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| Course Code | Course Name | ECTS | T+U+L | T/S | Language |
| Fall Semester | | | | | |
| 522403301 | [MOLECULAR BASIS OF HEREDITED DISEASES](#DERS522401301) | 7.5 | 2+2+0 | COMPULSORY | TURKISH |
| 522405302 | [POPULATION GENETICS](#DERS522401302) | 5.0 | 2+0+0 | ELECTIVE | TURKISH |
| 522403303 | [HYBRIDIZATION TECHNIQUES AND APPLICATION AREAS IN MOLECULAR GENETICS](#DERS522401303) | 7.5 | 2+2+0 | ELECTIVE | TURKISH |
| 522405304 | [MOLECULAR BASIS OF GENE REGULATION](#DERS522401304) | 5.0 | 2+0+0 | ELECTIVE | TURKISH |
| 522403305 | [PRENATAL DIAGNOSIS TECHNIQUES](#DERS522401305) | 7.5 | 2+2+0 | ELECTIVE | TURKISH |
| 522405306 | MITOCHONDRIAL GENOME AND ITS MUTATIONS | 5.0 | 2+0+0 | ELECTIVE | TURKISH |
| 522403307 | [METABOLIC DISEASES AND THEIR MOLECULAR DIAGNOSIS](#DERS522401307) | 7.5 | 2+2+0 | ELECTIVE | TURKISH |
| 522405308 | CONCEPT OF MUTATION IN MEDICAL GENETICS | 2.5 | 1+0+0 | ELECTIVE | TURKISH |
| 522405309 | [PCR AND ITS TYPES](#DERS522401309) | 2.5 | 1+1+0 | ELECTIVE | TURKISH |
| 522405310 | [MOLECULAR SCAN TECHNIQUES](#DERS522401310) | 2.5 | 1+1+0 | ELECTIVE | TURKISH |
| 522403311 | [ADVANCED CYTOGENETIC METHODS](#DERS522401311) | 7.5 | 2+2+0 | ELECTIVE | TURKISH |
| 522405312 | IMPORTANCE OF INTERCELLULAR SIGNALING MECHANISMS IN MEDICAL GENETICS | 5.0 | 2+0+0 | ELECTIVE | TURKISH |
| 522403313 | [CYTOGENETICS OF LEUKEMIA](#DERS522401313) | 7.5 | 2+2+0 | ELECTIVE | TURKISH |
| 522403314 | [IMPORTANCE OF CYTOGENETIC AND MOLECULAR MARKERS IN SOLID TUMORS](#DERS522401314) | 7.5 | 2+2+0 | ELECTIVE | TURKISH |
| 522403315 | [NEUROMUSCULAR DISEASES AND THEIR MOLECULAR GENETIC MARKERS](#DERS522401315) | 7.5 | 3+2+0 | ELECTIVE | TURKISH |
| 522401600 | [SPECIALIZED](file:///C:\Users\User\Desktop\ECTS%20BİLGİ%20KILAVUZU%2020.08.2014\ECTS%20BİLGİ%20KILAVUZU%20-%20Kopya\TIBBİ%20GENETİK%20AKTS\TIBBİ%20GENETİK%20%20YL%20TR.docx#DERS522401203) FIELD COURSE | 5 | 3+0+0 | COMPULSORY | TURKISH |
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| Spring Term | | | | | |
| 522404302 | [CANCER GENETICS](#DERS522402302) | 7.5 | 2+2+0 | COMPULSORY | TURKISH |
| 522404305 | [CHROMOSOME DISEASES AND DIAGNOSIS METHODS](#DERS522402305) | 7.5 | 2+2+0 | COMPULSORY | TURKISH |
| 522404301 | TISSUE CULTURE PRINCIPLES | 7.5 | 2+2+0 | ELECTIVE | TURKISH |
| 522406303 | DEVELOPMENTAL GENETICS AND ITS MOLECULAR BASIS | 5.0 | 2+0+0 | ELECTIVE | TURKISH |
| 522406304 | [DNA REPAIR MECHANISMS](#DERS522402304) | 5.0 | 2+0+0 | ELECTIVE | TURKISH |
| 522404306 | [GENETIC COUNSELING PRINCIPLES](#DERS522402306) | 7.5 | 2+2+0 | ELECTIVE | TURKISH |
| 522406307 | CONNECTION ANALYSIS | 5.0 | 2+0+0 | ELECTIVE | TURKISH |
| 522406308 | GENE THERAPY | 5.0 | 2+0+0 | ELECTIVE | TURKISH |
| 522404309 | PRINCIPLES OF PREIMPLANTATION GENETIC DIAGNOSIS | 7.5 | 2+2+0 | ELECTIVE | TURKISH |
| 522406310 | ADVANCED MOLECULAR CYTOGENETIC METHODS | 5.0 | 1+2+0 | ELECTIVE | TURKISH |
| 522406311 | [INTERNATIONAL WRITING RULES AND INTERPRETATION IN CLINICAL CYTOGENETICS](#DERS522402311) | 5.0 | 1+2+0 | ELECTIVE | TURKISH |
| 522406312 | [ARRAY TECHNOLOGY](#DERS522402312) | 5.0 | 2+0+0 | ELECTIVE | TURKISH |
| 522406313 | [MOLECULAR PERSPECTIVE ON NEUROSCIENCE](#DERS522402313) | 5.0 | 2+0+0 | ELECTIVE | TURKISH |
| 522404314 | [NEURODEGENERATIVE DISEASE GENOTYPE-PHENOTYPE RELATIONSHIP](#DERS522402314) | 7.5 | 2+2+0 | ELECTIVE | TURKISH |
| 522401600 | [SPECIALIZED](file:///C:\Users\User\Desktop\ECTS%20BİLGİ%20KILAVUZU%2020.08.2014\ECTS%20BİLGİ%20KILAVUZU%20-%20Kopya\TIBBİ%20GENETİK%20AKTS\TIBBİ%20GENETİK%20%20YL%20TR.docx#DERS522401203) FIELD COURSE | 5 | 3+0+0 | COMPULSORY | TURKISH |
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| **COURSE CODE:** **522403301** | | **DEPARTMENT: MEDICAL GENETICS** | | | |
| **COURSE NAME: MOLECULAR BASIS OF HEREDITED DISEASES** | | | | | |
| **TEACHING THE COURSE**  **STAFF**  Prof. Dr. Oğuz ÇİLİNGİR | **COURSE LANGUAGE**  **Turkish: X**  **English: X** | | **Category of the Course** | | |
| Technical | Medical | Other( …… ) |
|  |  | |  | X |  |

**COURSE LEVEL**

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| **SCIENTIFIC PREPARATION** | **DEGREE** | **DOCTORATE** | **SPECIALIZED FIELD COURSE** |
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| **SEMESTER** | **WEEKLY CLASS HOURS** | | | | **YOUR COURSE** | | | |
| **Theoretical** | **APPLICATION** | | **Lab** | **Credit** | **ECTS** | **TYPE** | |
| Spring ****  Fall X | 2 |  | | 2 | 3 | 7.5 | MANDATORY ELECTIVE  **X** | |
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| **EVALUATION CRITERIA** | | | | | | | | |
| **SEMESTER ACTIVITIES** | | | **Type of activity** | | | | **Number** | **Percentage (%)** |
| Midterm Exam | | | | **1** | **50** |
| Quiz | | | |  |  |
| Homework | | | |  |  |
| Project | | | |  |  |
| Oral examination | | | |  |  |
| Other ( ……… ) | | | |  |  |
| **Final Exam** | | | | | **50** |
| **PREREQUISITE(S)** | | |  | | | | | |
| **SHORT COURSE CONTENT** | | | Definition of heredity, grouping of hereditary diseases, molecular pathology of monogenic diseases, molecular pathology in non-mendelian and multifactorial diseases, approaches to molecular diagnosis of mendelian and non-mendelian diseases and interpretation of laboratory findings to the clinic. | | | | | |
| **COURSE AIMS** | | | Learning the types of hereditary diseases, knowing the molecular pathologies of diseases, diagnostic methods and being able to interpret laboratory findings. | | | | | |
| **COURSE CONTRBUTION TO THE PROFESSIONAL EDUCATION OBJECTIVES** | | | Learning the molecular pathologies that cause Chromosome/Single Gene Diseases and being able to interpret analysis data by determining diagnostic methods. | | | | | |
| **LEARNING OUTCOMES OF THE COURSE** | | | Learning the molecular pathologies that cause Chromosome/Single Gene Diseases and being able to interpret analysis data by determining diagnostic methods. | | | | | |
| **TEXTBOOK** | | | Evelyn B. Kelly : Encyclopedia of Human Genetics andDisease . ABC- CLIO,LLC . 2013 | | | | | |
| **OTHER REFERENCES** | | | Roger N. Rosenberg TheMolecularandGeneticBasis of NeurologicandPsychiatricDisease . Lippincott-Williams&Wilkins , 2008 | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | |  | | | | | |

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|  | **WEEKLY PLAN OF THE COURSE** | |
| **WEEK** | **HISTORY** | **TOPICS COVERED** |
| 1 |  | Hereditary disease: Definition, content |
| 2 |  | Inheritance patterns in hereditary diseases |
| 3 |  | Inheritance patterns in hereditary diseases |
| 4 |  | monogenic diseases |
| 5 |  | Monogenic diseases and clinical approach |
| 6 |  | Monogenic diseases and clinical approach |
| 7 |  | Non-Mendelian inheritance and diseases |
| 8 |  | QUİZ |
| 9 |  | Diseases with multifactorial inheritance |
| 10 |  | Genetics of common diseases |
| 11 |  | Direct mutation analyses in genetically based diseases |
| 12 |  | Indirect mutation analyses in genetically based diseases |
| 13 |  | Neurodegenerative diseases |
| 14 |  | Cystic fibrosis |
| 15 |  | Thalassemias |
| 16 |  | FİNAL EXAM |

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

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| **Instructor of the Course**  Assoc. Prof. Dr. Oğuz ÇİLİNGİR  **Signature** | **History** |

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| **COURSE CODE:** **522405302** | | **DEPARTMENT: MEDICAL GENETICS** | | | |
| **COURSE NAME: POPULATION GENETICS** | | | | | |
| **TEACHING THE COURSE**  **STAFF** | **COURSE LANGUAGE**  **Turkish: X**  **English: X** | | **Category of the Course** | | |
| Technical | Medical | Other( …… ) |
|  |  | |  | X |  |

