2+2+0 | ELECTIVE | TURKISH |
| 522404310 | [ADVANCED MOLECULAR CYTTOGENETIC TECHNIQUES](#DERS522401310) | 7,5 | 1+2+0 | ELECTIVE | TURKISH |
| 522404311 | [ISCN IN CLINICAL CYTOGENETICS](#DERS522402311) | 7,5 | 1+2+0 | ELECTIVE | TURKISH |
| 522404312 | [ARRAY TECHNOLOGY](#DERS522402312) | 7,5 | 2+0+0 | ELECTIVE | TURKISH |
| 522404313 | [MOLECULAR APPROACHES OF NEUROSCIENCE](#DERS522402313) | 7,5 | 2+0+0 | ELECTIVE | TURKISH |
| 522404314 | [GENOTYPE-PHENOTYPE COR. IN NEURODEG.DISEASES](#DERS522402314) | 7,5 | 2+2+0 | ELECTIVE | TURKISH |
| 522401600 | SPECILIZED FIELD COURSE | 5 | 3+0+0 | COMPULSORY | TURKISH |
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| **COURSE CODE: 522403301** | **DEPARTMENT: MEDICAL GENETICS** |
| **COURSE NAME: MOLECULAR BASIS OF INHERITED DISEASES** |
| **INSTRUCTOR NAME****Ass.Prof.Dr.Oğuz ÇİLİNGİR** | **COURSE LANGUAGE****Turkish: x****English: ** | **Course Catagory** |
| Technical | Medical | Other(……) |
|  |  |  | x |  |

**COURSE LEVEL**

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| **PROPAEDEUTIC** | **M.SC.** | **Ph.D.** | **COURSE OF PROVINCE** |
| **** | **** | **** | **** |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | **COURSE OF** |
| **Theoric** | **Practice** | **Laboratory** | **Credit** | **ECTS** | **TYPE** |
| Spring ****Autumn **X** | 2  |  | 2  | 3  | 7,5 | COMPULSORY ELECTIVE **x ** |
|  |
| **ASSESMENT CRITERIA** |
| **MID-TERM** | **ACTIVITY** | **Quantity** | **Percentage (%)** |
| 1st Mid-Term |  |  |
| 2 nd Mid- Term |  |  |
| Quiz |  |  |
| Homework |  |  |
| Project |  |  |
| Oral Exam | 1 | 50 |
| Other (………) |  |  |
| **FINAL** | Quiz |  |  |
| Homework |  |  |
| Project |  |  |
| Oral Exam | **1** | **50** |
| Other(……………….) |  |  |
| **MAKE-UP EXAM** | Oral | Written | Oral and Written | Multiple Choice |
|  |  |  |  |
| **PREREQUISITE(S)** |  |
| **COURSE CONTENT** | Defination of heredity, classification of genetic diseases, molecular pathologies of single gene disorders, molecular pathologies in non-mendelian and multifactorial diseases, molecular diagnostic approaches of Mendelian and Non-Mendelian diseases, diagnostic techniwues in single gene disorders  |
| **COURSE AIMS** | To learn types of genetic diseases according to their pathologies, to know screening and diagnostic techniques of the diseases and to gain an ability in evaluation of analysis results. |
| **COURSE OBJECTIVES** | Ability to know types of genetic diseases and their diagnostic tests |
| **TEXTBOOK(S)** | Evelyn B. Kelly:Encyclopedia of Human Genetics and Disease. ABC-CLIO,LLC. 2013 |
| **REFERENCES** |  Roger N. Rosenberg The Molecular and Genetic Basis of Neurologic and Psychiatric Disease. Lippincott-Williams&Wilkins, 2008 |

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|  |  **COURSE SYLLABUS** |
| **WEEK** |  **DATE** | **SUBJECTS/TOPICS** |
| 1 |  | Inherited disease: Definations and Contents |
| 2 |  | Inheritance patterns of genetic diseases |
| 3 |  | Inheritance patterns of genetic diseases |
| 4 |  | Genetics of single gene diseases |
| 5 |  | Genetics of single gene diseases and clinical approach |
| 6 |  | Genetics of single gene diseases and clinical approach |
| 7 |  | Non-Mendelian inheritance and diseases |
| 8 |  | Non-Mendelian inheritance and diseases |
| 9 |  | Multifactoral inheritance |
| 10 |  | Genetics of common diseases |
| 11 |  | Direct mutation analysis in genetic diseases |
| 12 |  | Indirect mutation analysis in genetic diseases |
| 13 |  | Neurodegenerative diseases |
| 14 |  | Cystic fibrosis |
| 15 |  | Thallesemias |
| 16 |  | Lysosomal diseases |

**PROGRAM QUTCOMES**

Place choose never(1), few(2) or many(3) regarding your course

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **NO** |  | **1** | **2** | **3** |
| 1 | gather as well as apply knowledge of health sciences |  | **x**  |  |
| 2 | ask scientific questions and form hypothesis |  |  | **x** |
| 3 | search and interpret scientific literature |  |  **x** |  |
| 4 | design and conduct experiments as well as analyze and interpret the data |  |  | **x**  |
| 5 | learn how to use the experimental equipment effectively |  |  **x** |  |
| 6 | function on multi-disciplinary teams |  | **x** |  |
| 7 | identify, formulate, and solve medical problems |  | **x** |  |
| 8 | use computer effectively both in conducting the experiments and analyzing the data |  |  | **x** |
| 9 | understand the impact of experimental solutions on national and international sciences |  |  | **x** |
| 10 | use effective written and oral communication/presentation skills |  |  |  **x** |
| 11 | get an understanding of professional and ethical responsibility |  | **x**  |  |
| 12 | get a recognition of the need for, and an ability to engage in lifelong learning |  | **x** |  |
| 13 | Ability to know basic concepts in medical education |  | **x** |  |
| 14 | Ability to approach ethical problems in the center of basic concepts | **x** |  |  |

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| **Instructor Name****Ass.Prof.Dr.Oğuz ÇİLİNGİR** **Sign** |  **Date** |

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| **COURSE CODE: 522403302** | **DEPARTMENT: MEDICAL GENETICS** |
| **COURSE NAME: POPULATION GENETICS** |
| **INSTRUCTOR NAME****Ass.Prof.Dr.Muhsin ÖZDEMİR** | **COURSE LANGUAGE****Turkish: x****English: ** | **Course Catagory** |
| Technical | Medical | Other(……) |
|  |  |  | x |  |

**COURSE LEVEL**

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| **PROPAEDEUTIC** | **M.SC.** | **Ph.D.** | **COURSE OF PROVINCE** |
| **** | **** | **X** | **** |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | **COURSE OF** |
| **Theoric** | **Practice** | **Laboratory** | **Credit** | **ECTS** | **TYPE** |
| Spring ****Autumn **X** | 2  |  |  | 2  | 7,5 | COMPULSORY ELECTIVE ** x**  |
|  |
| **ASSESMENT CRITERIA** |
| **MID-TERM** | **ACTIVITY** | **Quantity** | **Percentage (%)** |
| 1st Mid-Term |  |  |
| 2 nd Mid- Term |  |  |
| Quiz |  |  |
| Homework |  |  |
| Project |  |  |
| Oral Exam | 1 | 50 |
| Other (………) |  |  |
| **FINAL** | Quiz |  |  |
| Homework |  |  |
| Project |  |  |
| Oral Exam | **1** | **50** |
| Other(……………….) |  |  |
| **MAKE-UP EXAM** | Oral | Written | Oral and Written | Multiple Choice |
|  |  |  |  |
| **PREREQUISITE(S)** |  |
| **COURSE CONTENT** | The factors causing changes in population gene pool frequencies and their effects |
| **COURSE AIMS** | To learn factors causing changes in population gene pool frequencies  |
| **COURSE OBJECTIVES** | Ability to know the effects of mutations, non-random matings, gene flow and genetic drift in gene pool frequencies  |
| **TEXTBOOK(S)** |  Matthew Hamilton. Population Genetics . Wiley-Blackwell, 2009. |
| **REFERENCES** |   John H. Gillespie .Population Genetics: A Concise Guide. 2010 |

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|  |  **COURSE SYLLABUS** |
| **WEEK** |  **DATE** | **SUBJECTS/TOPICS** |
| 1 |  | Definations: Genotype/Phenotype/ Population |
| 2 |  | Genotype Frequencies |
| 3 |  | Hardy-Weinberg Law |
| 4 |  | Applications of Hardy-Weinberg Law |
| 5 |  | Factors affecting gene frequencies |
| 6 |  | Consanguineous marriages: Types/Risks |
| 7 |  | Genetic drift and effective population size |
| 8 |  | Population structure and Gene flow |
| 9 |  | Mutations and affects on population structure |
| 10 |  | Natural Selection |
| 11 |  | General results for natural selection on a diallelic locus |
| 12 |  | Genetic variations |
| 13 |  | Polymorphisms |
| 14 |  |  |
| 15 |  |  |
| 16 |  |  |

**PROGRAM QUTCOMES**

Place choose never(1), few(2) or many(3) regarding your course

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **NO** |  | **1** | **2** | **3** |
| 1 | gather as well as apply knowledge of health sciences |  | **x**  |  |
| 2 | ask scientific questions and form hypothesis |  |  | **x** |
| 3 | search and interpret scientific literature |  |  **x** |  |
| 4 | design and conduct experiments as well as analyze and interpret the data |  |  |  |
| 5 | learn how to use the experimental equipment effectively |  |  |  |
| 6 | function on multi-disciplinary teams |  |  |  |
| 7 | identify, formulate, and solve medical problems |  | **x** |  |
| 8 | use computer effectively both in conducting the experiments and analyzing the data |  |  | **x** |
| 9 | understand the impact of experimental solutions on national and international sciences |  |  |  |
| 10 | use effective written and oral communication/presentation skills |  |  |  **x** |
| 11 | get an understanding of professional and ethical responsibility |  | **x**  |  |
| 12 | get a recognition of the need for, and an ability to engage in lifelong learning |  | **x** |  |
| 13 | Ability to know basic concepts in medical education |  | **x** |  |
| 14 | Ability to approach ethical problems in the center of basic concepts |  | **x**  |  |

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| **Instructor Name****Ass.Prof.Dr.Muhsin ÖZDEMİR** **Sign** |  **Date** |

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| **COURSE CODE: 522403303** | **DEPARTMENT: MEDICAL GENETICS** |
| **COURSE NAME: HYBRIDIZATION TECHNIQUES AND THEIR APPLICATION AREAS** |
| **INSTRUCTOR NAME****Ass.Prof.Dr.** Oğuz ÇİLİNGİR | **COURSE LANGUAGE****Turkish: x****English: ** | **Course Catagory** |
| Technical | Medical | Other(……) |
|  |  |  | x |  |

