



**AYDIN ADNAN MENDERES UNIVERSITY**  
**AYDIN VOCATIONAL SCHOOL OF HEALTH SERVICES**  
**MEDICAL SERVICES AND TECHNIQUES**  
**MEDICAL LABORATORY TECHNIQUES**  
**COURSE INFORMATION FORM**

|  |   |          |            |              |   |                                  |   |            |   |
|--|---|----------|------------|--------------|---|----------------------------------|---|------------|---|
| Course Title                                     | Human Genetics  |          |            |              |   |                                  |   |            |   |
| Course Code                                      | ÇS311   |          |            | Course Level |   | Short Cycle (Associate's Degree) |   |            |   |
| ECTS Credit                                      | 3   | Workload | 77 (Hours) | Theory       | 2 | Practice                         | 0 | Laboratory | 0 |
| Objectives of the Course                         | To inform about gene and genetic science, explanation of the genes' effect on the livings, to inform about the characteristics that are arised depending on genes, and problems /disease that seen due to inherited in human.   |          |            |              |   |                                  |   |            |   |
| Course Content                                   | Definitions of the basic terms related to genetics (chromosomes, DNA, genes, codon and genome etc). Structure and functions of the genes, and the importance of gene on the structure of living and the realization of the function related to of the vitality. Genes that people have and effect of these genes on the properties owned by the people. Anomalies that resulted from mutation occurring in the genes. |          |            |              |   |                                  |   |            |   |
| Work Placement                                   | N/A   |          |            |              |   |                                  |   |            |   |
| Planned Learning Activities and Teaching Methods | Explanation (Presentation), Discussion, Case Study, Individual Study  |          |            |              |   |                                  |   |            |   |
| Name of Lecturer(s)                              | Lec. Sevil ÖZCAN  |          |            |              |   |                                  |   |            |   |

#### Assessment Methods and Criteria

| Method              | Quantity | Percentage (%) |
|---------------------|----------|----------------|
| Midterm Examination | 1        | 40             |
| Final Examination   | 1        | 60             |

#### Recommended or Required Reading

|   |   |
|---|---|
| 1 | Genetic (2003) William S. Klug & Michael R. Cummings (Trans. Prof. Cihan Öner), Palme Publ.                                   |
| 2 | Basic Rules of The Life V.1 / Part.1 (2004) Ali Demirsoy, Meteksan  |
| 3 | General Biyology (2000) William T. Keeton, James L. Gould & Carol Grant Gould (Trans. Prof. Ali Demirsoy, Prof. İsmail Türkan |

| Week | Weekly Detailed Course Contents |   |
|------|---------------------------------|---|
| 1    | Theoretical                     | History of the genetis science.   |
| 2    | Theoretical                     | Genetic researches and different approaches on this subject. Progress seen in some areas due to the research conducted in genetics. |
| 3    | Theoretical                     | Definition of the basic concepts such as chromosome, gene, genome, genotipe, fenotipe to be hereditary material.                    |
| 4    | Theoretical                     | Cell cycle and cell divisions.  |
| 5    | Theoretical                     | Mendelian genetics.   |
| 6    | Theoretical                     | What is a family tree, how to draw it?  |
| 7    | Theoretical                     | Gene linkage, crossover and mapping.  |
| 8    | Theoretical                     | Midterm   |
| 9    | Theoretical                     | Extranuclear inheritance.   |
| 10   | Theoretical                     | Determination of sex and sex chromosomes.   |
| 11   | Theoretical                     | Forming the map of human chromosomes.   |
| 12   | Theoretical                     | Chromosome mutations: changes in chromosome number and order.   |
| 13   | Theoretical                     | AB0 blood groups, Bombay phenotype, Rh antigens, sickle cell anemia and human hemoglobin.   |
| 14   | Theoretical                     | Some hereditary features (in autosomal chromosomes) in human.   |
| 15   | Theoretical                     | Human genome project.   |

#### Workload Calculation

| Activity            | Quantity | Preparation | Duration | Total Workload |
|---------------------|----------|-------------|----------|----------------|
| Lecture - Theory    | 14       | 1           | 2        | 42             |
| Individual Work     | 9        | 0           | 3        | 27             |
| Midterm Examination | 1        | 2           | 1        | 3              |



|   |                                       |   |   |    |
|---|---------------------------------------|---|---|----|
| Final Examination                       | 1                                     | 4 | 1 | 5  |
|   | Total Workload (Hours)                |   |   | 77 |
|   | [Total Workload (Hours) / 25*] = ECTS |   |   | 3  |
| *25 hour workload is accepted as 1 ECTS |                                       |   |   |    |