**COURSE LEVEL**

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| **SCIENTIFIC PREPARATION** | **DEGREE** | **DOCTORATE** | **SPECIALIZED FIELD COURSE** |
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| **SEMESTER** | **WEEKLY CLASS HOURS** | | | | **YOUR COURSE** | | | |
| **Theoretical** | **APPLICATION** | | **Lab** | **Credit** | **ECTS** | **TYPE** | |
| Spring ****  Fall X | 2 |  | |  | 2 | 5.0 | MANDATORY ELECTIVE  ** X** | |
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| **EVALUATION CRITERIA** | | | | | | | | |
| **SEMESTER ACTIVITIES** | | | **Type of activity** | | | | **Number** | **Percentage (%)** |
| Midterm Exam | | | | **1** | **50** |
| Quiz | | | |  |  |
| Homework | | | |  |  |
| Project | | | |  |  |
| Oral examination | | | |  |  |
| Other ( ……… ) | | | |  |  |
| **Final Exam** | | | | | **50** |
| **PREREQUISITE(S)** | | |  | | | | | |
| **SHORT COURSE CONTENT** | | | Factors and their effects that change the gene pool frequencies in the population | | | | | |
| **COURSE AIMS** | | | Examining the factors that change the gene pool frequencies in the population . | | | | | |
| **COURSE CONTRBUTION TO THE PROFESSIONAL EDUCATION OBJECTIVES** | | | Knowing the effects of mutation, migration, non-random marriages, and genetic drift on the population gene pool. | | | | | |
| **LEARNING OUTCOMES OF THE COURSE** | | | Knowing the effects of mutation, migration, non-random marriages, and genetic drift on the population gene pool. | | | | | |
| **TEXTBOOK** | | | Matthew Hamilton. PopulationGenetics . Wiley -Blackwell , 2009. | | | | | |
| **OTHER REFERENCES** | | | John H. Gillespie . Population Genetics: A Concise Guide. 2010 | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | |  | | | | | |

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|  | **WEEKLY PLAN OF THE COURSE** | |
| **WEEK** | **HISTORY** | **TOPICS COVERED** |
| 1 |  | Definitions: Genotype / Phenotype / Population / |
| 2 |  | Genotype Frequencies |
| 3 |  | Hardy-Weinberg Law |
| 4 |  | Applications of the Hardy-Weinberg Law |
| 5 |  | Factors that change gene frequency |
| 6 |  | Consanguineous marriages: Types - Coefficients - Risks |
| 7 |  | Genetic drift and its effect on population size |
| 8 |  | QUİZ |
| 9 |  | Mutations and their effects on population structure |
| 10 |  | Natural selection |
| 11 |  | Effects of natural selection on diallelic locus |
| 12 |  | Genetic Variation |
| 13 |  | Polymorphism |
| 14 |  |  |
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| 16 |  | FINAL EXAM |

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

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| **Instructor of the Course**  **Signature** | **History** |

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| **COURSE CODE:** **522403303** | | **DEPARTMENT: MEDICAL GENETICS** | | | |
| **COURSE NAME: HYBRIDIZATION TECHNIQUES AND APPLICATION AREAS IN MOLECULAR GENETICS** | | | | | |
| **TEACHING THE COURSE**  **STAFF**  Prof. Dr. Oğuz ÇİLİNGİR | **COURSE LANGUAGE**  **Turkish: X**  **English: X** | | **Category of the Course** | | |
| Technical | Medical | Other( …… ) |
|  |  | |  | X |  |

**COURSE LEVEL**

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| **SCIENTIFIC PREPARATION** | **DEGREE** | **DOCTORATE** | **SPECIALIZED FIELD COURSE** |
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| **SEMESTER** | **WEEKLY CLASS HOURS** | | | | **YOUR COURSE** | | | |
| **Theoretical** | **APPLICATION** | | **Lab** | **Credit** | **ECTS** | **TYPE** | |
| Spring ****  Fall X | 2 |  | | 2 | 3 | 7.5 | MANDATORY ELECTIVE  **X** | |
|  | | | | | | | | |
| **EVALUATION CRITERIA** | | | | | | | | |
| **SEMESTER ACTIVITIES** | | | **Type of activity** | | | | **Number** | **Percentage (%)** |
| Midterm Exam | | | | **1** | **50** |
| Quiz | | | |  |  |
| Homework | | | |  |  |
| Project | | | |  |  |
| Oral examination | | | |  |  |
| Other ( ……… ) | | | |  |  |
| **Final Exam** | | | | | **50** |
| **PREREQUISITE(S)** | | |  | | | | | |
| **SHORT COURSE CONTENT** | | | Types, applications and interpretation of results of molecular techniques related to gene structure and expression. | | | | | |
| **COURSE AIMS** | | | Learning the basics and application areas of molecular techniques that provide DNA and mRNA analysis | | | | | |
| **COURSE CONTRBUTION TO THE PROFESSIONAL EDUCATION OBJECTIVES** | | | Determining the molecular technique to be applied according to the type of disease and interpreting its results | | | | | |
| **LEARNING OUTCOMES OF THE COURSE** | | | Determining the molecular technique to be applied according to the type of disease and interpreting its results | | | | | |
| **TEXTBOOK** | | | NucleicAcidsHybridization : Modern Applications editor: Anton A. Buzdin, Sergey Lukyanov . 2008 | | | | | |
| **OTHER REFERENCES** | | |  | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | |  | | | | | |

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|  | **WEEKLY PLAN OF THE COURSE** | |
| **WEEK** | **HISTORY** | **TOPICS COVERED** |
| 1 |  | mRNA and protein coding genes |
| 2 |  | Genome identification parameters |
| 3 |  | Vectors and Cloning |
| 4 |  | Restriction enzymes |
| 5 |  | Molecular cloning |
| 6 |  | DNA labeling |
| 7 |  | Molecular Hybridization : Purpose, principles |
| 8 |  | QUİZ |
| 9 |  | Characterization of the gene |
| 10 |  | DNA sequencing / PCR |
| 11 |  | APPLICATION |
| 12 |  | APPLICATION |
| 13 |  | Whole Genome sequencing |
| 14 |  | Expression Analysis |
| 15 |  | APPLICATION |
| 16 |  | FINAL EXAM |

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

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| **Instructor of the Course**  Assoc. Prof. Dr. Oğuz ÇİLİNGİR  **Signature** | **History** |

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| **COURSE CODE:** **522405304** | | **DEPARTMENT: MEDICAL GENETICS** | | | |
| **COURSE NAME: MOLECULAR BASIS OF GENE REGULATION** | | | | | |
| **TEACHING THE COURSE**  **STAFF** | **COURSE LANGUAGE**  **Turkish: X**  **English: X** | | **Category of the Course** | | |
| Technical | Medical | Other( …… ) |
|  |  | |  | X |  |

**COURSE LEVEL**

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| **SCIENTIFIC PREPARATION** | **DEGREE** | **DOCTORATE** | **SPECIALIZED FIELD COURSE** |
| **** |  | **X** | **** |

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| **SEMESTER** | **WEEKLY CLASS HOURS** | | | | **YOUR COURSE** | | | |
| **Theoretical** | **APPLICATION** | | **Lab** | **Credit** | **ECTS** | **TYPE** | |
| Spring  Fall X | 2 |  | |  | 2 | 5.0 | MANDATORY ELECTIVE  ** X** | |
|  | | | | | | | | |
| **EVALUATION CRITERIA** | | | | | | | | |
| **SEMESTER ACTIVITIES** | | | **Type of activity** | | | | **Number** | **Percentage (%)** |
| Midterm Exam | | | | **1** | **50** |
| Quiz | | | |  |  |
| Homework | | | |  |  |
| Project | | | |  |  |
| Oral examination | | | |  |  |
| Other ( ……… ) | | | |  |  |
| **Final Exam** | | | | | **50** |
| **PREREQUISITE(S)** | | |  | | | | | |
| **SHORT COURSE CONTENT** | | | The structure of the gene, functional elements in the gene, protein synthesis, factors that quickly affect protein synthesis , examination of all mechanisms that play a role in gene regulation . | | | | | |
| **COURSE AIMS** | | | the criteria that play a role in gene expression and understanding the effects of genes on cell differentiation. | | | | | |
| **COURSE CONTRBUTION TO THE PROFESSIONAL EDUCATION OBJECTIVES** | | | Molecular mechanisms of gene expression  cells in different tissues to perform general and specific functions  the mechanisms . | | | | | |
| **LEARNING OUTCOMES OF THE COURSE** | | | Molecular mechanisms of gene expression  cells in different tissues to perform general and specific functions  the mechanisms . | | | | | |
| **TEXTBOOK** | | | Micklos DA, Freyer GA, Crotty DA. (2003). DNA Science.Cold Spring HarborLab Pres. | | | | | |
| **OTHER REFERENCES** | | | Alberts B, Bray D, Lewis J, Raff M, Roberts K, Waton JD. (1994). MolecularBiology of the Cell. GarlandPubl . | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | |  | | | | | |

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|  | **WEEKLY PLAN OF THE COURSE** | |
| **WEEK** | **HISTORY** | **TOPICS COVERED** |
| 1 |  | Structure of the gene |
| 2 |  | Neighboring gene structures |
| 3 |  | Elements in functional genes |
| 4 |  | Factors affecting protein synthesis |
| 5 |  | Polyadenylation |
| 6 |  | Transcript processing and modification |
| 7 |  | Translation |
| 8 |  | QUİZ |
| 9 |  | Protein transport |
| 10 |  | Control of protein stability |
| 11 |  | Epigenetics and methylation |
| 12 |  | Histoneacetylation |
| 13 |  | DNA methylation effects |
| 14 |  | Other Epigenetic mechanisms and their effects |
| 15 |  |  |
| 16 |  | FINAL EXAM |

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

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| **Instructor of the Course**  **Signature** | **History** |

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| **COURSE CODE:** **522403305** | | **DEPARTMENT: MEDICAL GENETICS** | | | |
| **COURSE NAME: PRENATAL DIAGNOSIS TECHNIQUES** | | | | | |
| **TEACHING THE COURSE**  **STAFF**  **Prof. Dr. Sevilhan ARTAN** | **COURSE LANGUAGE**  **Turkish: X**  **English: X** | | **Category of the Course** | | |
| Technical | Medical | Other( …… ) |
|  |  | |  | X |  |