**COURSE LEVEL**

|  |  |  |  |
| --- | --- | --- | --- |
| **PROPAEDEUTIC** | **M.SC.** | **Ph.D.** | **COURSE OF PROVINCE** |
| **** | **** | **X** | **** |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | **COURSE OF** |
| **Theoric** | **Practice** | **Laboratory** | **Credit** | **ECTS** | **TYPE** |
| Spring ****Autumn **X** | 2  |  | 2 | 3 | 7,5 | COMPULSORY ELECTIVE ** x**  |
|  |
| **ASSESMENT CRITERIA** |
| **MID-TERM** | **ACTIVITY** | **Quantity** | **Percentage (%)** |
| 1st Mid-Term |  |  |
| 2 nd Mid- Term |  |  |
| Quiz |  |  |
| Homework |  |  |
| Project |  |  |
| Oral Exam | 1 | 50 |
| Other (………) |  |  |
| **FINAL** | Quiz |  |  |
| Homework |  |  |
| Project |  |  |
| Oral Exam | **1** | **50** |
| Other(……………….) |  |  |
| **MAKE-UP EXAM** | Oral | Written | Oral and Written | Multiple Choice |
|  |  |  |  |
| **PREREQUISITE(S)** |  |
| **COURSE CONTENT** | Types of Molecular techniques for gene structure and their expressions, applications and evaluation of test results  |
| **COURSE AIMS** | To learn basics and principles of molecular hybridization techniques for gene characterization and expression  |
| **COURSE OBJECTIVES** | Ability to choose the most informative molecular hybridization technique depending on disease type and to evaluate the test results  |
| **TEXTBOOK(S)** |  Nucleic Acids Hybridization: Modern Applications editör: Anton A. Buzdin,Sergey Lukyanov. 2008 |
| **REFERENCES** |  |

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|  |  **COURSE SYLLABUS** |
| **WEEK** |  **DATE** | **SUBJECTS/TOPICS** |
| 1 |  | Structure and expression of a gene coding for a mRNA and a protein |
| 2 |  | Parameters of description of a genome |
| 3 |  | Vectors and Clonning |
| 4 |  | Restriction enzymes |
| 5 |  | Molecular clonning |
| 6 |  | DNA labelling |
| 7 |  | Molecular Hybridization: Aims, Principles |
| 8 |  | DNA libraries and screening |
| 9 |  | Characterization of a gene |
| 10 |  | DNA sequencing / PCR |
| 11 |  | Lab Applications: Restriction enzymes / PCR / Gel electrophoresis |
| 12 |  | Lab Applications: DNA sequencing |
| 13 |  | Whole Genome Sequencing |
| 14 |  | Gene expression analysis |
| 15 |  | Lab Applications: Gene expression analysis |
| 16 |  | Lab Applications: Gene expression analysis |

**PROGRAM QUTCOMES**

Place choose never(1), few(2) or many(3) regarding your course

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **NO** |  | **1** | **2** | **3** |
| 1 | gather as well as apply knowledge of health sciences |  | **x**  |  |
| 2 | ask scientific questions and form hypothesis |  |  | **x** |
| 3 | search and interpret scientific literature |  |  **x** |  |
| 4 | design and conduct experiments as well as analyze and interpret the data |  |  | **x** |
| 5 | learn how to use the experimental equipment effectively |  |  | **x**  |
| 6 | function on multi-disciplinary teams |  | **x** |  |
| 7 | identify, formulate, and solve medical problems |  |  | **x**  |
| 8 | use computer effectively both in conducting the experiments and analyzing the data |  |  | **x** |
| 9 | understand the impact of experimental solutions on national and international sciences |  |  | **x** |
| 10 | use effective written and oral communication/presentation skills |  |  **x** |  |
| 11 | get an understanding of professional and ethical responsibility |  | **x**  |  |
| 12 | get a recognition of the need for, and an ability to engage in lifelong learning |  | **x** |  |
| 13 | Ability to know basic concepts in medical education |  | **x** |  |
| 14 | Ability to approach ethical problems in the center of basic concepts |  |  |  |

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| **Instructor Name****Ass.Prof.Dr.**Oğuz ÇİLİNGİR**Sign** |  **Date** |

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| **COURSE CODE: 522403305** | **DEPARTMENT: MEDICAL GENETICS** |
| **COURSE NAME: PRENATAL DİAGNOSİS TECHNİQUES** |
| **INSTRUCTOR NAME****Prof.Dr.Sevilhan ARTAN** | **COURSE LANGUAGE****Turkish: x****English: x** | **Course Catagory** |
| Technical | Medical | Other(……) |
|  |  | x |  |

**COURSE LEVEL**

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| **PROPAEDEUTIC** | **M.SC.** | **Ph.D.** | **COURSE OF PROVINCE** |
| **** |  | **x** | **** |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | **COURSE OF** |
| **Theoric** | **Practice** | **Laboratory** | **Credit** | **ECTS** | **TYPE** |
| Spring ****Autumn **x** | 2  |  2 |  |  3 | 7,5 | ZORUNLU SEÇMELİ  **X ** |
|  |
| **ASSESMENT CRITERIA** |
| **MID-TERM** | **ACTIVITY** | **Quantity** | **Percentage (%)** |
| 1st Mid-Term | 1 | 30 |
| 2 nd Mid- Term |  |  |
| Quiz |  |  |
| Homework |  |  |
| Project |  1 | 20  |
| Oral Exam |  |  |
| Other (………) |  |  |
| **FINAL** | Quiz |  |  |
| Homework |  |  |
| Project |  |  |
| Oral Exam | **1** | **50** |
| Other(……………….) |  |  |
| **MAKE-UP EXAM** | Oral | Written | Oral and Written | Multiple Choice |
|  |  |  |  |
| **PREREQUISITE(S)** |  |
| **COURSE CONTENT** | Prenatal diagnosis concept in genetic diseases, philosophy of prenatal diagnosis, prenatal diagnosis indications, prenatal diagnosis techniques, genetic courseling criteria in before and after prenatal diagnosis. |
| **COURSE AIMS** | Understanding the philosophy of prenatal diagnosis, ability to know the prenatal diagnosis indications and techniques, ability to direct families at risk for genetic diseases. |
| **COURSE OBJECTIVES** | 1.Gain of knowledge about prenatal diagnosis indications and techniques, 2.Ability to interpret genetic analysis results and to give necessory genetic courseling to families. |
| **TEXTBOOK(S)** | Milunsky A. (2009). Genetic Disorders and the Fetus, John Hopkins University Press  |
| **REFERENCES** | Gardner RJM, Sutherland GR. (2004). Chromosome abnormalities and genetic counselling. Oxford University Pres. Steven L. Gersen, Martha B. Keagle. The Principles of Clinical Cytogenetics. Springer.2004 |

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|  |  **COURSE SYLLABUS** |
| **WEEK** |  **DATE** | **SUBJECTS/TOPICS** |
| 1 |  | Prenatal Diagnosis: Definition, Content and Philosophy |
| 2 |  | Prenatal Diagnosis Indications |
| 3 |  | Prenatal Diagnosis Indications |
| 4 |  | Prenatal Diagnosis Techniques: Non-invasive-US abnormalities |
| 5 |  | Maternal Serum Screening and trisomy syndrome risks |
| 6 |  | Prenatal Diagnosis Techniques: invasive |
| 7 |  | Amniocentesis: Tissue Culture, chromosomal /molecular diagnosis |
| 8 |  | Chorionic Villi Sampling: Tissue Culture, chromosomal /molecular diagnosis |
| 9 |  | Fetal blood sampling: Amniocentesis: Culture, chromosomal /molecular diagnosis |
| 10 |  | Practice: Chromosome/gene analysis from fetal samples |
| 11 |  | Prenatal diagnosis for chromosome abnormalities |
| 12 |  | Prenatal diagnosis for sex chromosome abnormalities |
| 13 |  | Prenatal diagnosis for single gene disorders |
| 14 |  | Congenital Adrenal Hyperplasia: prenatal diagnosis and treatment |
| 15 |  | Genetic Counselling |
| 16 |  | Practice: Pedigri evaluation and risk calculations |

**PROGRAM QUTCOMES**

Place choose never(1), few(2) or many(3) regarding your course

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **NO** |  | **1** | **2** | **3** |
| 1 | gather as well as apply knowledge of health sciences |  |  | **x** |
| 2 | ask scientific questions and form hypothesis |  | **x** |  |
| 3 | search and interpret scientific literature |  | **x**  |  |
| 4 | design and conduct experiments as well as analyze and interpret the data |  |  | **x**  |
| 5 | learn how to use the experimental equipment effectively |  |  | **x**  |
| 6 | function on multi-disciplinary teams |  | **x** |  |
| 7 | identify, formulate, and solve medical problems |  |  | **x**  |
| 8 | use computer effectively both in conducting the experiments and analyzing the data |  |  |  |
| 9 | understand the impact of experimental solutions on national and international sciences |  | **x**  |  |
| 10 | use effective written and oral communication/presentation skills |  | **x**  |  |
| 11 | get an understanding of professional and ethical responsibility |  |  |  **x** |
| 12 | get a recognition of the need for, and an ability to engage in lifelong learning |  |  |  |
| 13 | other (…ability to know basic clinical terms in medical education)  |  |  | **x** |
| 14 | other (……………………………………….) |  |  | **x** |

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| **Instructor Name****Prof.Dr.Sevilhan ARTAN** **Sign** |  **Date** |

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| **COURSE CODE: 522403309** | **DEPARTMENT: MEDICAL GENETICS** |
| COURSE NAME: PCR AND PCR TYPES  |
| **INSTRUCTOR NAME****Ass.Prof. Dr.Oğuz ÇİLİNGİR** | **COURSE LANGUAGE****Turkish: x****English: x** | **Course Catagory** |
| Technical | Medical | Other(……) |
|  |  | x |  |