### Learning Outcomes

|   |  |
|---|--|
| 1 | Know the genetic concepts such as gene, chromosome and genome.   |
| 2 | Knows that mutations can occur in living organisms depending on different conditions, and can occur the structural or functional changes in living according to this change. |
| 3 | Knows that the human genetic structure and the chromosomal anomalies seen in human.  |
| 4 | Knows Mendelian genetics and crosses.  |
| 5 | Knows the deviations from Mendelian genetics and types.  |

### Programme Outcomes (Medical Laboratory Techniques)

|    |   |
|----|---|
| 1  | To be able to have sufficient back ground in medical laboratory techniques and medical laboratory branches (biochemistry, microbiology, parasitology, sitogenetik etc.); the ability to use theoretical and practical knowledge in these fields.                              |
| 2  | To be able to have the basic theoretical and practical knowledge and other resources have been supported applications and tools based on secondary-level qualifications gained in the field of Medical Laboratory Techniques Program to-date text books containing formations |
| 3  | To be able to have basic knowledge about structure and function of systems in human, to analyse these data on tissue, cell and diseases.  |
| 4  | To be able to analyse the medical samples necessary for physicians by using tools, equipment and techniques at the diagnostic and the therapeutic laboratories of health agencies and evaluate the data.  |
| 5  | To be able to use the medical laboratory tools and equipments according to rules and techniques, and make controls and maintenance of them  |
| 6  | To be able to perform basic tests of related different medical laboratories, prepare solutions.   |
| 7  | To be able to perform proper sample collection and transport procedures for the medical laboratory tests from the patient.  |
| 8  | To be able to perform preanalytical sample preparation procedure, prepare inspection preparations, perform disinfection and sterilization   |
| 9  | To be able to interpret and evaluate data, define and analyze problems, develop solutions based on research and proofs by using acquired basic knowledge and skills with in the field.  |
| 10 | To be able to have knowledge about work organization and carry out related practice in medical laboratories   |
| 11 | To be able to carry out laboratory safety protocols, take individual safety precaution and create safe laboratory environment.  |
| 12 | To be able to gain the ability to apply by viewing and evaluating the processes related to his/her fields in public and private sector.   |
| 13 | To be able to gain the awareness of the necessity of life long learning, ability to follow developments in science and technology and self-renewal.   |
| 14 | To be able to help laboratory experts and medical scientists for their researches   |
| 15 | To be able to be aware of individual and public health, environmental protection and job security issues, understanding the basic level of the relationship.  |
| 16 | To be able to grasp principles of Atatürk and their evolutions, to ensure national, ethical, spiritual and cultural values, to adopt to universal and contemporary developments   |
| 17 | To be able to communicate efficiently for medical service and speak Turkish efficiently.  |
| 18 | To be able to communicate in English at basic level, utilize foreign language on occupational practice  |

### Contribution of Learning Outcomes to Programme Outcomes 1:Very Low, 2:Low, 3:Medium, 4:High, 5:Very High

|     | L1 | L2 | L3 | L4 | L5 |
|-----|----|----|----|----|----|
| P1  | 2  | 2  | 2  | 2  | 2  |
| P2  | 2  | 2  | 2  | 2  | 2  |
| P3  | 4  | 4  | 4  | 4  | 4  |
| P4  | 3  | 3  | 3  | 3  | 3  |
| P5  | 1  | 1  | 1  | 1  | 1  |
| P6  | 1  | 1  | 1  | 1  | 1  |
| P7  | 1  | 1  | 1  | 1  | 1  |
| P8  | 1  | 1  | 1  | 1  | 1  |
| P9  | 3  | 3  | 3  | 3  | 3  |
| P10 | 2  | 2  | 2  | 2  | 2  |
| P11 | 2  | 2  | 2  | 2  | 2  |



|     |   |   |   |   |   |
|-----|---|---|---|---|---|
| P12 | 2 | 2 | 2 | 2 | 2 |
| P13 | 3 | 3 | 3 | 3 | 3 |
| P14 | 2 | 2 | 2 | 2 | 2 |
| P15 | 3 | 3 | 3 | 3 | 3 |
| P16 | 4 | 4 | 4 | 4 | 4 |
| P17 | 4 | 4 | 4 | 4 | 4 |
| P18 | 5 | 5 | 5 | 5 | 5 |