**COURSE LEVEL**

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| **SCIENTIFIC PREPARATION** | **DEGREE** | **DOCTORATE** | **SPECIALIZED FIELD COURSE** |
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| **SEMESTER** | **WEEKLY CLASS HOURS** | | | | **YOUR COURSE** | | | |
| **Theoretical** | **APPLICATION** | | **Lab** | **Credit** | **ECTS** | **TYPE** | |
| Spring X | 2 | 2 | |  | 3 | 7.5 | MANDATORY ELECTIVE  **X** | |
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| **EVALUATION CRITERIA** | | | | | | | | |
| **SEMESTER ACTIVITIES** | | | **Type of activity** | | | | **Number** | **Percentage (%)** |
| I. Midterm Exam | | | | 1 | 30 |
| 2nd Midterm Exam | | | |  |  |
| Quiz | | | |  |  |
| Homework | | | |  |  |
| Project | | | | 1 | 20 |
| Oral examination | | | |  |  |
| Other ( ……… ) | | | | |  |
| **PREREQUISITE(S)** | | |  | | | | | |
| **SHORT COURSE CONTENT** | | | the concept and philosophy of prenatal diagnosis of genetic diseases , examining the indications for prenatal diagnosis in detail, evaluating prenatal diagnosis techniques according to period and indication , addressing the issues to be considered in informing the family before and after prenatal diagnosis, examining the latest developments in prenatal diagnosis. | | | | | |
| **COURSE AIMS** | | | the indications and techniques of prenatal diagnosis , and to provide the ability to guide families at risk. | | | | | |
| **COURSE CONTRBUTION TO THE PROFESSIONAL EDUCATION OBJECTIVES** | | | Being able to guide families at risk by knowing the indications for prenatal diagnosis | | | | | |
| **LEARNING OUTCOMES OF THE COURSE** | | | Being able to guide families at risk by knowing the indications for prenatal diagnosis | | | | | |
| **TEXTBOOK** | | | Milunsky A. (2009). GeneticDisordersandtheFetus , John Hopkins UniversityPress | | | | | |
| **OTHER REFERENCES** | | | Gardner RJM, Sutherland GR. (2004). Chromosomeabnormalitiesandgeneticcounselling . Oxford University Pres. Steven L. Gersen, Martha B. Keagle. ThePrinciples of ClinicalCytogenetics . Springer.2004 | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | |  | | | | | |

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|  | **WEEKLY PLAN OF THE COURSE** | |
| **WEEK** | **HISTORY** | **TOPICS COVERED** |
| 1 |  | Prenatal Diagnosis: Definition, Content, Philosophy |
| 2 |  | Indications for Prenatal Diagnosis |
| 3 |  | Indications for Prenatal Diagnosis |
| 4 |  | Prenatal Diagnostic Methods: Non-invasive - US anomalies |
| 5 |  | Double, Triple scanning systems |
| 6 |  | Prenatal Diagnostic Methods: Invasive |
| 7 |  | Amniocentesis : Cell culture, Chromosome/Molecular diagnosis |
| 8 |  | QUİZ |
| 9 |  | Fetal Blood Sampling: Chromosome/Molecular diagnosis |
| 10 |  | Application: Chromosome/gene analysis from fetal samples |
| 11 |  | Prenatal diagnosis of chromosomal abnormalities |
| 12 |  | Prenatal diagnosis of sex chromosome abnormalities |
| 13 |  | Prenatal diagnosis of single gene diseases |
| 14 |  | Prenatal diagnosis and treatment of Congenital Adrenal Hyperplasia |
| 15 |  | Genetic Counseling |
| 16 |  | FINAL EXAM |

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

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| **Instructor of the Course**  **Prof. Dr. Sevilhan ARTAN**  **Signature** | **History** |

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| **COURSE CODE:** **522403307** | | **DEPARTMENT: MEDICAL GENETICS** | | | |
| **COURSE NAME: METABOLIC DISEASES AND MOLECULAR DIAGNOSIS** | | | | | |
| **TEACHING THE COURSE**  **STAFF**  **Assoc. Prof. Dr. Oğuz ÇİLİNGİR** | **COURSE LANGUAGE**  **Turkish: X**  **English:** | | **Category of the Course** | | |
| Technical | Medical | Other( …… ) |
|  |  | |  | X |  |

**COURSE LEVEL**

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| **SCIENTIFIC PREPARATION** | **DEGREE** | **DOCTORATE** | **SPECIALIZED FIELD COURSE** |
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| **SEMESTER** | **WEEKLY CLASS HOURS** | | | | **YOUR COURSE** | | | |
| **Theoretical** | **APPLICATION** | | **Lab** | **Credit** | **ECTS** | **TYPE** | |
| Spring  Fall **X** | 2 | 2 | |  | 3 | 7.5 | MANDATORY ELECTIVE  ** X** | |
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| **EVALUATION CRITERIA** | | | | | | | | |
| **SEMESTER ACTIVITIES** | | | **Type of activity** | | | | **Number** | **Percentage (%)** |
| Midterm Exam | | | | **1** | **50** |
| Quiz | | | |  |  |
| Homework | | | |  |  |
| Project | | | |  |  |
| Oral examination | | | |  |  |
| Other ( ……… ) | | | |  |  |
| **Final Exam** | | | | | **50** |
| **PREREQUISITE(S)** | | |  | | | | | |
| **SHORT COURSE CONTENT** | | | Classification of hereditary metabolic diseases , diagnosis of metabolic diseases according to gene-enzyme relationships and mutation types. | | | | | |
| **COURSE AIMS** | | | Gaining general knowledge and experience in the approach to hereditary metabolic diseases | | | | | |
| **COURSE CONTRBUTION TO THE PROFESSIONAL EDUCATION OBJECTIVES** | | | metabolic disease type, reach conclusions and provide genetic counseling | | | | | |
| **LEARNING OUTCOMES OF THE COURSE** | | | metabolic disease type, reach conclusions and provide genetic counseling | | | | | |
| **TEXTBOOK** | | | GeorgFriedrich . InheritedMetabolicDiseases : A ClinicalApproach . Springer , 2010 | | | | | |
| **OTHER REFERENCES** | | | Gardner RJM, Sutherland GR. (2004). Chromosomeabnormalitiesandgeneticcounselling . Oxford University Pres. Steven L. Gersen, Martha B. Keagle. ThePrinciples of ClinicalCytogenetics . Springer.2004 | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | |  | | | | | |

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|  | **WEEKLY PLAN OF THE COURSE** | |
| **WEEK** | **HISTORY** | **TOPICS COVERED** |
| 1 |  | Classification of inherited metabolic diseases |
| 2 |  | Gene-enzyme assessment |
| 3 |  | congenital metabolic diseases: Phenylketonuria |
| 4 |  | Molecular diagnosis of phenylketonuria |
| 5 |  | Lab application: Molecular diagnosis of phenylketonuria |
| 6 |  | Prenatal diagnosis of hereditary metabolic diseases |
| 7 |  | Prenatal diagnosis of hereditary metabolic diseases |
| 8 |  | MIDTERM EXAM |
| 9 |  |  |
| 10 |  |  |
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| 16 |  | END OF SEMESTER EXAM |

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| **CONTRIBUTION OF COURSE LEARNING OUTCOMES TO PROGRAM LEARNING OUTCOMES** | | **Contribution Level** | | |
| **NO** | **LESSON OUTCOMES** | **1**  **Little** | **2**  **Middle** | **3**  **High** |
| LO 1 |  |  |  |  |
| LO 2 |  |  |  |  |
| LO 3 |  |  |  |  |
| LO 4 |  |  |  |  |
| LO 5 |  |  |  |  |
| LO 6 |  |  |  |  |
| LO 7 |  |  |  |  |
| LO 8 |  |  |  |  |
| LO 9 |  |  |  |  |
| LO 10 |  |  |  |  |
| LO 11 |  |  |  |  |
| LO 12 |  |  |  |  |
| LO 13 |  |  |  |  |
| LO 14 |  |  |  |  |

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| **Instructor of the Course**  **Assoc. Prof. Dr. Oğuz ÇİLİNGİR**  **Signature** | **History** |

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| **COURSE CODE:** **522405309** | | **DEPARTMENT: MEDICAL GENETICS** | | | |
| **COURSE NAME: PCR AND ITS TYPES** | | | | | |
| **TEACHING THE COURSE**  **STAFF**  **Assoc. Prof. Dr. Oğuz ÇİLİNGİR** | **COURSE LANGUAGE**  **Turkish: X**  **English: X** | | **Category of the Course** | | |
| Technical | Medical | Other( …… ) |
|  |  | |  | X |  |

**COURSE LEVEL**

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| **SCIENTIFIC PREPARATION** | **DEGREE** | **DOCTORATE** | **SPECIALIZED FIELD COURSE** |
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| **SEMESTER** | **WEEKLY CLASS HOURS** | | | | **YOUR COURSE** | | | |
| **Theoretical** | **APPLICATION** | | **Lab** | **Credit** | **ECTS** | **TYPE** | |
| Spring ****  Fall **X** | 1 |  | | 1 | 1.5 | 2.5 | MANDATORY ELECTIVE  ** X** | |
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| **EVALUATION CRITERIA** | | | | | | | | |
| **SEMESTER ACTIVITIES** | | | **Type of activity** | | | | **Number** | **Percentage (%)** |
| Midterm Exam | | | | **1** | **50** |
| Quiz | | | |  |  |
| Homework | | | |  |  |
| Project | | | |  |  |
| Oral examination | | | |  |  |
| Other ( ……… ) | | | |  |  |
| **Final Exam** | | | | | **50** |
| **PREREQUISITE(S)** | | |  | | | | | |
| **SHORT COURSE CONTENT** | | | PCR mechanism, PCR types and application areas | | | | | |
| **COURSE AIMS** | | | To provide theoretical and practical understanding of PCR tools and reactions used directly or indirectly in molecular diagnostic techniques. | | | | | |
| **COURSE CONTRBUTION TO THE PROFESSIONAL EDUCATION OBJECTIVES** | | | Become able to apply different PCR techniques used in research and diagnosis. | | | | | |
| **LEARNING OUTCOMES OF THE COURSE** | | | Become able to apply different PCR techniques used in research and diagnosis | | | | | |
| **TEXTBOOK** | | | Suzanne Kennedy andNickOswald : PCR Troubleshooting andOptimization : TheEssential Guide. CaisterAcademicPress | | | | | |
| **OTHER REFERENCES** | | | JulieLogan , KirstinEdwardsandNickSaunders . Real-Time PCR: CurrentTechnologyand Applications CaisterAcademicPress Michael L. Altshuler . [PCR Troubleshooting : TheEssential Guide](http://www.horizonpress.com/pcr2) . CaisterAcademicPress | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | |  | | | | | |