**COURSE LEVEL**

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| **PROPAEDEUTIC** | **M.SC.** | **Ph.D.** | **COURSE OF PROVINCE** |
| **** |  | **x** | **** |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | **COURSE OF** |
| **Theoric** | **Practice** | **Laboratory** | **Credit** | **ECTS** | **TYPE** |
| Spring ****Autumn **x** | 1  |  | 1  | 1,5 | 7,5 | ZORUNLU SEÇMELİ  ** X**  |
|  |
| **ASSESMENT CRITERIA** |
| **MID-TERM** | **ACTIVITY** | **Quantity** | **Percentage (%)** |
| 1st Mid-Term |  1 | %20  |
| 2 nd Mid- Term |  |  |
| Quiz |  |  |
| Homework |  |  |
| Project | 1  |  %30  |
| Oral Exam |  |  |
| Other (………) |  |  |
| **FINAL** | Quiz |  |  |
| Homework |  |  |
| Project |  |  |
| Oral Exam | **1** | **% 50** |
| Other(……………….) |  |  |
| **MAKE-UP EXAM** | Oral | Written | Oral and Written | Multiple Choice |
|  |  |  |  |
| **PREREQUISITE(S)** |  |
| **COURSE CONTENT** |  PCR mechanism, PCR types and their applications in clinical samples |
| **COURSE AIMS** | Theoretical and practical basis of PCR techniques and their uses in clinical genetics  |
| **COURSE OBJECTIVES** | To gain the ability of choosing reliable PCR techniques and their applications depending on clinical basis  |
| **TEXTBOOK(S)** | Suzanne Kennedy and Nick Oswald: PCR Troubleshooting and Optimization: The Essential Guide. Caister Academic Press |
| **REFERENCES** | Julie Logan, Kirstin Edwards and Nick Saunders. Real-Time PCR: Current Technology and Applications Caister Academic PressMichael L. Altshuler. [PCR Troubleshooting: The Essential Guide](http://www.horizonpress.com/pcr2). Caister Academic Press |

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|  |  **COURSE SYLLABUS** |
| **WEEK** |  **DATE** | **SUBJECTS/TOPICS** |
| 1 |  | Polymerase Chain Reaction: Definition and History |
| 2 |  | DNA replication |
| 3 |  | Basis of Polymerase Chain Reaction |
| 4 |  | PCR reaction elements and their roles  |
| 5 |  | Lab application |
| 6 |  | Lab application |
| 7 |  | PCR application areas |
| 8 |  | PCR in clinics |
| 9 |  | PCR types and application areas |
| 10 |  | PCR types and application areas |
| 11 |  | Lab application |
| 12 |  | Lab application |
| 13 |  | PCR in different clinical samples |
| 14 |  | Real time PCR |
| 15 |  | Real time PCR applications |
| 16 |  |  |

**PROGRAM QUTCOMES**

Place choose never(1), few(2) or many(3) regarding your course

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **NO** |  | **1** | **2** | **3** |
| 1 | gather as well as apply knowledge of health sciences |  |  | **x** |
| 2 | ask scientific questions and form hypothesis |  |  | **x** |
| 3 | search and interpret scientific literature |  |  |  **x** |
| 4 | design and conduct experiments as well as analyze and interpret the data |  |  | **x**  |
| 5 | learn how to use the experimental equipment effectively |  |  | **x**  |
| 6 | function on multi-disciplinary teams |  |  | **x**  |
| 7 | identify, formulate, and solve medical problems |  |  | **x**  |
| 8 | use computer effectively both in conducting the experiments and analyzing the data |  |  |  |
| 9 | understand the impact of experimental solutions on national and international sciences |  |  **x** |  |
| 10 | use effective written and oral communication/presentation skills |  |  |  |
| 11 | get an understanding of professional and ethical responsibility |  |  | **x**  |
| 12 | get a recognition of the need for, and an ability to engage in lifelong learning |  |  |  |
| 13 | other (…ability to know basic clinical terms in medical education)  |  |  | **x** |
| 14 | other (……………………………………….) |  |  |  |

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| **Instructor Name****Ass.Prof. Dr.Oğuz ÇİLİNGİR** **Sign** |  **Date** |

|  |  |
| --- | --- |
| **COURSE CODE: 522404304** | **DEPARTMENT: MEDICAL GENETICS** |
| **COURSE NAME: DNA REPAİR SYSTEMS** |
| **INSTRUCTOR NAME****Ass.Prof.Dr.Oğuz ÇİLİNGİR** | **COURSE LANGUAGE****Turkish: x****English: x** | **Course Catagory** |
| Technical | Medical | Other(……) |
|  |  | x |  |

**COURSE LEVEL**

|  |  |  |  |
| --- | --- | --- | --- |
| **PROPAEDEUTIC** | **M.SC.** | **Ph.D.** | **COURSE OF PROVINCE** |
| **** |  | **x** | **** |

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| --- | --- | --- |
| **SEMESTER** | **WEEKLY COURSE PERIOD** | **COURSE OF** |
| **Theoric** | **Practice** | **Laboratory** | **Credit** | **ECTS** | **TYPE** |
| Spring **X**Autumn  | 2  |  |  |  2 | 7,5 | ZORUNLU SEÇMELİ  ** X**  |
|  |
| **ASSESMENT CRITERIA** |
| **MID-TERM** | **ACTIVITY** | **Quantity** | **Percentage (%)** |
| 1st Mid-Term |  1 | 50  |
| 2 nd Mid- Term |  |  |
| Quiz |  |  |
| Homework |  |  |
| Project |  |  |
| Oral Exam |  |  |
| Other (………) |  |  |
| **FINAL** | Quiz |  |  |
| Homework |  |  |
| Project |  |  |
| Oral Exam | **1** | **% 50** |
| Other(……………….) |  |  |
| **MAKE-UP EXAM** | Oral | Written | Oral and Written | Multiple Choice |
|  |  |  |  |
| **PREREQUISITE(S)** |  |
| **COURSE CONTENT** | DNA replication, errors in DNA replication and DNA proof-reading systems in DNA replication, direct and excision-repair mechanisms, results of mutations in DNA repairing genes. |
| **COURSE AIMS** | Ability to knowthe systems that control DNA replication, the DNA repair sytems in eucaryotes the mutations in genes involved in DNA repair systems and related genetic diseased. |
| **COURSE OBJECTIVES** | 1. Gain an ability,2. to know the phenotypic effects of DNA mutations and importance of repairing genes in phenotypes. |
| **TEXTBOOK(S)** | Micklos DA, Freyer GA, Crotty DA. (2003). DNA Science.Cold Spring Harbor Lab Pres, 2003. |
| **REFERENCES** | Alberts B, Bray D, Lewis J, Raff M, Roberts K, Waton JD. (1994). Molecular Biology of the Cell. Garland Publ.  |

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|  |  **COURSE SYLLABUS** |
| **WEEK** |  **DATE** | **SUBJECTS/TOPICS** |
|  |  | Mutation types |
|  |  | DNA replication erros |
|  |  | Base mutations |
|  |  | Agents involved in DNA mutations |
|  |  | Base modifications |
|  |  | Mispair repairing system |
|  |  | Nucleotide excision repair system |
|  |  | DNA repairing and cancer I |
|  |  | DNA repairing and cancer II |
|  |  | DNA repairing gene mutations and related diseases I |
|  |  | DNA repairing gene mutations and related diseases II |
|  |  | DNA repairing and early aging syndromes |
|  |  | DNA repairing gene mutations and cancer I |
|  |  | DNA repairing gene mutations and cancer II |
|  |  | Xeroderma pigmentosum |
|  |  |  |

**PROGRAM QUTCOMES**

Place choose never(1), few(2) or many(3) regarding your course

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **NO** |  | **1** | **2** | **3** |
| 1 | gather as well as apply knowledge of health sciences |  |  **X** |  |
| 2 | ask scientific questions and form hypothesis |  |  | **X** |
| 3 | search and interpret scientific literature |  |  |  **X** |
| 4 | design and conduct experiments as well as analyze and interpret the data |  **X** |  |  |
| 5 | learn how to use the experimental equipment effectively | **X** |  |  |
| 6 | function on multi-disciplinary teams |  |  | **X**  |
| 7 | identify, formulate, and solve medical problems |  **X** |  |  |
| 8 | use computer effectively both in conducting the experiments and analyzing the data |  |  | **X** |
| 9 | understand the impact of experimental solutions on national and international sciences |  |  | **X** |
| 10 | use effective written and oral communication/presentation skills |  |  |  **X** |
| 11 | get an understanding of professional and ethical responsibility |  |  **X** |  |
| 12 | get a recognition of the need for, and an ability to engage in lifelong learning |  | **X** |  |
| 13 | Ability to know basic concepts in medical education |  | **X** |  |
| 14 | Ability to approach ethical problems in the center of basic concepts |  | **X** |  |

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| **Instructor Name****Ass.Prof.Dr.Oğuz ÇİLİNGİR** **Sign** |  **Date** |

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| **COURSE CODE:** | **522403304** | **DEPARTMENT: MEDICAL GENETICS** |
| **COURSE NAME:** | **MOLECULAR BASİS OF GENE REGULATİON** |
| **INSTRUCTOR NAME** | **COURSE LANGUAGE****Turkish: ****English: ** | **Course Catagory** |
| Technical | Medical | Other(……) |
|  |  |  | X |  |

**COURSE LEVEL**

|  |  |  |  |
| --- | --- | --- | --- |
| **PROPAEDEUTIC** | **M.SC.** | **Ph.D.** | **COURSE OF PROVINCE** |
| **** | **** | **X** | **** |

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| --- | --- | --- |
| **SEMESTER** | **WEEKLY COURSE PERIOD** | **COURSE OF** |
| **Theoric** | **Practice** | **Laboratory** | **Credit** | **ECTS** | **TYPE** |
| Spring ****Autumn X**** | 2  |  |  |  2 | 7,5 | COMPULSORY ELECTIVE ** X**  |
|  |
| **ASSESMENT CRITERIA** |
| **MID-TERM** | **ACTIVITY** | **Quantity** | **Percentage (%)** |
| 1st Mid-Term | 1 | 50 |
| 2 nd Mid- Term |  |  |
| Quiz |  |  |
| Homework |  |  |
| Project |  |  |
| Oral Exam |  |  |
| Other (………) |  |  |
| **FINAL** | Quiz |  |  |
| Homework |  |  |
| Project |  |  |
| Oral Exam | **1** | **50** |
| Other(……………….) |  |  |
| **MAKE-UP EXAM** | Oral | Written | Oral and Written | Multiple Choice |
|  |  |  |  |
| **PREREQUISITE(S)** |  |
| **COURSE CONTENT** |  Gene structure, elements in functional gene, factors effecting protein synthesis, all mechanisms involved in gene regulation |
| **COURSE AIMS** | To teach genetic and epigenetic mechanisms that play key roles in the expression of genes |
| **COURSE OBJECTIVES** |  Ability to evaluate how a gene becomes on and/or off. |
| **TEXTBOOK(S)** | Micklos DA, Freyer GA, Crotty DA. (2003). DNA Science.Cold Spring Harbor Lab Pres. |
| **REFERENCES** | Alberts B, Bray D, Lewis J, Raff M, Roberts K, Waton JD. (1994). Molecular Biology of the Cell. Garland Publ.  |