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|  | **WEEKLY PLAN OF THE COURSE** | |
| **WEEK** | **HISTORY** | **TOPICS COVERED** |
| 1 |  | Polymerase Chain Reaction: Definition, history |
| 2 |  | DNA replication |
| 3 |  | Polymerase Chain Reaction basics |
| 4 |  | PCR reaction contents and functions- |
| 5 |  | Lab application |
| 6 |  | Lab application |
| 7 |  | PCR application areas |
| 8 |  | QUİZ |
| 9 |  | PCR types and application areas |
| 10 |  | PCR types and application areas |
| 11 |  | Lab application |
| 12 |  | Lab application |
| 13 |  | PCR reactions from different patient samples |
| 14 |  | Real-time PCR |
| 15 |  | Real-time PCR applications |
| 16 |  | FINAL EXAM |

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

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| **Instructor of the Course**  **Signature** | **History** |

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| **COURSE CODE:** **522405310** | | **DEPARTMENT: MEDICAL GENETICS** | | | |
| **COURSE NAME: MOLECULAR SCAN TECHNIQUES** | | | | | |
| **TEACHING THE COURSE**  **STAFF** | **COURSE LANGUAGE**  **Turkish: X**  **English: X** | | **Category of the Course** | | |
| Technical | Medical | Other( …… ) |
|  |  | |  | X |  |

**COURSE LEVEL**

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| **SCIENTIFIC PREPARATION** | **DEGREE** | **DOCTORATE** | **SPECIALIZED FIELD COURSE** |
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| **SEMESTER** | **WEEKLY CLASS HOURS** | | | | **YOUR COURSE** | | | |
| **Theoretical** | **APPLICATION** | | **Lab** | **Credit** | **ECTS** | **TYPE** | |
| Spring  Fall X | 1 | 1 | |  | 1.5 | 2.5 | MANDATORY ELECTIVE  ** X** | |
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| **EVALUATION CRITERIA** | | | | | | | | |
| **SEMESTER ACTIVITIES** | | | **Type of activity** | | | | **Number** | **Percentage (%)** |
| Midterm Exam | | | | **1** | **50** |
| Quiz | | | |  |  |
| Homework | | | |  |  |
| Project | | | |  |  |
| Oral examination | | | |  |  |
| Other ( ……… ) | | | |  |  |
| **Final Exam** | | | | | **50** |
| **PREREQUISITE(S)** | | |  | | | | | |
| **SHORT COURSE CONTENT** | | | What is molecular scanning and what is its purpose?  Interpretation of the results obtained from SSCP, DGGE, heteroduplex analyses and their applications | | | | | |
| **COURSE AIMS** | | | etc. ) before performing direct diagnostic tests . | | | | | |
| **COURSE CONTRBUTION TO THE PROFESSIONAL EDUCATION OBJECTIVES** | | | Ability to apply and interpret scanning techniques | | | | | |
| **LEARNING OUTCOMES OF THE COURSE** | | | Ability to apply and interpret scanning techniques | | | | | |
| **TEXTBOOK** | | | Klug , W. S., Cummings , M. R., (Translation Editor: Öner, C.) (2002). Genetic Concepts, Palme Publishing. | | | | | |
| **OTHER REFERENCES** | | | Scriver , CR ., Beuadet , AL., Sly , WS., Valle , D. (1995). TheMetobolicandMolecularBases of InheritedDisease , McGraw- Hill , Inc. | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | |  | | | | | |

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|  | **WEEKLY PLAN OF THE COURSE** | |
| **WEEK** | **HISTORY** | **TOPICS COVERED** |
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| **CONTRIBUTION OF COURSE LEARNING OUTCOMES TO PROGRAM LEARNING OUTCOMES** | | **Contribution Level** | | |
| **NO** | **LESSON OUTCOMES** | **1**  **Little** | **2**  **Middle** | **3**  **High** |
| LO 1 |  |  |  |  |
| LO 2 |  |  |  |  |
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| LO 4 |  |  |  |  |
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| LO 12 |  |  |  |  |
| LO 13 |  |  |  |  |
| LO 14 |  |  |  |  |

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| **Instructor of the Course**  **Signature** | **History** |

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| **COURSE CODE:** **522403311** | | **DEPARTMENT: MEDICAL GENETICS** | | | |
| **COURSE NAME: ADVANCED CYTOGENETIC METHODS** | | | | | |
| **TEACHING THE COURSE**  **STAFF**  Prof. Dr. Sevilhan ARTAN | **COURSE LANGUAGE**  **Turkish: X**  **English: X** | | **Category of the Course** | | |
| Technical | Medical | Other( …… ) |
|  |  | |  | X |  |

**COURSE LEVEL**

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| **SCIENTIFIC PREPARATION** | **DEGREE** | **DOCTORATE** | **SPECIALIZED FIELD COURSE** |
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| **SEMESTER** | **WEEKLY CLASS HOURS** | | | | **YOUR COURSE** | | | |
| **Theoretical** | **APPLICATION** | | **Lab** | **Credit** | **ECTS** | **TYPE** | |
| Spring  Fall X | 2 | 2 | |  | 3 | 7.5 | MANDATORY ELECTIVE  ** X** | |
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| **EVALUATION CRITERIA** | | | | | | | | |
| **SEMESTER ACTIVITIES** | | | **Type of activity** | | | | **Number** | **Percentage (%)** |
| Midterm Exam | | | | **1** | **50** |
| Quiz | | | |  |  |
| Homework | | | |  |  |
| Project | | | |  |  |
| Oral examination | | | |  |  |
| Other ( ……… ) | | | |  |  |
| **Final Exam** | | | | | **50** |
| **PREREQUISITE(S)** | | |  | | | | | |
| **SHORT COURSE CONTENT** | | | advanced cytogenetic methods, creating algorithms , learning laboratory materials and methods , laboratory practical applications of advanced cytogenetic methods . | | | | | |
| **COURSE AIMS** | | | The main objective of the course is to learn the methods and skills used in the cytogenetics laboratory and to correlate them with clinical genetics applications , to interpret them, to discuss and to teach how to evaluate the results. | | | | | |
| **COURSE CONTRBUTION TO THE PROFESSIONAL EDUCATION OBJECTIVES** | | | Learning advanced cytogenetic methods and their applications | | | | | |
| **LEARNING OUTCOMES OF THE COURSE** | | | Learning advanced cytogenetic methods and their applications | | | | | |
| **TEXTBOOK** | | |  | | | | | |
| **OTHER REFERENCES** | | | Gardner RJM, Sutherland GR. (2004). Chromosomeabnormalitiesandgeneticcounselling . Oxford University Pres.  **Steven L. Gersen, Martha B. Keagle. ThePrinciples of ClinicalCytogenetics . Springer.2004** | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | |  | | | | | |

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|  | **WEEKLY PLAN OF THE COURSE** | |
| **WEEK** | **HISTORY** | **TOPICS COVERED** |
| 1 |  | Cytogenetics : Definition, |
| 2 |  | Cytogenetic culture methods |
| 3 |  | Synchronized culture methods |
| 4 |  | FISH definition |
| 5 |  | Microdissection and reverse FISH |
| 6 |  | Fiber FISH |
| 7 |  | Sperm FISH |
| 8 |  | Approach to marker chromosomes |
| 9 |  | Approach to complex karyotypes |
| 10 |  | FISH applications |
| 11 |  | Algorithms in prenatal/ postnatal diagnosis |
| 12 |  | Array technology / Array CGH |
| 13 |  | Array -CGH application |
| 14 |  | cytogenetic data |
| 15 |  | Clinical correlation of cytogenetic results |

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

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| **Instructor of the Course**  **Signature** | **History** |

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| **COURSE CODE:** **522403313** | | **DEPARTMENT: MEDICAL GENETICS** | | | |
| **COURSE NAME: CYTOGENETICS OF LEUKEMIA** | | | | | |
| **TEACHING THE COURSE**  **STAFF**  Prof. Dr. Beyhan DURAK ARAS | **COURSE LANGUAGE**  **Turkish: X**  **English: X** | | **Category of the Course** | | |
| Technical | Medical | Other( …… ) |
|  |  | |  | X |  |

**COURSE LEVEL**

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| **SCIENTIFIC PREPARATION** | **DEGREE** | **DOCTORATE** | **SPECIALIZED FIELD COURSE** |
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| **SEMESTER** | **WEEKLY CLASS HOURS** | | | | **YOUR COURSE** | | | |
| **Theoretical** | **APPLICATION** | | **Lab** | **Credit** | **ECTS** | **TYPE** | |
| Spring  Fall X | 2 | 2 | |  | 3 | 7.5 | MANDATORY ELECTIVE  ** X** | |
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| **EVALUATION CRITERIA** | | | | | | | | |
| **SEMESTER ACTIVITIES** | | | **Type of activity** | | | | **Number** | **Percentage (%)** |
| Midterm Exam | | | | **1** | **50** |
| Quiz | | | |  |  |
| Homework | | | |  |  |
| Project | | | |  |  |
| Oral examination | | | |  |  |
| Other ( ……… ) | | | |  |  |
| **Final Exam** | | | | | **50** |
| **PREREQUISITE(S)** | | |  | | | | | |
| **SHORT COURSE CONTENT** | | | Genetic mechanism of hematological malignancies , cancer genes and their rearrangements , cytogenetic diagnosis and algorithm creation, learning and practical application of laboratory material methods. | | | | | |
| **COURSE AIMS** | | | introduce cytogenetic approaches, concepts, algorithms , clinical correlation and application of laboratory methods in hematological malignancies . | | | | | |
| **COURSE CONTRBUTION TO THE PROFESSIONAL EDUCATION OBJECTIVES** | | | hematological malignancies and genetic mechanisms.  to be learned | | | | | |
| **LEARNING OUTCOMES OF THE COURSE** | | | hematological malignancies and genetic mechanisms.  to be learned | | | | | |
| **TEXTBOOK** | | | Czepulkowski , B. H. (2001). Analyzingchromosomes . Oxford. BIOS  Scientific .  Heim , Mitelman (2009). cancercytogenetics | | | | | |
| **OTHER REFERENCES** | | | Barch JM ., Knutsen T, Spurbeck LJ (1997). The AGT CytogeneticsLaboratory Manual | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | |  | | | | | |