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|  |  **COURSE SYLLABUS** |
| **WEEK** |  **DATE** | **SUBJECTS/TOPICS** |
| 1 |  | Gene structure |
| 2 |  | Contiguous genes |
| 3 |  | Elements in functional genes |
| 4 |  | Factors effecting protein synthesis |
| 5 |  | Polyadenylation |
| 6 |  | Transcription and modifications |
| 7 |  | Translation |
| 8 |  | Posttranslational modifications |
| 9 |  | Protein transporting |
| 10 |  | Control of Protein stability |
| 11 |  | Epigenetic and methylation |
| 12 |  | Histon asetilation |
| 13 |  | Effects of DNA methylation |
| 14 |  | Other epigenetic mechanisms and their effects |
| 15 |  |  |
| 16 |  |  |

**PROGRAM QUTCOMES**

Place choose never(1), few(2) or many(3) regarding your course

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **NO** |  | **1** | **2** | **3** |
| 1 | gather as well as apply knowledge of health sciences |  | **X**  |  |
| 2 | ask scientific questions and form hypothesis |  |  | **X** |
| 3 | search and interpret scientific literature |  |  |  **X** |
| 4 | design and conduct experiments as well as analyze and interpret the data |  |  |  **X** |
| 5 | learn how to use the experimental equipment effectively |  |  **X** |  |
| 6 | function on multi-disciplinary teams |  |  | **X**  |
| 7 | identify, formulate, and solve medical problems |  | **X** |  |
| 8 | use computer effectively both in conducting the experiments and analyzing the data |  |  | **X** |
| 9 | understand the impact of experimental solutions on national and international sciences |  |  **X** |  |
| 10 | use effective written and oral communication/presentation skills |  |  | **X**  |
| 11 | get an understanding of professional and ethical responsibility |  |  **X** |  |
| 12 | get a recognition of the need for, and an ability to engage in lifelong learning |  | **X** |  |
| 13 | Ability to know basic concepts in medical education |  |  | **X** |
| 14 | Ability to approach ethical problems in the center of basic concepts | **X** |  |  |

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| **Instructor Name****Sign** |  **Date** |

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| **COURSE CODE:** | **522403311** | **DEPARTMENT: MEDICAL GENETICS** |
| **COURSE NAME:** | **ADVANCED CYTOGENETIC TECHNIQUES** |
| **INSTRUCTOR NAME****Prof.Dr.Sevilhan ARTAN** | **COURSE LANGUAGE****Turkish: X****English: X** | **Course Catagory** |
| Technical | Medical | Other(……) |
|  |  |  | X |  |

**COURSE LEVEL**

|  |  |  |  |
| --- | --- | --- | --- |
| **PROPAEDEUTIC** | **M.SC.** | **Ph.D.** | **COURSE OF PROVINCE** |
| **** | **** | **X** | ** X** |

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| --- | --- | --- |
| **SEMESTER** | **WEEKLY COURSE PERIOD** | **COURSE OF** |
| **Theoric** | **Practice** | **Laboratory** | **Credit** | **ECTS** | **TYPE** |
| Spring ****Autumn X**** | 2  |  2 |  | 3 | 7,5 | COMPULSORY ELECTIVE ** X**  |
|  |
| **ASSESMENT CRITERIA** |
| **MID-TERM** | **ACTIVITY** | **Quantity** | **Percentage (%)** |
| 1st Mid-Term | 1 | 50 |
| 2 nd Mid- Term |  |  |
| Quiz |  |  |
| Homework |  |  |
| Project |  |  |
| Oral Exam |  |  |
| Other (………) |  |  |
| **FINAL** | Quiz |  |  |
| Homework |  |  |
| Project |  |  |
| Oral Exam | **1** | **50** |
| Other(……………….) |  |  |
| **MAKE-UP EXAM** | Oral | Written | Oral and Written | Multiple Choice |
|  |  |  |  |
| **PREREQUISITE(S)** |  |
| **COURSE CONTENT** | Preperation of cytogenetic slides from different tissues, usage of fluorescent banding techniques, replication banding, advanced FISH techniques (fiber FISH, sperm FISH etc.) |
| **COURSE AIMS** |  To teach various cytogenetic and molecular cytogenetic techniques used for special purposes. |
| **COURSE OBJECTIVES** |  Ability to use different cytogenetic and molecular cytogenetic techniques in specific researches. |
| **TEXTBOOK(S)** |  |
| **REFERENCES** |  |

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|  |  **COURSE SYLLABUS** |
| **WEEK** |  **DATE** | **SUBJECTS/TOPICS** |
| 1 |  | Human genome |
| 2 |  | Genetic abnormality types and diagnosis |
| 3 |  | What is Array r? What are array formats  |
| 4 |  | Probe types |
| 5 |  | Prob selection, array preperation |
| 6 |  | Sample collection: DNA/RNA |
| 7 |  | Lebeling techniques |
| 8 |  | Hybridization conditions |
| 9 |  | Data processing |
| 10 |  | Genomic copy number variation analysis |
| 11 |  | Expression analysis |
| 12 |  | Array applications: Probe evaluations  |
| 13 |  | Array applications in CNVs |
| 14 |  | Array applications in expression analysis |
| 15 |  | Custom array selection |
| 16 |  |  |

**PROGRAM QUTCOMES**

Place choose never(1), few(2) or many(3) regarding your course

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **NO** |  | **1** | **2** | **3** |
| 1 | gather as well as apply knowledge of health sciences |  |  | **X** |
| 2 | ask scientific questions and form hypothesis |  |  | **X** |
| 3 | search and interpret scientific literature |  |  |  **X** |
| 4 | design and conduct experiments as well as analyze and interpret the data |  |  |  **X** |
| 5 | learn how to use the experimental equipment effectively |  |  |  **X** |
| 6 | function on multi-disciplinary teams |  |  |  **X** |
| 7 | identify, formulate, and solve medical problems |  |  |  **X** |
| 8 | use computer effectively both in conducting the experiments and analyzing the data |  |  | **X** |
| 9 | understand the impact of experimental solutions on national and international sciences |  |  | **X** |
| 10 | use effective written and oral communication/presentation skills |  |  **X** |  |
| 11 | get an understanding of professional and ethical responsibility |  |  **X** |  |
| 12 | get a recognition of the need for, and an ability to engage in lifelong learning |  | **X** |  |
| 13 | Ability to know basic concepts in medical education |  |  | **X** |
| 14 | Ability to approach ethical problems in the center of basic concepts |  |  | **X** |

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| **Instructor Name****Prof.Dr.Sevilhan ARTAN** **Sign** |  **Date** |
| **COURSE CODE: 522404302** | **DEPARTMENT: MEDICAL GENETICS** |
| **COURSE NAME:** | **CANCER GENETICS** |
| **INSTRUCTOR NAME****Prof.Dr.Sevilhan ARTAN** | **COURSE LANGUAGE****Turkish: X****English: X** | **Course Catagory** |
| Technical | Medical | Other(……) |
|  |  |  | X |  |
|  |  |  |  |  |  |  |

**COURSE LEVEL**

|  |  |  |  |
| --- | --- | --- | --- |
| **PROPAEDEUTIC** | **M.SC.** | **Ph.D.** | **COURSE OF PROVINCE** |
|  |  | **X** |  |

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| --- | --- | --- |
| **SEMESTER** | **WEEKLY COURSE PERIOD** | **COURSE OF** |
| **Theoric** | **Practice** | **Laboratory** | **Credit** | **ECTS** | **TYPE** |
| Spring **X**Autumn  | 2  |  2 |  |  3 | 7,5 | COMPULSORY ELECTIVE **X**  |
|  |
| **ASSESMENT CRITERIA** |
| **MID-TERM** | **ACTIVITY** | **Quantity** | **Percentage (%)** |
| 1st Mid-Term | 1 | 40 |
| 2 nd Mid- Term |  |  |
| Quiz |  |  |
| Homework | 1 | 10 |
| Project |  |  |
| Oral Exam |  |  |
| Other (………) |  |  |
| **FINAL** | Quiz |  |  |
| Homework |  |  |
| Project |  |  |
| Oral Exam | **1** | **50** |
| Other(……………….) |  |  |
| **MAKE-UP EXAM** | Oral | Written | Oral and Written | Multiple Choice |
|  |  |  |  |
| **PREREQUISITE(S)** |  |
| **COURSE CONTENT** |  Genetic aspects of cancer, Cell signal transduction pathways and protooncogenes, cell cycle and tumor suppressor genes, genomic and epigenetic mechanisms in cancer, genetic instability in cancer, genetic counselling in cancer, sporadic, hereditary and familial cancer types  |
| **COURSE AIMS** |  To learn cancer is a genetic disease and genetic pathways of cancer related genes in different cancer types |
| **COURSE OBJECTIVES** | to get knowledge for counselling the cancer families |
| **TEXTBOOK(S)** | [Fred Bunz](http://www.amazon.com/Fred-Bunz/e/B001JS6XZ8/ref%3Dntt_athr_dp_pel_1) Principles of Cancer Genetics. 2008[Boris Pasche](http://www.amazon.com/s/ref%3Dntt_athr_dp_sr_1?_encoding=UTF8&field-author=Boris%20Pasche&ie=UTF8&search-alias=books&sort=relevancerank) Cancer Genetics (Cancer Treatment and Research).2011 |
| **REFERENCES** | [Lewis J. Klein](http://www.amazon.com/Lewis-J.-Kleinsmith/e/B001KHLDTY/ref%3Dntt_athr_dp_pel_1), Principles of Cancer Biology.2005S Hodgson, W Foulkes, C Eng,E Maher: A Practical Guide to Human Cancer Genetics.2006 |

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|  |  **COURSE SYLLABUS** |
| **WEEK** |  **DATE** | **SUBJECTS/TOPICS** |
| 1 |  | Cancer: Defination, types and tumor cell features |
| 2 |  | Cancer is a genetic disease: Sporadic, familial and hereditary cancers |
| 3 |  | Cancer is a genetic disease: Sporadic, familial and hereditary cancers |
| 4 |  | Practice: Pedigree analysis |
| 5 |  | Cancer genes: Oncogenes, tumor suppressor genes and DNA repair genes |
| 6 |  | Cell signal transduction and protoonkogenes |
| 7 |  | Oncogenes |
| 8 |  | Cell cycle and tumor suppressor genes |
| 9 |  | Cell cycle and tumor suppressor genes |
| 10 |  | DNA repair genes |
| 11 |  | Genetic instability in cancer |
| 12 |  | Polymorphism in cancer |
| 13 |  | Genetic analyses in cancer |
| 14 |  | Genetic basis of common cancer types: Breast cancer |
| 15 |  | Genetic basis of common cancer types: Lung cancer |
| 16 |  | Genetic basis of common cancer types: Colorectal cancers |

**PROGRAM QUTCOMES**

Place choose never(1), few(2) or many(3) regarding your course

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **NO** |  | **1** | **2** | **3** |
| 1 | gather as well as apply knowledge of health sciences |  |  | **x** |
| 2 | ask scientific questions and form hypothesis |  |  | **x** |
| 3 | search and interpret scientific literature |  |  | **x**  |
| 4 | design and conduct experiments as well as analyze and interpret the data |  |  | **x**  |
| 5 | learn how to use the experimental equipment effectively |  |  |  **x** |
| 6 | function on multi-disciplinary teams |  |  | **x**  |
| 7 | identify, formulate, and solve medical problems |  |  |  **x** |
| 8 | use computer effectively both in conducting the experiments and analyzing the data |  |  |  |
| 9 | understand the impact of experimental solutions on national and international sciences |  |  | **x** |
| 10 | use effective written and oral communication/presentation skills |  |  **x** |  |
| 11 | get an understanding of professional and ethical responsibility |  |  **x** |  |
| 12 | get a recognition of the need for, and an ability to engage in lifelong learning |  |  | **x** |
| 13 | other (…ability to know basic concepts in medical education)  |  |  | **x** |
| 14 | other (……………………………………….) |  |  |  |

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| **Instructor Name****Sign** |  **Date** |

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| **COURSE CODE: 522403313** | **DEPARTMENT: MEDICAL GENETICS** |
| **COURSE NAME:** | **LEUKEMIA CYTOGENETICS** |
| **INSTRUCTOR NAME**Ass.Prof.Dr. Beyhan DURAK ARAS | **COURSE LANGUAGE****Turkish: x****English: ** | **Course Catagory** |
| Technical | Medical | Other(……) |
|  |  |  |  |  |

**COURSE LEVEL**

|  |  |  |  |
| --- | --- | --- | --- |
| **PROPAEDEUTIC** | **M.SC.** | **Ph.D.** | **COURSE OF PROVINCE** |
| **** | **** | **X** | **** |

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| --- | --- | --- |
| **SEMESTER** | **WEEKLY COURSE PERIOD** | **COURSE OF** |
| **Theoric** | **Practice** | **Laboratory** | **Credit** | **ECTS** | **TYPE** |
| Spring ****Autumn **X** | 2  | 2 |  |  3 | 7,5 | COMPULSORY ELECTIVE ** X** |
|  |
| **ASSESMENT CRITERIA** |
| **MID-TERM** | **ACTIVITY** | **Quantity** | **Percentage (%)** |
| 1st Mid-Term | 1 | 50 |
| 2 nd Mid- Term |  |  |
| Quiz |  |  |
| Homework |  |  |
| Project |  |  |
| Oral Exam |  |  |
| Other (………) |  |  |
| **FINAL** | Quiz |  |  |
| Homework |  |  |
| Project |  |  |
| Oral Exam | **1** | **50** |
| Other(……………….) |  |  |
| **MAKE-UP EXAM** | Oral | Written | Oral and Written | Multiple Choice |
|  |  |  |  |
| **PREREQUISITE(S)** |  |
| **COURSE CONTENT** |  Genetic mechanisms of hematologic malignancies, cancer genes and rearrangements, theoretical and practical applications of different type of leukemia. |
| **COURSE AIMS** |  To teach specific numerical and structural chromosome abnormalities in different leukemia types and their relations with clinical features |
| **COURSE OBJECTIVES** |  Ability to know classification of hematologic malinancies and their specific cytogenetic abnormalities. |
| **TEXTBOOK(S)** | Czepulkowski, B.H. (2001). Analyzing chromosomes. Oxford. BIOS Scientific.Heim, Mitelman (2009). Cancer cytogenetics |
| **REFERENCES** | Barch J.M., Knutsen T, Spurbeck L.J. (1997). The AGT Cytogenetics Laboratory Manual |

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|  |  **COURSE SYLLABUS** |
| **WEEK** |  **DATE** | **SUBJECTS/TOPICS** |
| 1 |  | Hematopoetik System and related malign diseases |
| 2 |  | Genetic mechanism of hematologic malignancies |
| 3 |  | Cytogenetic diagnosis and clinical correlations of ALL |
| 4 |  | Lab techniques and practical applications in diagnosis of ALL |
| 5 |  | Cytogenetic diagnosis and clinical correlations of AML |
| 6 |  | Lab techniques and practical applications in diagnosis of AML |
| 7 |  | Cytogenetic diagnosis and clinical correlations of CML |
| 8 |  | Lab techniques and practical applications in diagnosis of CML |
| 9 |  | Cytogenetic diagnosis and clinical correlations of CLL |
| 10 |  | Lab techniques and practical applications in diagnosis of CLL |
| 11 |  | Cytogenetic diagnosis and clinical correlations of MPD |
| 12 |  | Lab techniques and practical applications in diagnosis of MPD |
| 13 |  | Cytogenetic diagnosis and clinical correlations of MDS |
| 14 |  | Lab techniques and practical applications in diagnosis of MDS |
| 15 |  | Cytogenetic diagnosis and clinical correlations of lymphomas |
| 16 |  | Lab techniques and practical applications in diagnosis of lymphomas |

**PROGRAM QUTCOMES**

Place choose never(1), few(2) or many(3) regarding your course

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **NO** |  | **1** | **2** | **3** |
| 1 | gather as well as apply knowledge of health sciences |  |  | **X** |
| 2 | ask scientific questions and form hypothesis |  |  | **X** |
| 3 | search and interpret scientific literature |  |  |  **X** |
| 4 | design and conduct experiments as well as analyze and interpret the data |  |  |  **X** |
| 5 | learn how to use the experimental equipment effectively |  |  |  **X** |
| 6 | function on multi-disciplinary teams |  |  |  **X** |
| 7 | identify, formulate, and solve medical problems |  |  |  **X** |
| 8 | use computer effectively both in conducting the experiments and analyzing the data |  |  **X** |  |
| 9 | understand the impact of experimental solutions on national and international sciences |  |  | **X** |
| 10 | use effective written and oral communication/presentation skills |  |  **X** |  |
| 11 | get an understanding of professional and ethical responsibility |  |  | **x**  |
| 12 | get a recognition of the need for, and an ability to engage in lifelong learning |  | **X** |  |
| 13 | Ability to know basic concepts in medical education |  | **X** |  |
| 14 | Ability to approach ethical problems in the center of basic concepts |  | **X** |  |

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| **Instructor Name**Ass.Prof.Dr. Beyhan DURAK ARAS**Sign** |  **Date** |

|  |  |
| --- | --- |
| **COURSE CODE: 522404313** | **DEPARTMENT: MEDICAL GENETICS** |
| **COURSE NAME:** | **MOLECULAR APPROACHES OF NEUROSCIENCE** |
| **INSTRUCTOR NAME****Prof.Dr.Sevilhan ARTAN** | **COURSE LANGUAGE****Turkish: X****English: X** | **Course Catagory** |
| Technical | Medical | Other(……) |
|  |  |  | X |  |

**COURSE LEVEL**

|  |  |  |  |
| --- | --- | --- | --- |
| **PROPAEDEUTIC** | **M.SC.** | **Ph.D.** | **COURSE OF PROVINCE** |
| **** | **** | **X** | **** |

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| --- | --- | --- |
| **SEMESTER** | **WEEKLY COURSE PERIOD** | **COURSE OF** |
| **Theoric** | **Practice** | **Laboratory** | **Credit** | **ECTS** | **TYPE** |
| Spring **X**Autumn **** | 2  |  |  |  2 | 7,5 | COMPULSORY ELECTIVE ** X** |
|  |
| **ASSESMENT CRITERIA** |
| **MID-TERM** | **ACTIVITY** | **Quantity** | **Percentage (%)** |
| 1st Mid-Term |  |  |
| 2 nd Mid- Term |  |  |
| Quiz |  |  |
| Homework | 1 | 15 |
| Project |  | 25 |
| Oral Exam |  |  |
| Other (………) | 1 | 20 |
| **FINAL** | Quiz |  |  |
| Homework |  |  |
| Project |  |  |
| Oral Exam | **1** | **40** |
| Other(……………….) |  |  |
| **MAKE-UP EXAM** | Oral | Written | Oral and Written | Multiple Choice |
|  |  |  |  |
| **PREREQUISITE(S)** |  |
| **COURSE CONTENT** |  Genetic aspects of brain development, genes involved in brain development, phenotypic results of mutations, genetic basis of neurological and psychiatric diseases  |
| **COURSE AIMS** |  To learn molecular mechanisms and pathways of the genes involved in braişn development, to get knowledge related with the genetic aspects of specific neurological and psychiatric disease. |
| **COURSE OBJECTIVES** | Ability to evaluate genetic and molecular aspects of normal brain functions and to discuss genetic basis of neurological and psychiatric diseases |
| **TEXTBOOK(S)** | Warner TT ,Hammans SR Practical Guide to Neurogenetics. Saunders, 2008. |
| **REFERENCES** | [Akira Sawa](http://www.amazon.com/s/ref%3Dntt_athr_dp_sr_1?_encoding=UTF8&field-author=Akira%20Sawa&ie=UTF8&search-alias=books&sort=relevancerank) , [Melvin G. McIinnis](http://www.amazon.com/s/ref%3Dntt_athr_dp_sr_2?_encoding=UTF8&field-author=Melvin%20G.%20McIinnis&ie=UTF8&search-alias=books&sort=relevancerank) Neurogenetics of Psychiatric Disorders (Medical Psychiatry Series), 2007 |