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|  | **WEEKLY PLAN OF THE COURSE** | |
| **WEEK** | **HISTORY** | **TOPICS COVERED** |
| 1 |  | Hematopoietic System and its malignant diseases |
| 2 |  | Genetic mechanisms of hematological malignancies |
| 3 |  | ALLdecytogenetic diagnosis and clinical correlation |
| 4 |  | ALLlaboratory methods and practical application |
| 5 |  | Cytogenetic diagnosis and clinical correlation of AML |
| 6 |  | AMLlaboratory methods and practical application |
| 7 |  | Cytogenetic diagnosis and clinical correlation of CML |
| 8 |  | QUİZ |
| 9 |  | Cytogenetic diagnosis and clinical correlation of CLL |
| 10 |  | KLLlaboratory methods and practical application |
| 11 |  | MPDdecytogenetic diagnosis and clinical correlation |
| 12 |  | MPDlaboratory methods and practical application |
| 13 |  | MDSdecytogenetic diagnosis and clinical correlation |
| 14 |  | MDS laboratory methods and practical application |
| 15 |  | Cytogenetic diagnosis and clinical correlation in lymphomas |
| 16 |  | EXAM FINAL |

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| **CONTRIBUTION OF COURSE LEARNING OUTCOMES TO PROGRAM LEARNING OUTCOMES** | | **Contribution Level** | | |
| **NO** | **LESSON OUTCOMES** | **1**  **Little** | **2**  **Middle** | **3**  **High** |
| LO 1 |  |  |  |  |
| LO 2 |  |  |  |  |
| LO 3 |  |  |  |  |
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| LO 12 |  |  |  |  |
| LO 13 |  |  |  |  |
| LO 14 |  |  |  |  |

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| **Instructor of the Course**  **Signature** | **History** |

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| **COURSE CODE:** **522403314** | | **DEPARTMENT: MEDICAL GENETICS** | | | |
| **COURSE NAME: IMPORTANCE OF CYTOGENETIC AND MOLECULAR MARKERS IN SOLID TUMORS** | | | | | |
| **TEACHING THE COURSE**  **STAFF**  **Prof. Dr. Sevilhan ARTAN** | **COURSE LANGUAGE**  **Turkish: X**  **English: X** | | **Category of the Course** | | |
| Technical | Medical | Other( …… ) |
|  |  | |  | X |  |

**COURSE LEVEL**

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| **SCIENTIFIC PREPARATION** | **DEGREE** | **DOCTORATE** | **SPECIALIZED FIELD COURSE** |
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| **SEMESTER** | **WEEKLY CLASS HOURS** | | | | **YOUR COURSE** | | | |
| **Theoretical** | **APPLICATION** | | **Lab** | **Credit** | **ECTS** | **TYPE** | |
| Spring  Fall X | 2 | 2 | |  | 3 | 7.5 | MANDATORY ELECTIVE  ** X** | |
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| **EVALUATION CRITERIA** | | | | | | | | |
| **SEMESTER ACTIVITIES** | | | **Type of activity** | | | | **Number** | **Percentage (%)** |
| Midterm Exam | | | | **1** | **50** |
| Quiz | | | |  |  |
| Homework | | | |  |  |
| Project | | | |  |  |
| Oral examination | | | |  |  |
| Other ( ……… ) | | | |  |  |
| **Final Exam** | | | | | **50** |
| **PREREQUISITE(S)** | | |  | | | | | |
| **SHORT COURSE CONTENT** | | | Methods used in genetic analysis of solid tumors, molecular markers in colorectal cancers , their importance in prognosis , genetic markers in lung cancers , their relationship with prognosis , cytogenetic / molecular markers in brain tumors , their relationship with prognosis , | | | | | |
| **COURSE AIMS** | | | of tumorigenesis in different solid tumor types , application of tissue culture methods and cytogenetic and molecular methods in different solid tumors, revealing the relationship between the obtained markers and disease prognosis . | | | | | |
| **COURSE CONTRBUTION TO THE PROFESSIONAL EDUCATION OBJECTIVES** | | | Learning the mechanisms of tumorigenesis in different solid tumors | | | | | |
| **LEARNING OUTCOMES OF THE COURSE** | | | Learning the mechanisms of tumorigenesis in different solid tumors | | | | | |
| **TEXTBOOK** | | | Lalloo F. , Kerr B., Friedman JM, Evans DG Risk Assessmentand Management in Cancer Genetics. Oxford University Press.2005 | | | | | |
| **OTHER REFERENCES** | | | McPherson RA .,. Pincus MRI,. Henry'sClinicalDiagnosisand Management byLaboratoryMethods . 2011 | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | |  | | | | | |

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|  | **WEEKLY PLAN OF THE COURSE** | |
| **WEEK** | **HISTORY** | **TOPICS COVERED** |
| 1 |  | Overview of cancer genetics |
| 2 |  | Molecular approach in specific tumors according to major organ |
| 3 |  | |  |  |  | | --- | --- | --- | |  |  |  | | 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 tumors and genetic markers |
| 9 |  | Ovarian cancer and genetic markers: molecular classification |
| 10 |  | Cytogenetic and molecular methods in the evaluation of solid tumors |
| 11 |  | microarray method in cancer |
| 12 |  | cytogenetic and molecular tests according to the selected cancer type |
| 13 |  | cytogenetic and molecular tests according to the selected cancer type |
| 14 |  | cytogenetic and molecular tests according to the selected cancer type |
| 15 |  | cytogenetic and molecular tests according to the selected cancer type |
| 16 |  | cytogenetic and molecular tests according to the selected cancer type |

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

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| **Instructor of the Course**  **Signature** | **History** |

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| **COURSE CODE:** **522403315** | | **DEPARTMENT: MEDICAL GENETICS** | | | |
| **COURSE NAME: NEUROMUSCULAR DISEASES AND MOLECULAR GENETIC MARKERS** | | | | | |
| **TEACHING THE COURSE**  **STAFF**  **Assoc. Prof. Dr. Oğuz ÇİLİNGİR** | **COURSE LANGUAGE**  **Turkish: X**  **English:** | | **Category of the Course** | | |
| Technical | Medical | Other( …… ) |
|  |  | |  | X |  |

**COURSE LEVEL**

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| **SCIENTIFIC PREPARATION** | **DEGREE** | **DOCTORATE** | **SPECIALIZED FIELD COURSE** |
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| **SEMESTER** | **WEEKLY CLASS HOURS** | | | | **YOUR COURSE** | | | |
| **Theoretical** | **APPLICATION** | | **Lab** | **Credit** | **ECTS** | **TYPE** | |
| Spring  Fall **X** | 3 | 2 | |  | 4 | 7.5 | MANDATORY ELECTIVE  ** X** | |
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| **EVALUATION CRITERIA** | | | | | | | | |
| **SEMESTER ACTIVITIES** | | | **Type of activity** | | | | **Number** | **Percentage (%)** |
| Midterm Exam | | | | **1** | **50** |
| Quiz | | | |  |  |
| Homework | | | |  |  |
| Project | | | |  |  |
| Oral examination | | | |  |  |
| Other ( ……… ) | | | |  |  |
| **Final Exam** | | | | | **50** |
| **PREREQUISITE(S)** | | |  | | | | | |
| **SHORT COURSE CONTENT** | | |  | | | | | |
| **COURSE AIMS** | | |  | | | | | |
| **COURSE CONTRBUTION TO THE PROFESSIONAL EDUCATION OBJECTIVES** | | |  | | | | | |
| **LEARNING OUTCOMES OF THE COURSE** | | |  | | | | | |
| **TEXTBOOK** | | |  | | | | | |
| **OTHER REFERENCES** | | |  | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | |  | | | | | |

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|  | **WEEKLY PLAN OF THE COURSE** | |
| **WEEK** | **HISTORY** | **TOPICS COVERED** |
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| **CONTRIBUTION OF COURSE LEARNING OUTCOMES TO PROGRAM LEARNING OUTCOMES** | | **Contribution Level** | | |
| **NO** | **LESSON OUTCOMES** | **1**  **Little** | **2**  **Middle** | **3**  **High** |
| LO 1 |  |  |  |  |
| LO 2 |  |  |  |  |
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| LO 13 |  |  |  |  |
| LO 14 |  |  |  |  |

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| **Instructor of the Course**  **Assoc. Prof. Dr. Oğuz ÇİLİNGİR**  **Signature** | **History** |

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| **COURSE CODE:** **522404302** | | **DEPARTMENT: MEDICAL GENETICS** | | | |
| **COURSE NAME: CANCER GENETICS** | | | | | |
| **TEACHING THE COURSE**  **STAFF**  **Prof. Dr. Sevilhan ARTAN** | **COURSE LANGUAGE**  **Turkish: X**  **English: X** | | **Category of the Course** | | |
| Technical | Medical | Other( …… ) |
|  |  | |  | X |  |