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| --- | --- |
|  |  **COURSE SYLLABUS** |
| **WEEK** |  **DATE** | **SUBJECTS/TOPICS** |
| 1 |  | DNA genes and mutations |
| 2 |  | Evidences in the genetics of brain development |
| 3 |  | Epilepsy genetics |
| 4 |  | Cerebellar ve spinocerebellar diseases genetics |
| 5 |  | Motor neuron disease genetics |
| 6 |  | Neuropathies and genetics |
| 7 |  | Muscle diseases genetics |
| 8 |  | Mitochondrial diseases |
| 9 |  | Tumor Predisposition Syndromes: VHL, NF1,NF2, |
| 10 |  | Tumor Predisposition Syndromes: VHL, NF1,NF2, |
| 11 |  | Cerebrovascular diseases and genetics |
| 12 |  | Degenerative Diseases and genetics |
| 13 |  | Genetic evidences in Alzheimer and Parkinson Diseases |
| 14 |  | Schizophrenia Genetics |
| 15 |  | Genetic tests |
| 16 |  | Genetic counselling |

**PROGRAM QUTCOMES**

Place choose never(1), few(2) or many(3) regarding your course

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **NO** |  | **1** | **2** | **3** |
| 1 | gather as well as apply knowledge of health sciences |  |  | **x** |
| 2 | ask scientific questions and form hypothesis |  |  | **x** |
| 3 | search and interpret scientific literature |  |  |  **x** |
| 4 | design and conduct experiments as well as analyze and interpret the data |  |  **x** |  |
| 5 | learn how to use the experimental equipment effectively |  |  |  |
| 6 | function on multi-disciplinary teams |  |  | **x**  |
| 7 | identify, formulate, and solve medical problems |  |  |  **x** |
| 8 | use computer effectively both in conducting the experiments and analyzing the data |  |  |  |
| 9 | understand the impact of experimental solutions on national and international sciences |  |  | **x** |
| 10 | use effective written and oral communication/presentation skills |  |  | **x**  |
| 11 | get an understanding of professional and ethical responsibility |  |  |  **x** |
| 12 | get a recognition of the need for, and an ability to engage in lifelong learning |  |  | **x** |
| 13 | other (…ability to know basic concepts in medical education)  |  |  | **x** |
| 14 | other (……………………………………….) |  |  |  |

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| **Instructor Name****Prof.Dr.Sevilhan ARTAN** **Sign** |  **Date** |

|  |  |
| --- | --- |
| **COURSE CODE: 522403314** | **DEPARTMENT: MEDICAL GENETICS** |
| **COURSE NAME: IMPORTANCE OF CYTOGENETIC AND MOLECULAR MARKERS IN SOLID TUMORS** |
| **INSTRUCTOR NAME****Prof.Dr.Sevilhan ARTAN** | **COURSE LANGUAGE****Turkish: X****English: X** | **Course Catagory** |
| Technical | Medical | Other(……) |
|  |  |  | X |  |

**COURSE LEVEL**

|  |  |  |  |
| --- | --- | --- | --- |
| **PROPAEDEUTIC** | **M.SC.** | **Ph.D.** | **COURSE OF PROVINCE** |
| **** | **** | **X** |  |

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| --- | --- | --- |
| **SEMESTER** | **WEEKLY COURSE PERIOD** | **COURSE OF** |
| **Theoric** | **Practice** | **Laboratory** | **Credit** | **ECTS** | **TYPE** |
| Spring ****Autumn **X** | 2  | 2 |  |  3 | 7,5 | COMPULSORY ELECTIVE ** x** |
|  |
| **ASSESMENT CRITERIA** |
| **MID-TERM** | **ACTIVITY** | **Quantity** | **Percentage (%)** |
| 1st Mid-Term |  |  |
| 2 nd Mid- Term |  |  |
| Quiz |  |  |
| Homework |  |  |
| Project | 1 | 30 |
| Oral Exam |  |  |
| Other (………) | 1 | 20 |
| **FINAL** | Quiz |  |  |
| Homework |  |  |
| Project | **1** | **50** |
| Oral Exam |  |  |
| Other(……………….) |  |  |
| **MAKE-UP EXAM** | Oral | Written | Oral and Written | Multiple Choice |
|  |  |  |  |
| **PREREQUISITE(S)** |  |
| **COURSE CONTENT** |  Genetic perspective of solid tumors, molecular pathologies of specific cancer types |
| **COURSE AIMS** |  To teach importance of genetic markers and their diagnostic techniques in solid tumors  |
| **COURSE OBJECTIVES** |  Ability to evaluate specific types of solid tumors depending on diagnosed genetic markers |
| **TEXTBOOK(S)** | Lalloo F., Kerr B., Friedman JM, Evans DG Risk Assessment and Management in Cancer Genetics. Oxford University Press.2005 |
| **REFERENCES** | McPherson RA.,. Pincus M R,. Henry's Clinical Diagnosis and Management by Laboratory Methods. 2011 |

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| --- | --- |
|  |  **COURSE SYLLABUS** |
| **WEEK** |  **DATE** | **SUBJECTS/TOPICS** |
| 1 |  | Looking at the cancer from genetics perspective |
| 2 |  | Molecular Genetıc Pathology For Specıfıc Solıd Tumors By Major Organ |
| 3 |  |

|  |
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|  |
|  |  |  |
| Brain tumors and genetic markers: Glioblastoma Multiforme Oligodendroglioma |  |  |
|  |  |  |

 |
| 4 |  | Breast cancer and genetic markers: sporadic and hereditary |
| 5 |  | Lung cancer and genetic markers |
| 6 |  | Colorectal cancers and genetic markers: sporadic and hereditary |
| 7 |  | Gastric cancers and genetic markers |
| 8 |  | Bladder carcinoma and genetic markers |
| 9 |  | Ovarian cancer and genetic markers: molecular classification |
| 10 |  | Cytogenetic and molecular techniques in the analysis of solid tumors |
| 11 |  | Uses of microarray in cancer |
| 12 |  | Project: Applications of cytogenetic and molecular tests in the selected tumor types |
| 13 |  | Project: Applications of cytogenetic and molecular tests in the selected tumor types |
| 14 |  | Project: Applications of cytogenetic and molecular tests in the selected tumor types |
| 15 |  | Project: Applications of cytogenetic and molecular tests in the selected tumor types |
| 16 |  | Project: Applications of cytogenetic and molecular tests in the selected tumor types |

**PROGRAM QUTCOMES**

Place choose never(1), few(2) or many(3) regarding your course

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **NO** |  | **1** | **2** | **3** |
| 1 | gather as well as apply knowledge of health sciences |  |  | **X** |
| 2 | ask scientific questions and form hypothesis |  |  | **X** |
| 3 | search and interpret scientific literature |  |  |  **X** |
| 4 | design and conduct experiments as well as analyze and interpret the data |  |  |  **X** |
| 5 | learn how to use the experimental equipment effectively |  |  |  **X** |
| 6 | function on multi-disciplinary teams |  |  |  **X** |
| 7 | identify, formulate, and solve medical problems |  |  |  **X** |
| 8 | use computer effectively both in conducting the experiments and analyzing the data |  |  | **X** |
| 9 | understand the impact of experimental solutions on national and international sciences |  |  | **X** |
| 10 | use effective written and oral communication/presentation skills |  |  **X** |  |
| 11 | get an understanding of professional and ethical responsibility |  |  | **x**  |
| 12 | get a recognition of the need for, and an ability to engage in lifelong learning |  | **X** |  |
| 13 | Ability to know basic concepts in medical education |  |  | **X** |
| 14 | Ability to approach ethical problems in the center of basic concepts |  | **X** |  |

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| **Instructor Name****Sign** |  **Date** |

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| **COURSE CODE: 522403307** | **DEPARTMENT: MEDICAL GENETICS** |
| **COURSE NAME: METABOLİC DİSEASES AND MOLECULAR DİAGNOSİS** |
| **INSTRUCTOR NAME****Ass.Prof. Dr. Oğuz ÇİLİNGİR** | **COURSE LANGUAGE****Turkish: X****English: ** | **Course Catagory** |
| Technical | Medical | Other(……) |
|  |  |  | X |  |

**COURSE LEVEL**

|  |  |  |  |
| --- | --- | --- | --- |
| **PROPAEDEUTIC** | **M.SC.** | **Ph.D.** | **COURSE OF PROVINCE** |
| **** | **** | **X** |  |

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| --- | --- | --- |
| **SEMESTER** | **WEEKLY COURSE PERIOD** | **COURSE OF** |
| **Theoric** | **Practice** | **Laboratory** | **Credit** | **ECTS** | **TYPE** |
| Spring ****Autumn **X** | 2  | 2 |  |  3 | 7,5 | COMPULSORY ELECTIVE ** X** |
|  |
| **ASSESMENT CRITERIA** |
| **MID-TERM** | **ACTIVITY** | **Quantity** | **Percentage (%)** |
| 1st Mid-Term |  |  |
| 2 nd Mid- Term |  |  |
| Quiz |  |  |
| Homework |  |  |
| Project |  |  |
| Oral Exam | 1 | 50 |
| Other (………) |  |  |
| **FINAL** | Quiz |  |  |
| Homework |  |  |
| Project |  |  |
| Oral Exam | **1** | **50** |
| Other(……………….) |  |  |
| **MAKE-UP EXAM** | Oral | Written | Oral and Written | Multiple Choice |
|  |  |  |  |
| **PREREQUISITE(S)** |  |
| **COURSE CONTENT** | Classification of inherited metabolic diseases, gene-enzyme relations, diagnosis of metabolic diseases depending on mutation types  |
| **COURSE AIMS** | To gain knowledge and experience in approaching inherited metabolic diseases  |
| **COURSE OBJECTIVES** | Ability to determine the usage of tests according to mutation types of metabolic diseases and to give genetic counseling to families  |
| **TEXTBOOK(S)** |  Georg Friedrich . Inherited Metabolic Diseases: A Clinical Approach. Springer, 2010 |
| **REFERENCES** |  |

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| --- | --- |
|  |  **COURSE SYLLABUS** |
| **WEEK** |  **DATE** | **SUBJECTS/TOPICS** |
| 1 |  | Classification of inherited metabolic diseases |
| 2 |  | Gene-enzyme realtions  |
| 3 |  | Sample for inherited metabolic diseases: Phenylketonuria  |
| 4 |  | Molecular diagnosis of Phenylketonuria |
| 5 |  | Lab application: Molecular diagnosis of Phenylketonuria |
| 6 |  | Prenatal diagnosis of inherited metabolic diseases  |
| 7 |  |  |
| 8 |  |  |
| 9 |  |  |
| 10 |  |  |
| 11 |  |  |
| 12 |  |  |
| 13 |  |  |
| 14 |  |  |
| 15 |  |  |
| 16 |  |  |