**COURSE LEVEL**

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| **SCIENTIFIC PREPARATION** | **DEGREE** | **DOCTORATE** | **SPECIALIZED FIELD COURSE** |
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| **SEMESTER** | **WEEKLY CLASS HOURS** | | | | **YOUR COURSE** | | | |
| **Theoretical** | **APPLICATION** | | **Lab** | **Credit** | **ECTS** | **TYPE** | |
| Spring X  Autumn | 2 | 2 | |  | 3 | 7.5 | MANDATORY ELECTIVE  **X** | |
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| **EVALUATION CRITERIA** | | | | | | | | |
| **SEMESTER ACTIVITIES** | | | **Type of activity** | | | | **Number** | **Percentage (%)** |
| Midterm Exam | | | | **1** | **50** |
| Quiz | | | |  |  |
| Homework | | | |  |  |
| Project | | | |  |  |
| Oral examination | | | |  |  |
| Other ( ……… ) | | | |  |  |
| **Final Exam** | | | | | **50** |
| **PREREQUISITE(S)** | | |  | | | | | |
| **SHORT COURSE CONTENT** | | | An overview of the basic concepts in cancer, detailed evaluation of cell signaling system mechanisms and cell cycle control mechanisms, comparative evaluation of cancer genes ( oncogenes , tumor suppressor genes and DNA repair genes) in normal cells and tumor cells, examination and application of diagnostic methods in cancer genetics, counseling to be given to families in cancer. | | | | | |
| **COURSE AIMS** | | | the genetic origin of cancer in detail, determining approaches in familial and sporadic cancers, providing genetic counseling in cancer, acquiring skills in genetic analyses applied in cancer and interpretation of results. | | | | | |
| **COURSE CONTRBUTION TO THE PROFESSIONAL EDUCATION OBJECTIVES** | | | Detailed family examination in cancer cases | | | | | |
| **LEARNING OUTCOMES OF THE COURSE** | | | Detailed family examination in cancer cases | | | | | |
| **TEXTBOOK** | | | [FredBunz](http://www.amazon.com/Fred-Bunz/e/B001JS6XZ8/ref=ntt_athr_dp_pel_1) Principles of Cancer Genetics. 2008[BorisPasche](http://www.amazon.com/s/ref=ntt_athr_dp_sr_1?_encoding=UTF8&field-author=Boris%20Pasche&ie=UTF8&search-alias=books&sort=relevancerank) Cancer Genetics ( CancerTreatmentandResearch ).2011 | | | | | |
| **OTHER REFERENCES** | | | [Lewis J. Klein](http://www.amazon.com/Lewis-J.-Kleinsmith/e/B001KHLDTY/ref=ntt_athr_dp_pel_1) , Principles of Cancer Biology. 2005 S Hodgson , W Foulkes , C Eng,EMaher : A Practical Guide to Human Cancer Genetics.2006 | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | |  | | | | | |

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|  | **WEEKLY PLAN OF THE COURSE** | |
| **WEEK** | **HISTORY** | **TOPICS COVERED** |
| 1 |  | Cancer: Definition, types, tumor cell characteristics |
| 2 |  | Cancer is a Genetic Disease: Sporadic , familial , hereditary cancers |
| 3 |  | Cancer is a Genetic Disease: Sporadic , familial , hereditary cancers |
| 4 |  | Application: Identifying cancer families in pedigrees |
| 5 |  | Cancer Genes: Oncogenes , tumor suppressor genes, DNA repair genes |
| 6 |  | Cell signaling system and proto-oncogenes |
| 7 |  | Oncogenes |
| 8 |  | Tumor suppressor genes and the cell cycle |
| 9 |  | Tumor suppressor genes and the cell cycle |
| 10 |  | DNA repair genes |
| 11 |  | Genetic instability in cancer |
| 12 |  | Polymorphism in cancer |
| 13 |  | Genetic analyses and interpretations in cancer |
| 14 |  | Genetic basis of common cancers: Breast cancer |
| 15 |  | Genetic basis of common cancers: Lung cancer |
| 16 |  | Genetic basis of common cancers: Colorectal cancers |

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

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| **Instructor of the Course**  **Signature** | **History** |

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| **COURSE CODE:** **522406304** | | **DEPARTMENT: MEDICAL GENETICS** | | | |
| **COURSE NAME: DNA REPAIR MECHANISMS** | | | | | |
| **TEACHING THE COURSE**  **STAFF**  **Prof. Dr. Oğuz ÇİLİNGİR** | **COURSE LANGUAGE**  **Turkish: X**  **English: X** | | **Category of the Course** | | |
| Technical | Medical | Other( …… ) |
|  |  | |  | X |  |

**COURSE LEVEL**

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| **SCIENTIFIC PREPARATION** | **DEGREE** | **DOCTORATE** | **SPECIALIZED FIELD COURSE** |
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| **SEMESTER** | **WEEKLY CLASS HOURS** | | | | **YOUR COURSE** | | | |
| **Theoretical** | **APPLICATION** | | **Lab** | **Credit** | **ECTS** | **TYPE** | |
| Spring X  Autumn | 2 |  | |  | 2 | 5.0 | MANDATORY ELECTIVE  ** X** | |
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| **EVALUATION CRITERIA** | | | | | | | | |
| **SEMESTER ACTIVITIES** | | | **Type of activity** | | | | **Number** | **Percentage (%)** |
| Midterm Exam | | | | **1** | **50** |
| Quiz | | | |  |  |
| Homework | | | |  |  |
| Project | | | |  |  |
| Oral examination | | | |  |  |
| Other ( ……… ) | | | |  |  |
| **Final Exam** | | | | | **50** |
| **PREREQUISITE(S)** | | |  | | | | | |
| **SHORT COURSE CONTENT** | | | **-** Systems that control DNA replication  - DNA repair mechanisms in eukaryotes - direct repair - excision repair - mismatch repair - SOS system, DNA repair gene mutations and their consequences, examination of replication error control systems within an overview of DNA replication , repair of errors occurring in normal replication , examination of repair mechanisms, evaluation of diseases resulting from mutations in repair genes. | | | | | |
| **COURSE AIMS** | | | Learning the repair mechanisms of mutations in human DNA | | | | | |
| **COURSE CONTRBUTION TO THE PROFESSIONAL EDUCATION OBJECTIVES** | | | Phenotypic effects of errors in DNA , | | | | | |
| **LEARNING OUTCOMES OF THE COURSE** | | | Phenotypic effects of errors in DNA , | | | | | |
| **TEXTBOOK** | | | Micklos DA, Freyer GA, Crotty DA. (2003). DNA Science.Cold Spring HarborLab Press, 2003. | | | | | |
| **OTHER REFERENCES** | | | Alberts B, Bray D, Lewis J, Raff M, Roberts K, Waton JD. (1994). MolecularBiology of the Cell. GarlandPubl . | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | |  | | | | | |

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|  | **WEEKLY PLAN OF THE COURSE** | |
| **WEEK** | **HISTORY** | **TOPICS COVERED** |
| 1 |  | Mutation and its types |
| 2 |  | DNA replication errors |
| 3 |  | Base changes and damages |
| 4 |  | Factors causing DNA damage |
| 5 |  | Base modification |
| 6 |  | Mismatch repair |
| 7 |  | Nucleotide excision repair |
| 8 |  | QUİZ |
| 9 |  | DNA repair and cancer II |
| 10 |  | DNA repair genes mutations and diseases I |
| 11 |  | DNA repair genes mutations and diseases II |
| 12 |  | DNA repair and premature aging syndromes |
| 13 |  | DNA repair gene mutations and cancer I |
| 14 |  | DNA repair gene mutations and cancer II |
| 15 |  | Xerodermapigmentosum |
|  |  | FINAL EXAM |

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

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| **Instructor of the Course**  **Signature** | **History** |

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| **COURSE CODE:** **522404305** | | **DEPARTMENT: MEDICAL GENETICS** | | | |
| **COURSE NAME: CHROMOSOME DISEASES AND DIAGNOSIS METHODS** | | | | | |
| **TEACHING THE COURSE**  **STAFF**  **Prof. Dr. Oğuz ÇİLİNGİR** | **COURSE LANGUAGE**  **Turkish: X**  **English: X** | | **Category of the Course** | | |
| Technical | Medical | Other( …… ) |
|  |  | |  | X |  |

**COURSE LEVEL**

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| **SCIENTIFIC PREPARATION** | **DEGREE** | **DOCTORATE** | **SPECIALIZED FIELD COURSE** |
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| **SEMESTER** | **WEEKLY CLASS HOURS** | | | | **YOUR COURSE** | | | |
| **Theoretical** | **APPLICATION** | | **Lab** | **Credit** | **ECTS** | **TYPE** | |
| Spring X  Autumn | 2 | 2 | |  | 3 | 7.5 | MANDATORY ELECTIVE  **X** | |
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| **EVALUATION CRITERIA** | | | | | | | | |
| **SEMESTER ACTIVITIES** | | | **Type of activity** | | | | **Number** | **Percentage (%)** |
| Midterm Exam | | | | **1** | **50** |
| Quiz | | | |  |  |
| Homework | | | |  |  |
| Project | | | |  |  |
| Oral examination | | | |  |  |
| Other ( ……… ) | | | |  |  |
| **Final Exam** | | | | | **50** |
| **PREREQUISITE(S)** | | |  | | | | | |
| **SHORT COURSE CONTENT** | | | All chromosome diseases  Methods used in the diagnosis of these diseases | | | | | |
| **COURSE AIMS** | | | To equip the student with all theoretical and practical knowledge on chromosomal diseases and diagnostic methods. | | | | | |
| **COURSE CONTRBUTION TO THE PROFESSIONAL EDUCATION OBJECTIVES** | | | To provide information about chromosomal diseases. | | | | | |
| **LEARNING OUTCOMES OF THE COURSE** | | | To provide information about chromosomal diseases. | | | | | |
| **TEXTBOOK** | | | Catalog of UnbalancedChromosomeAbhrations in Man | | | | | |
| **OTHER REFERENCES** | | | An International System Jan Human CytogeneticNomenclature | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | |  | | | | | |

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|  | **WEEKLY PLAN OF THE COURSE** | |
| **WEEK** | **HISTORY** | **TOPICS COVERED** |
| 1 |  | All chromosome diseases |
| 2 |  | Methods used in the diagnosis of these diseases |
| 3 |  | Chromosome diseases |
| 4 |  | Chromosome diseases and diagnostic methods |
| 5 |  | To provide theoretical knowledge about chromosome diseases and diagnostic methods. |
| 6 |  | To provide practical knowledge on chromosomal diseases and diagnostic methods. |
| 7 |  | To provide information about chromosomal diseases. |
| 8 |  | To provide practice on chromosome diseases. |
| 9 |  | MIDTERM EXAM |
| 10 |  | Researching information about chromosomal diseases |
| 11 |  | Researching information about chromosomal diseases |
| 12 |  | Researching information about chromosomal diseases |
| 13 |  | Researching information about chromosomal diseases |
| 14 |  | Researching information about chromosomal diseases |
| 15 |  | Researching information about chromosomal diseases |
| 16 |  | END OF SEMESTER EXAM |

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

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| **Instructor of the Course**  **Signature** | **History** |

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| **COURSE CODE:** **522404306** | | **DEPARTMENT: MEDICAL GENETICS** | | | |
| **COURSE NAME: PRINCIPLES OF GENETIC COUNSELING** | | | | | |
| **TEACHING THE COURSE**  **STAFF**  **Prof. Dr. Oğuz ÇİLİNGİR** | **COURSE LANGUAGE**  **Turkish: X**  **English:** | | **Category of the Course** | | |
| Technical | Medical | Other( …… ) |
|  |  | |  | X |  |

**COURSE LEVEL**

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| **SCIENTIFIC PREPARATION** | **DEGREE** | **DOCTORATE** | **SPECIALIZED FIELD COURSE** |
| **** |  | **X** | **** |

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| **SEMESTER** | **WEEKLY CLASS HOURS** | | | | **YOUR COURSE** | | | |
| **Theoretical** | **APPLICATION** | | **Lab** | **Credit** | **ECTS** | **TYPE** | |
| Spring X  Autumn | 2 | 2 | |  | 3 | 7.5 | MANDATORY ELECTIVE  **X** | |
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| **EVALUATION CRITERIA** | | | | | | | | |
| **SEMESTER ACTIVITIES** | | | **Type of activity** | | | | **Number** | **Percentage (%)** |
| Midterm Exam | | | | **1** | **50** |
| Quiz | | | |  |  |
| Homework | | | |  |  |
| Project | | | |  |  |
| Oral examination | | | |  |  |
| Other ( ……… ) | | | |  |  |
| **Final Exam** | | | | | **50** |
| **PREREQUISITE(S)** | | |  | | | | | |
| **SHORT COURSE CONTENT** | | | Definition and importance of genetic counseling, principles of genetic counseling and points to be considered in the patient-physician relationship, genetic counseling in chromosome diseases, genetic counseling in mendelian and non-mendelian diseases, genetic counseling in prenatal diagnosis. | | | | | |
| **COURSE AIMS** | | | Learning the principles of genetic counseling and gaining the ability to provide genetic counseling to families at risk for genetic diseases. | | | | | |
| **COURSE CONTRBUTION TO THE PROFESSIONAL EDUCATION OBJECTIVES** | | | Interpreting genetic analysis findings and reporting them to the individual/family | | | | | |
| **LEARNING OUTCOMES OF THE COURSE** | | | Interpreting genetic analysis findings and reporting them to the individual/family | | | | | |
| **TEXTBOOK** | | | Klug , W. S., Cummings , M. R., (Translation Editor: Öner, C.) (2002). Genetic Concepts, Palme Publishing. | | | | | |
| **OTHER REFERENCES** | | | Alberts , B ., Bray , D., Lewis , J., Raff , M., Roberts, K., Watson, J. D. (1994). MolecularBiologyof The Cell, Garland Publishing , Inc. | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | |  | | | | | |

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|  | **WEEKLY PLAN OF THE COURSE** | |
| **WEEK** | **HISTORY** | **TOPICS COVERED** |
| 1 |  | What is Genetic Counseling? |
| 2 |  | Ethics and Genetic Counseling |
| 3 |  | Genetic Counseling Conditions |
| 4 |  | Classification of Genetic Diseases |
| 5 |  | Genetic Counseling for Autosomal Chromosome Diseases |
| 6 |  | Genetic counseling for sex chromosome disorders |
| 7 |  | Chromosome disease genetic counseling applications in different cases |
| 8 |  | QUİZ |
| 9 |  | Genetic counseling applications for single gene diseases in different cases |
| 10 |  | Genetic counseling in hereditary / familial cancer syndromes |
| 11 |  | Genetic counseling practices in cancer cases |
| 12 |  | Genetic Counseling in Polygenic Diseases |
| 13 |  | Genetic Counseling Applications in Polygenic Diseases |
| 14 |  |  |
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| 16 |  | FINAL EXAM |

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

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| **Instructor of the Course**  **Prof. Dr. Oğuz ÇİLİNGİR**  **Signature** | **History** |

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| **COURSE CODE:** **522406311** | | **DEPARTMENT: MEDICAL GENETICS** | | | |
| **COURSE NAME: INTERNATIONAL WRITING RULES AND INTERPRETATION IN CLINICAL CYTOGENETICS** | | | | | |
| **TEACHING THE COURSE**  **STAFF**  Prof. Dr. Beyhan DURAK ARAS | **COURSE LANGUAGE**  **Turkish: X**  **English:** | | **Category of the Course** | | |
| Technical | Medical | Other( …… ) |
|  |  | |  | X |  |

**COURSE LEVEL**

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| **SCIENTIFIC PREPARATION** | **DEGREE** | **DOCTORATE** | **SPECIALIZED FIELD COURSE** |
| **** |  | **X** | **** |

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| **SEMESTER** | **WEEKLY CLASS HOURS** | | | | **YOUR COURSE** | | | |
| **Theoretical** | **APPLICATION** | | **Lab** | **Credit** | **ECTS** | **TYPE** | |
| Spring X  Autumn | 1 | 2 | |  | 2 | 5.0 | MANDATORY ELECTIVE  ** X** | |
|  | | | | | | | | |
| **EVALUATION CRITERIA** | | | | | | | | |
| **SEMESTER ACTIVITIES** | | | **Type of activity** | | | | **Number** | **Percentage (%)** |
| Midterm Exam | | | | **1** | **50** |
| Quiz | | | |  |  |
| Homework | | | |  |  |
| Project | | | |  |  |
| Oral examination | | | |  |  |
| Other ( ……… ) | | | |  |  |
| **Final Exam** | | | | | **50** |
| **PREREQUISITE(S)** | | |  | | | | | |
| **SHORT COURSE CONTENT** | | | the karyotypes obtained after clinical cytogenetic and molecular cytogenetic analyses according to ISCN2013 writing rules and interpreting the karyotype data for the index case and their families. | | | | | |
| **COURSE AIMS** | | | Normal karyotype  Spelling rules for numerical anomalies  Writing rules for structural anomalies  Writing rules in FISH data | | | | | |
| **COURSE CONTRBUTION TO THE PROFESSIONAL EDUCATION OBJECTIVES** | | | ISCN2013 writing rules in writing clinical cytogenetic data | | | | | |
| **LEARNING OUTCOMES OF THE COURSE** | | | ISCN2013 writing rules in writing clinical cytogenetic data | | | | | |
| **TEXTBOOK** | | | ISCN 2013Nomenclature. KargerandCytogeneticsandGenomeResearch | | | | | |
| **OTHER REFERENCES** | | | Gardner RJM, Sutkerland GR. Chromosomeabnormalitiesandgeneticcounseling . Oxford University Press, 2005 | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | |  | | | | | |

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|  | **WEEKLY PLAN OF THE COURSE** | |
| **WEEK** | **HISTORY** | **TOPICS COVERED** |
| 1 |  | Overview of numerical chromosome abnormalities |
| 2 |  | Writing autosomal numerical chromosome abnormalities according to ISCN rules |
| 3 |  | Writing of gonosomal numerical chromosome anomalies according to ISCN rules |
| 4 |  | Mosaic numerical anomalies are written according to ISCN rules. |
| 5 |  | Overview of structural chromosome abnormalities |
| 6 |  | Writing translocation anomalies according to ISCN rules |
| 7 |  | Writing translocation anomalies according to ISCN rules |
| 8 |  | QUİZ |
| 9 |  | Writing inversion karyotypes according to ISCN rules |
| 10 |  | Writing monoclonal anomalies according to ISCN rules |
| 11 |  | Writing down polyclonal anomalies according to ISCN guidelines |
| 12 |  | Writing complex tumor karyotypes according to ISCN guidelines |
| 13 |  | Writing complex tumor karyotypes according to ISCN guidelines |
| 14 |  | Transcription of molecular cytogenetic findings according to ISCN guidelines |
| 15 |  | Array CGH nomenclature |
| 16 |  | FINAL EXAM |

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| **CONTRIBUTION OF COURSE LEARNING OUTCOMES TO PROGRAM LEARNING OUTCOMES** | | **Contribution Level** | | |
| **NO** | **LESSON OUTCOMES** | **1**  **Little** | **2**  **Middle** | **3**  **High** |
| LO 1 |  |  |  |  |
| LO 2 |  |  |  |  |
| LO 3 |  |  |  |  |
| LO 4 |  |  |  |  |
| LO 5 |  |  |  |  |
| LO 6 |  |  |  |  |
| LO 7 |  |  |  |  |
| LO 8 |  |  |  |  |
| LO 9 |  |  |  |  |
| LO 10 |  |  |  |  |
| LO 11 |  |  |  |  |
| LO 12 |  |  |  |  |
| LO 13 |  |  |  |  |
| LO 14 |  |  |  |  |

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| **Instructor of the Course**  **Prof. Dr. Beyhan DURAK ARAS**  **Signature** | **History** |

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| **COURSE CODE:** **522406312** | | **DEPARTMENT: MEDICAL GENETICS** | | | |
| **COURSE NAME: ARRAY TECHNOLOGY** | | | | | |
| **TEACHING THE COURSE**  **STAFF**  **Prof. Dr. Sevilhan ARTAN** | **COURSE LANGUAGE**  **Turkish: X**  **English: X** | | **Category of the Course** | | |
| Technical | Medical | Other( …… ) |
|  |  | |  | X |  |

**COURSE LEVEL**

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| **SCIENTIFIC PREPARATION** | **DEGREE** | **DOCTORATE** | **SPECIALIZED FIELD COURSE** |
| **** |  | **X** | **** |

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| **SEMESTER** | **WEEKLY CLASS HOURS** | | | | **YOUR COURSE** | | | |
| **Theoretical** | **APPLICATION** | | **Lab** | **Credit** | **ECTS** | **TYPE** | |
| Spring X  Autumn | 2 |  | |  | 2 | 5.0 | MANDATORY ELECTIVE  ** X** | |
|  | | | | | | | | |
| **EVALUATION CRITERIA** | | | | | | | | |
| **SEMESTER ACTIVITIES** | | | **Type of activity** | | | | **Number** | **Percentage (%)** |
| Midterm Exam | | | | **1** | **50** |
| Quiz | | | |  |  |
| Homework | | | |  |  |
| Project | | | |  |  |
| Oral examination | | | |  |  |
| Other ( ……… ) | | | |  |  |
| **Final Exam** | | | | | **50** |
| **PREREQUISITE(S)** | | |  | | | | | |
| **SHORT COURSE CONTENT** | | | array technology and comparison with other molecular methods, clone types used in array technology, advantages of array technology, types of array technology, comparison of genomicarray and gene expression array . | | | | | |
| **COURSE AIMS** | | | Learning the target and application areas of array technology | | | | | |
| **COURSE CONTRBUTION TO THE PROFESSIONAL EDUCATION OBJECTIVES** | | | Comparative learning of molecular methods used in determining the molecular pathologies of diseases. | | | | | |
| **LEARNING OUTCOMES OF THE COURSE** | | | Comparative learning of molecular methods used in determining the molecular pathologies of diseases. | | | | | |
| **TEXTBOOK** | | | [Draghici](http://www.amazon.com/exec/obidos/search-handle-url/index=books&field-author-exact=Sorin%20Draghici&rank=-relevance%2C%2Bavailability%2C-daterank/103-7702529-2060657) S. Data Analysis Tools for DNA Microarrays . Chapman & Hall /CRC; RevBk&Cdr 2003. | | | | | |
| **OTHER REFERENCES** | | | Steve Russell, Lisa A. Meadows, Roslin R. Russell : MicroarrayTechnology in Practice | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | |  | | | | | |