**PROGRAM QUTCOMES**

Place choose never(1), few(2) or many(3) regarding your course

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **NO** |  | **1** | **2** | **3** |
| 1 | gather as well as apply knowledge of health sciences |  |  | **X** |
| 2 | ask scientific questions and form hypothesis |  | **X** |  |
| 3 | search and interpret scientific literature |  |  |  **X** |
| 4 | design and conduct experiments as well as analyze and interpret the data |  |  **X** |  |
| 5 | learn how to use the experimental equipment effectively |  |  |  **X** |
| 6 | function on multi-disciplinary teams |  |  |  **X** |
| 7 | identify, formulate, and solve medical problems |  |  |  **X** |
| 8 | use computer effectively both in conducting the experiments and analyzing the data |  |  |  |
| 9 | understand the impact of experimental solutions on national and international sciences |  |  | **X** |
| 10 | use effective written and oral communication/presentation skills |  |  |  |
| 11 | get an understanding of professional and ethical responsibility |  |  | **x**  |
| 12 | get a recognition of the need for, and an ability to engage in lifelong learning |  | **X** |  |
| 13 | Ability to know basic concepts in medical education |  |  | **X** |
| 14 | Ability to approach ethical problems in the center of basic concepts |  |  | **X** |

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| **Instructor Name****Ass.Prof. Dr. Oğuz ÇİLİNGİR** **Sign** |  **Date** |

|  |  |
| --- | --- |
| **COURSE CODE: 522403315** | **DEPARTMENT: MEDICAL GENETICS** |
| **COURSE NAME: NEUROMUSCULAR DİSEASES AND MOLECULAR MARKERS** |
| **INSTRUCTOR NAME****Ass.Prof. Dr. Oğuz ÇİLİNGİR** | **COURSE LANGUAGE****Turkish: X****English: ** | **Course Catagory** |
| Technical | Medical | Other(……) |
|  |  |  | X |  |

**COURSE LEVEL**

|  |  |  |  |
| --- | --- | --- | --- |
| **PROPAEDEUTIC** | **M.SC.** | **Ph.D.** | **COURSE OF PROVINCE** |
| **** | **** | **X** |  |

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| --- | --- | --- |
| **SEMESTER** | **WEEKLY COURSE PERIOD** | **COURSE OF** |
| **Theoric** | **Practice** | **Laboratory** | **Credit** | **ECTS** | **TYPE** |
| Spring ****Autumn **X ** | 3 | 2 |  |  4 | 7,5 | COMPULSORY ELECTIVE ** X** |
|  |
| **ASSESMENT CRITERIA** |
| **MID-TERM** | **ACTIVITY** | **Quantity** | **Percentage (%)** |
| 1st Mid-Term |  |  |
| 2 nd Mid- Term |  |  |
| Quiz |  |  |
| Homework |  |  |
| Project |  |  |
| Oral Exam | 1 | 50 |
| Other (………) |  |  |
| **FINAL** | Quiz |  |  |
| Homework |  |  |
| Project |  |  |
| Oral Exam | **1** | **50** |
| Other(……………….) |  |  |
| **MAKE-UP EXAM** | Oral | Written | Oral and Written | Multiple Choice |
|  |  |  |  |
| **PREREQUISITE(S)** |  |
| **COURSE CONTENT** |  |
| **COURSE AIMS** |  |
| **COURSE OBJECTIVES** |  |
| **TEXTBOOK(S)** |  |
| **REFERENCES** |  |

|  |  |
| --- | --- |
|  |  **COURSE SYLLABUS** |
| **WEEK** |  **DATE** | **SUBJECTS/TOPICS** |
| 1 |  |  |
| 2 |  |  |
| 3 |  |  |
| 4 |  |  |
| 5 |  |  |
| 6 |  |  |
| 7 |  |  |
| 8 |  |  |
| 9 |  |  |
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| 12 |  |  |
| 13 |  |  |
| 14 |  |  |
| 15 |  |  |
| 16 |  |  |

**PROGRAM QUTCOMES**

Place choose never(1), few(2) or many(3) regarding your course

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **NO** |  | **1** | **2** | **3** |
| 1 | gather as well as apply knowledge of health sciences |  |  | **X** |
| 2 | ask scientific questions and form hypothesis |  | **X** |  |
| 3 | search and interpret scientific literature |  |  |  **X** |
| 4 | design and conduct experiments as well as analyze and interpret the data |  |  **X** |  |
| 5 | learn how to use the experimental equipment effectively |  |  |  **X** |
| 6 | function on multi-disciplinary teams |  |  |  **X** |
| 7 | identify, formulate, and solve medical problems |  |  |  **X** |
| 8 | use computer effectively both in conducting the experiments and analyzing the data |  |  |  |
| 9 | understand the impact of experimental solutions on national and international sciences |  |  | **X** |
| 10 | use effective written and oral communication/presentation skills |  |  |  |
| 11 | get an understanding of professional and ethical responsibility |  |  | **x**  |
| 12 | get a recognition of the need for, and an ability to engage in lifelong learning |  | **X** |  |
| 13 | Ability to know basic concepts in medical education |  |  | **X** |
| 14 | Ability to approach ethical problems in the center of basic concepts |  |  | **X** |

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| **Instructor Name****Ass.Prof. Dr. Oğuz ÇİLİNGİR** **Sign** |  **Date** |

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| **COURSE CODE: 522404306** | **DEPARTMENT: MEDICAL GENETICS** |
| **COURSE NAME: GENETİC COUNSELLİNG PRİNCİPLES** |
| **INSTRUCTOR NAME****Ass.Prof. Dr. Oğuz ÇİLİNGİR** | **COURSE LANGUAGE****Turkish: X****English: ** | **Course Catagory** |
| Technical | Medical | Other(……) |
|  |  |  | X |  |

**COURSE LEVEL**

|  |  |  |  |
| --- | --- | --- | --- |
| **PROPAEDEUTIC** | **M.SC.** | **Ph.D.** | **COURSE OF PROVINCE** |
| **** | **** | **X** |  |

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| --- | --- | --- |
| **SEMESTER** | **WEEKLY COURSE PERIOD** | **COURSE OF** |
| **Theoric** | **Practice** | **Laboratory** | **Credit** | **ECTS** | **TYPE** |
| Spring **X**Autumn **** | 2 | 2 |  |  3 | 7,5 | COMPULSORY ELECTIVE **x ** |
|  |
| **ASSESMENT CRITERIA** |
| **MID-TERM** | **ACTIVITY** | **Quantity** | **Percentage (%)** |
| 1st Mid-Term |  |  |
| 2 nd Mid- Term |  |  |
| Quiz |  |  |
| Homework |  |  |
| Project |  |  |
| Oral Exam | 1 | 50 |
| Other (………) |  |  |
| **FINAL** | Quiz |  |  |
| Homework |  |  |
| Project |  |  |
| Oral Exam | **1** | **50** |
| Other(……………….) |  |  |
| **MAKE-UP EXAM** | Oral | Written | Oral and Written | Multiple Choice |
|  |  |  |  |
| **PREREQUISITE(S)** |  |
| **COURSE CONTENT** | Defination of genetic counselling, importance of genetic counselling, principles of genetic counselling, genetic counselling in autosomal and gonosomal chromosome abnormalities, genetic counselling in Mendelian and Non-Mendelian diseases, genetic counselling in prenatal diagnosis  |
| **COURSE AIMS** | To learn principles of genetic counselling and to gain an ability to give effective genetic counselling  |
| **COURSE OBJECTIVES** | Ability to evaluate the genetic analysis results and to relate them with case/families at risk  |
| **TEXTBOOK(S)** | Klug, WS., Cummings, MR., (Çeviri Editörü: Öner, C.) (2002). Genetik Kavramlar, Palme Yayıncılık.  |
| **REFERENCES** | Alberts, B., Bray, D., Lewis, J., Raff, M., Roberts, K., Watson, JD.(1994). Molecular Biology of The Cell, Garland Publishing, Inc. |

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| --- | --- |
|  |  **COURSE SYLLABUS** |
| **WEEK** |  **DATE** | **SUBJECTS/TOPICS** |
| 1 |  | What is genetic counselling?  |
| 2 |  | Ethics and genetic counselling |
| 3 |  | Principles of genetic counselling |
| 4 |  | Classification of genetic dşiseases |
| 5 |  | genetic counselling of autosomal chromosome diseases |
| 6 |  | genetic counselling of gonosomal chromosome diseases |
| 7 |  | Applications: genetic counselling in the cases with different chromosome abnormalities  |
| 8 |  | genetic counselling in single gene disorders |
| 9 |  | Applications: genetic counselling in the cases with single gene disorders |
| 10 |  | Genetic counselling in familial/hereditary cancer syndromes  |
| 11 |  | Applications: genetic counselling in variaos cancer cases |
| 12 |  | Genetic Counselling in non-mendelian diseases |
| 13 |  | Applications: genetic counselling to the cases with non-mendelian diseases |
| 14 |  |  |
| 15 |  |  |
| 16 |  |  |

**PROGRAM QUTCOMES**

Place choose never(1), few(2) or many(3) regarding your course

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **NO** |  | **1** | **2** | **3** |
| 1 | gather as well as apply knowledge of health sciences |  |  | **X** |
| 2 | ask scientific questions and form hypothesis |  | **X** |  |
| 3 | search and interpret scientific literature |  |  |  **X** |
| 4 | design and conduct experiments as well as analyze and interpret the data |  |  |  |
| 5 | learn how to use the experimental equipment effectively |  |  |  |
| 6 | function on multi-disciplinary teams |  |  | **X**  |
| 7 | identify, formulate, and solve medical problems |  |  |  **X** |
| 8 | use computer effectively both in conducting the experiments and analyzing the data |  |  |  |
| 9 | understand the impact of experimental solutions on national and international sciences |  |  | **X** |
| 10 | use effective written and oral communication/presentation skills |  |  |  **X** |
| 11 | get an understanding of professional and ethical responsibility |  |  | **X**  |
| 12 | get a recognition of the need for, and an ability to engage in lifelong learning |  |  | **X** |
| 13 | Ability to know basic concepts in medical education |  |  | **X** |
| 14 | Ability to approach ethical problems in the center of basic concepts |  |  | **X** |

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| **Instructor Name****Ass.Prof. Dr. Oğuz ÇİLİNGİR** **Sign** |  **Date** |

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| **COURSE CODE: 522404311** | **DEPARTMENT: MEDICAL GENETICS** |
| **COURSE NAME: ISCN NOMENCLATURE İN CLİNİCAL CYTOGENETİCS** |
| **INSTRUCTOR NAME**Ass.Prof. Dr. Beyhan DURAK ARAS | **COURSE LANGUAGE****Turkish: X****English: ** | **Course Catagory** |
| Technical | Medical | Other(……) |
|  |  |  | X |  |

**COURSE LEVEL**

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| **PROPAEDEUTIC** | **M.SC.** | **Ph.D.** | **COURSE OF PROVINCE** |
| **** | **** | **X** |  |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | **COURSE OF** |
| **Theoric** | **Practice** | **Laboratory** | **Credit** | **ECTS** | **TYPE** |
| Spring **x**Autumn  | 1 | 2 |  | 2 | 7,5 | COMPULSORY ELECTIVE ** X** |
|  |
| **ASSESMENT CRITERIA** |
| **MID-TERM** | **ACTIVITY** | **Sayı** | **Yüzdesi (%)** |
| 1st Mid-Term | 1 | 50 |
| 2 nd Mid- Term |  |  |
| Quiz |  |  |
| Homework |  |  |
| Project |  |  |
| Oral Exam |  |  |
| Other (………) |  |  |
| **FINAL** | Quiz |  |  |
| Homework |  |  |
| Project |  |  |
| Oral Exam | **1** | **50** |
| Other(……………….) |  |  |
| **MAKE-UP EXAM** | Oral | Written | Oral and Written | Multiple Choice |
|  |  |  |  |
| **PREREQUISITE(S)** |  |
| **COURSE CONTENT** | Writing clinical cytogenetics results according to 2013 Cytogenetics Nomenclature and interpretation of the results  |
| **COURSE AIMS** | Normal karyotypeISCN Nomenclature in numerical chromosome abnormalitiesISCN Nomenclature in structural chromosome abnormalities ISCN Nomenclature for FISH analysis results |
| **COURSE OBJECTIVES** | To use international nomenclature 2013 in writing clinical cytogenetics results |
| **TEXTBOOK(S)** | ISCN 2013Nomenclature. Karger and Cytogenetics and Genome Research |
| **REFERENCES** | Gardner RJM, Sutkerland GR. Chromosome abnormalities and genetic counseling. Oxford University Pres, 1996 |

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|  |  **COURSE SYLLABUS** |
| **WEEK** |  **DATE** | **SUBJECTS/TOPICS** |
| 1 |  | Overview of Numerical chromosome abnormalities  |
| 2 |  | Writing Numerical chromosome abnormalities by ISCN Nomenclature 2013 |
| 3 |  | Writing Numerical chromosome abnormalities by ISCN Nomenclature 2013 |
| 4 |  | Writing mosaic numerical chromosome abnormalities by ISCN Nomenclature 2013 |
| 5 |  | Overview of structural chromosome abnormalities |
| 6 |  | Writing single translocations by ISCN Nomenclature 2013 |
| 7 |  | Writing double translocations by ISCN Nomenclature 2013 |
| 8 |  | Writing complex translocations by ISCN Nomenclature 2013 |
| 9 |  | Writing inversions by ISCN Nomenclature 2013 |
| 10 |  | Writing monoclonal abnormalities by ISCN Nomenclature 2013 |
| 11 |  | Writing polyclonal abnormalities by ISCN Nomenclature 2013 |
| 12 |  | Writing complex tumor karyotypes by ISCN Nomenclature 2013 |
| 13 |  | Writing complex tumor karyotypes by ISCN Nomenclature 2013 |
| 14 |  | Writing molecular cyrogenetics results by ISCN Nomenclature 2013 |
| 15 |  | Array CGH nomenklaturu |
| 16 |  |  |

**PROGRAM QUTCOMES**

Place choose never(1), few(2) or many(3) regarding your course

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **NO** |  | **1** | **2** | **3** |
| 1 | gather as well as apply knowledge of health sciences |  |  | **x** |
| 2 | ask scientific questions and form hypothesis |  |  |  |
| 3 | search and interpret scientific literature |  |  |  **x** |
| 4 | design and conduct experiments as well as analyze and interpret the data |  |  | **x**  |
| 5 | learn how to use the experimental equipment effectively |  |  |  |
| 6 | function on multi-disciplinary teams |  |  |  |
| 7 | identify, formulate, and solve medical problems |  |  |  |
| 8 | use computer effectively both in conducting the experiments and analyzing the data |  |  |  |
| 9 | understand the impact of experimental solutions on national and international sciences |  |  |  |
| 10 | use effective written and oral communication/presentation skills |  |  |  |
| 11 | get an understanding of professional and ethical responsibility |  |  |  |
| 12 | get a recognition of the need for, and an ability to engage in lifelong learning |  |  |  |
| 13 | Ability to know basic concepts in medical education |  |  | **x** |
| 14 | Ability to approach ethical problems in the center of basic concepts |  |  |  |

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| **Instructor Name****Ass.Prof. Dr.** Beyhan DURAK ARAS**Sign** |  **Date** |

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| **COURSE CODE: 522404314** | **DEPARTMENT: MEDICAL GENETICS** |
| COURSE NAME: GENOTYPE-PHENOTYPE CORRELATİONS İN NEURODEGENERATİVE DİSEASES |
| **INSTRUCTOR NAME****Prof.Dr.B.Demet** **ÖZBABALIK ADAPINAR** | **COURSE LANGUAGE****Turkish: x****English:**  | **Course Catagory** |
| Technical | Medical | Other(……) |
|  |  | x |  |
|  |  |  |  |  |  |

**COURSE LEVEL**

|  |  |  |  |
| --- | --- | --- | --- |
| **PROPAEDEUTIC** | **M.SC.** | **Ph.D.** | **COURSE OF PROVINCE** |
|  |  | **X** |  |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | **COURSE OF** |
| **Theoric** | **Practice** | **Laboratory** | **Credit** | **ECTS** | **TYPE** |
| Spring **X**Autumn  | 2  | 2  |  |  3 |  7,5 | ZORUNLU SEÇMELİ  **X**  |
|  |
| **ASSESMENT CRITERIA** |
| **MID-TERM** | **ACTIVITY** | **Quantity** | **Percentage (%)** |
| 1st Mid-Term |  1 | 50  |
| 2 nd Mid- Term |  |  |
| Quiz |  |  |
| Homework |  |  |
| Project |  |  |
| Oral Exam |  |  |
| Other (………) |  |  |
| **FINAL** | Quiz |  |  |
| Homework |  |  |
| Project |  |  |
| Oral Exam | **1** | **% 50** |
| Other(……………….) |  |  |
| **MAKE-UP EXAM** | Oral | Written | Oral and Written | Multiple Choice |
|  |  |  |  |
| **PREREQUISITE(S)** |  |
| **COURSE CONTENT** | Definition and classification of neurodegenerative disease, common phenotypic features of neurodegenerative disease, genetic biomarkers of neurodegenerative diseases and their relations with phenotypic features  |
| **COURSE AIMS** | Ability to teach terms related with neurodegenerations, common and specific clinic features of neurodegenerative diseases, roles and importance of genetic biomarkers in familial and sporadic neurodegenerative diseases, geneic biomarkers and their effects on clinical variations.  |
| **COURSE OBJECTIVES** | Ability to understand and evaluate the correlations of genetic biomarkers with phenotypic variations of neurodegenerative diseases,  |
| **TEXTBOOK(S)** | J. Cummings, J. Hardy, M. Poncet Genotype - Proteotype - Phenotype Relationships in Neurodegenerative Diseases. Springer. 2005 |
| **REFERENCES** | Recently published reviews |

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|  |  **COURSE SYLLABUS** |
| **WEEK** |  **DATE** | **SUBJECTS/TOPICS** |
| 1 |  | Neurodegenerative Disorders as Proteinopathies: Phenotypic Relationships.-  |
| 2 |  | Towards a Molecular Classification of Neurodegenerative Disease. |
| 3 |  |  Racial and Ethnic Influences on the Expression of the Genotype in Neurodegenerative Diseases. |
| 4 |  | Causes and Consequences of Oxidative Stress in Neurodegenerative Diseases. |
| 5 |  | Early Onset Familial Alzheimer’s Disease: Is a Mutation Predictive of Pathology?. |
| 6 |  | Identification of Genes that Modify the Age of Onset in a Large Familial Alzheimer’s Disease Kindred. |
| 7 |  | Identification of Genes that Modify the Age of Onset in a Large Familial Alzheimer’s Disease Kindred. |
| 8 |  | Midterm |
| 9 |  | Variable Phenotype of Alzheimer’s Disease with Spastic Paraparesis. |
| 10 |  | Presenilin Mutations: Variations in the Behavioral Phenotype with an Emphasis on the Frontotemporal Dementia Phenoytpe. |
| 11 |  | Presenilin Mutations: Variations in the Behavioral Phenotype with an Emphasis on the Frontotemporal Dementia Phenoytpe. |
| 12 |  | Frontotemporal Dementias: Genotypes and Phenotypes. |
| 13 |  | Chromosome 17-Linked Frontotemporal Dementia with Ubiquitin-Positive, tau-Negative Inclusions.-  |
| 14 |  | Variations of the Phenotype in Frontotemporal Dementias. |
| 15 |  | Variations of the Phenotype in Frontotemporal Dementias. |
| 16 |  |  Phenotype/Genotype Correlations in Parkinson’s Disease. |
|  |  | Final |

**PROGRAM QUTCOMES**

Place choose never(1), few(2) or many(3) regarding your course

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **NO** |  | **1** | **2** | **3** |
| 1 | gather as well as apply knowledge of health sciences |  | **X**  |  |
| 2 | ask scientific questions and form hypothesis |  | **X** |  |
| 3 | search and interpret scientific literature |  |  |  **X** |
| 4 | design and conduct experiments as well as analyze and interpret the data |  |  | **X**  |
| 5 | learn how to use the experimental equipment effectively |  |  |  |
| 6 | function on multi-disciplinary teams |  |  | **X**  |
| 7 | identify, formulate, and solve medical problems |  | **X** |  |
| 8 | use computer effectively both in conducting the experiments and analyzing the data |  |  | **X** |
| 9 | understand the impact of experimental solutions on national and international sciences |  |  | **X** |
| 10 | use effective written and oral communication/presentation skills |  | **X**  |  |
| 11 | get an understanding of professional and ethical responsibility |  | **X**  |  |
| 12 | get a recognition of the need for, and an ability to engage in lifelong learning |  |  | **X** |
| 13 | ability to know basic clinical terms in medical education)  |  |  | **X** |
| 14 | other (……………………………………….) |  |  |  |

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| **Instructor Name Sign****Prof.Dr.B.Demet****ÖZBABALIK ADAPINAR** |  **Date** |