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|  | **WEEKLY PLAN OF THE COURSE** | |
| **WEEK** | **HISTORY** | **TOPICS COVERED** |
| 1 |  | Human Genome Overview |
| 2 |  | Genetic anomaly types and diagnoses |
| 3 |  | Array ? Array Format Types |
| 4 |  | Probe types |
| 5 |  | Probe selection, array preparation |
| 6 |  | Sample collection: DNA/RNA |
| 7 |  | Marking methods |
| 8 |  | QUİZ |
| 9 |  | Data processing |
| 10 |  | Genomic copy variation analyses |
| 11 |  | Expression analysis |
| 12 |  | Array applications: Probe evaluation on ready arrays |
| 13 |  | Array applications for genomic copy changes |
| 14 |  | Array applications for expression analysis |
| 15 |  | Customarray selection |
| 16 |  | FINAL EXAM |

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

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| **Instructor of the Course**  **Signature** | **History** |

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| **COURSE CODE:** **522406313** | | **DEPARTMENT: MEDICAL GENETICS** | | | |
| **COURSE NAME: MOLECULAR PERSPECTIVE ON NEUROSCIENCE** | | | | | |
| **TEACHING THE COURSE**  **STAFF** | **COURSE LANGUAGE**  **Turkish: X**  **English: X** | | **Category of the Course** | | |
| Technical | Medical | Other( …… ) |
|  |  | |  | X |  |

**COURSE LEVEL**

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| **SCIENTIFIC PREPARATION** | **DEGREE** | **DOCTORATE** | **SPECIALIZED FIELD COURSE** |
| **** |  | **X** | **** |

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| **SEMESTER** | **WEEKLY CLASS HOURS** | | | | **YOUR COURSE** | | | |
| **Theoretical** | **APPLICATION** | | **Lab** | **Credit** | **ECTS** | **TYPE** | |
| Spring X  Autumn | 2 |  | |  | 2 | 5.0 | MANDATORY ELECTIVE  **X** | |
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| **EVALUATION CRITERIA** | | | | | | | | |
| **SEMESTER ACTIVITIES** | | | **Type of activity** | | | | **Number** | **Percentage (%)** |
| Midterm Exam | | | | **1** | **60** |
| Quiz | | | |  |  |
| Homework | | | |  |  |
| Project | | | |  |  |
| Oral examination | | | |  |  |
| Other ( ……… ) | | | |  |  |
| **Final Exam** | | | | | **40** |
| **PREREQUISITE(S)** | | |  | | | | | |
| **SHORT COURSE CONTENT** | | | Genetics of embryological development of the brain, Genes involved in development  Phenotypic consequences of gene mutations and genetic basis in neurological/psychiatric diseases | | | | | |
| **COURSE AIMS** | | | To learn about the genes and molecular mechanisms that play a role in brain development and to know the genetic aspects of specific neurological/psychiatric diseases. | | | | | |
| **COURSE CONTRBUTION TO THE PROFESSIONAL EDUCATION OBJECTIVES** | | | cellular and molecular aspects of normal brain function and the genetic basis of neurological/psychiatric diseases | | | | | |
| **LEARNING OUTCOMES OF THE COURSE** | | | cellular and molecular aspects of normal brain function and the genetic basis of neurological/psychiatric diseases | | | | | |
| **TEXTBOOK** | | | Warner TT , Hammans SR Practical Guide to Neurogenetics . Saunders , 2008. | | | | | |
| **OTHER REFERENCES** | | | [Akira Sawa](http://www.amazon.com/s/ref=ntt_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=ntt_athr_dp_sr_2?_encoding=UTF8&field-author=Melvin%20G.%20McIinnis&ie=UTF8&search-alias=books&sort=relevancerank) Neurogenetics of PsychiatricDisorders ( MedicalPsychiatry Series), 2007 | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | |  | | | | | |

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|  | **WEEKLY PLAN OF THE COURSE** | |
| **WEEK** | **HISTORY** | **TOPICS COVERED** |
| 1 |  | DNA genes and mutations |
| 2 |  | What is known about the genetics of brain development |
| 3 |  | Epilepsy genetics |
| 4 |  | cerebellar and spinocerebellar diseases |
| 5 |  | Genetics of motor neuron diseases |
| 6 |  | Neuropathies and genetics |
| 7 |  | Genetics of muscle diseases |
| 8 |  | QUİZ |
| 9 |  | Tumor predisposition syndromes : VHL, NF1, NF2, |
| 10 |  | Tumor predisposition syndromes : VHL, NF1, NF2, |
| 11 |  | Genetics of cerebrovascular diseases |
| 12 |  | Degenerative Diseases Genetics |
| 13 |  | Genetic advances in Alzheimer's and Parkinson's diseases |
| 14 |  | Genetics of schizophrenia |
| 15 |  | Genetic tests |
| 16 |  | FINAL EXAM |

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| **CONTRIBUTION OF COURSE LEARNING OUTCOMES TO PROGRAM LEARNING OUTCOMES** | | **Contribution Level** | | |
| **NO** | **LESSON OUTCOMES** | **1**  **Little** | **2**  **Middle** | **3**  **High** |
| LO 1 |  |  |  |  |
| LO 2 |  |  |  |  |
| LO 3 |  |  |  |  |
| LO 4 |  |  |  |  |
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| **Instructor of the Course**  **Signature** | **History** |

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| **COURSE CODE:** **522404314** | | **DEPARTMENT: MEDICAL GENETICS** | | | |
| **COURSE NAME: GENOTYPE-PHENOTYPE RELATIONSHIP IN NEURODEGENERATIVE DISEASES** | | | | | |
| **TEACHING THE COURSE**  **STAFF** | **COURSE LANGUAGE**  **Turkish: X**  **English:** | | **Category of the Course** | | |
| Technical | Medical | Other( …… ) |
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**COURSE LEVEL**

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| **SCIENTIFIC PREPARATION** | **DEGREE** | **DOCTORATE** | **SPECIALIZED FIELD COURSE** |
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| **SEMESTER** | **WEEKLY CLASS HOURS** | | | | **YOUR COURSE** | | | |
| **Theoretical** | **APPLICATION** | | **Lab** | **Credit** | **ECTS** | **TYPE** | |
| Spring X  Autumn | 2 | 2 | |  | 3 | 7.5 | MANDATORY ELECTIVE  ** X** | |
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| **EVALUATION CRITERIA** | | | | | | | | |
| **SEMESTER ACTIVITIES** | | | **Type of activity** | | | | **Number** | **Percentage (%)** |
| Midterm Exam | | | | **1** | **50** |
| Quiz | | | |  |  |
| Homework | | | |  |  |
| Project | | | |  |  |
| Oral examination | | | |  |  |
| Other ( ……… ) | | | |  |  |
| **Final Exam** | | | | | **50** |
| **PREREQUISITE(S)** | | |  | | | | | |
| **SHORT COURSE CONTENT** | | | Definition and types of neurodegenerative diseases, phenotype in neurodegenerative diseases , phenotypic diversity with genetic markers in neurodegenerative diseases | | | | | |
| **COURSE AIMS** | | | neurodegenerative disease, dementia and other clinical features, to understand the phenotypic diversity of genetic markers and disease-specific risk assessments with the genetic markers detected. | | | | | |
| **COURSE CONTRBUTION TO THE PROFESSIONAL EDUCATION OBJECTIVES** | | | Applied evaluation of genetic markers and phenotypic diversity in neurodegenerative diseases, providing counseling for risky cases in large families | | | | | |
| **LEARNING OUTCOMES OF THE COURSE** | | | Applied evaluation of genetic markers and phenotypic diversity in neurodegenerative diseases, providing counseling for risky cases in large families | | | | | |
| **TEXTBOOK** | | | J. Cummings , J. Hardy , M. Poncet Genotype - Proteotype - PhenotypeRelationships in NeurodegenerativeDiseases . Springer . 2005 | | | | | |
| **OTHER REFERENCES** | | | Current literatures | | | | | |
| **TOOLS AND EQUIPMENTS REQUIRED** | | |  | | | | | |

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|  | **WEEKLY PLAN OF THE COURSE** | |
| **WEEK** | **HISTORY** | **TOPICS COVERED** |
| 1 |  | as proteinopathies : Phenotypic relationships |
| 2 |  | Molecular classification of neurodegenerative diseases |
| 3 |  | Ethnic influences on genotypic expression of neurodegenerative diseases |
| 4 |  | Causes and consequences of oxidative stress in neurodegenerative diseases |
| 5 |  | Familial Alzheimer's Disease with Early Onset : Can Mutation Be Predictive ? |
| 6 |  | Genes that change age of disease in large familial Alzheimer families |
| 7 |  | Large Familial Alzheimer's genes that change the age of disease in families |
| 8 |  | Midterm Exam |
| 9 |  | Phenotype variations and genetic markers in Alzheimer's disease with spastic paraparesis . |
| 10 |  | Presenilin Mutations: Behavioral phenotypic variations in determining the frontotemporal dementia phenotype. |
| 11 |  | Presenilin Mutations: Behavioral phenotypic variations in determining the frontotemporal dementia phenotype. |
| 12 |  | Frontotemporal dementia : Genotypes and phenotypes |
| 13 |  | Chromosome 17-Linked Frontotemporal Dementia : Ubiquitin -Positive , tau -Negative Inclusions |
| 14 |  | Frontotemporaldementiaphenotype variations |
| 15 |  | Frontotemporaldementiaphenotype variations |
| 16 |  | Genotype-phenotype relationship in Parkinson's disease |
|  |  | Final |

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| **CONTRIBUTION OF COURSE LEARNING OUTCOMES TO PROGRAM LEARNING OUTCOMES** | | **Contribution Level** | | |
| **NO** | **LESSON OUTCOMES** | **1**  **Little** | **2**  **Middle** | **3**  **High** |
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