

| | | | |
|---------------------|--------------------|----------------------|------------------|
| Dentistry (English) | | | |
| Bachelor | TR-NQF-HE: Level 6 | QF-EHEA: First Cycle | EQF-LLL: Level 6 |

Course Introduction and Application Information

| | | | |
|---|---|--|--|
| Course Code: | DENT105 | | |
| Course Name: | Medical Biochemistry 1 | | |
| Semester: | Fall | | |
| Course Credits: | <div>ECTS</div> <div>2</div> | | |
| Language of instruction: | English | | |
| Course Condition: | | | |
| Does the Course Require Work Experience?: | No | | |
| Type of course: | Compulsory Courses | | |
| Course Level: | <div> <div>Bachelor</div> <div>TR-NQF-HE:6. Master`s Degree</div> <div>QF-EHEA:First Cycle</div> <div>EQF-LLL:6. Master`s Degree</div> </div> | | |
| Mode of Delivery: | Face to face | | |
| Course Coordinator: | Dr. Öğr. Üy. MURAT EKREMOĞLU | | |
| Course Lecturer(s): | Asst. Prof. Murat Ekremoğlu | | |
| Course Assistants: | | | |

Course Objective and Content

| | |
|--------------------|--|
| Course Objectives: | This course aims to teach biochemistry to dentistry students. In this course students will study the structure, functions of Proteins, Enzymes, Carbohydrate, Lipids |
| Course Content: | A required course which provides dentistry students to learn medical biochemistry. In this course students will study the structure and functions of Proteins, Enzymes, Carbohydrate, Lipids |

Learning Outcomes

The students who have succeeded in this course;

- 1) Explains the structures and functions of proteins, lipids, nucleic acids, and carbohydrates
- 2) Describes the function of vitamins and cofactors, and provide examples of each group.
- 3) Uses graphical techniques to analyze and describe simple, unimolecular enzyme activities.
- 4) Explains the chemical differences between DNA and RNA.
- 6) Explains the major differences and similarities between the synthesis of DNA and that of RNA.

Course Flow Plan

| Week | Subject | Related Preparation |
|------|---|---------------------|
| 1) | Meet & Greet Introduction of the syllabus and curriculum Water, Acid-Base, Buffer systems | |
| 2) | Amino acid structure and specifications | |
| 3) | Protein structure & function | |
| 4) | Hemoglobin & myoglobin: Structure & function | |
| 5) | Enzymes: General properties, mechanism of action of various enzymes | |
| 6) | Regulation of enzyme activity, Enzyme inhibition, Enzyme kinetics | |
| 7) | Coenzymes & Cofactors, Bioenergetics | |
| 8) | Midterm Exam I | |
| 9) | Vitamins Fat and Water Soluble Minerals | |
| 10) | Carbohydrates: Structure & classification Structure of monosaccharides & carbohydrate derivatives | |
| 11) | Heteropolysaccharides: Structure & function Glycoproteins, proteoglycans, mucopolysaccharides | |
| 12) | Lipids: Structure & function. Nomenclature & classification of fatty acids | |
| 13) | Triacylglycerols, phospholipids, glycolipids, steroids Plasma lipoproteins | |
| 14) | Nucleic acids & nucleotides: Structure & functions | |

Sources

| | |
|------------------------------|--|
| Course Notes / Textbooks: | Victor W Rodwell; David A Bender; Kathleen M Botham; Peter J Kennelly; P Anthony Weil. Harper' Illustrated Biochemistry, New York : Mcgraw-Hill Education, [2018] |
|------------------------------|--|

| | |
|-------------|--|
| References: | Lippincotts Biochemistry, Lehninger Principles of Biochemistry |
|-------------|--|

Course - Program Learning Outcome Relationship

| Course Learning Outcomes | 1 | 2 | 3 | 4 | 6 |
|--|---|---|---|---|---|
| Program Outcomes | | | | | |
| 1) Has basic and up-to-date knowledge in the field of dentistry, follows scientific publications, and applies evidence-based data to his/her professional practice. | 2 | 2 | 1 | 2 | 1 |
| 2) Knows well and effectively uses devices, tools, and materials specific to diagnosis and treatment in the field of dentistry. | | | | | |
| 3) Evaluates the knowledge in the field of dentistry critically, integrates it with the knowledge of disciplines in the field of health, uses it by analyzing and synthesizing it. | 2 | 2 | 2 | 2 | 2 |
| 4) Produces projects related to the field of dentistry, can work with other health disciplines, takes part as a member of the research team and evaluates and reports the results obtained at a scientific level. | 2 | 2 | 2 | 2 | 2 |
| 5) Uses information that will contribute to the dentistry profession during practice, takes responsibility, and produces solutions in unforeseen situations. | 2 | 2 | 2 | 2 | 2 |
| 6) Shares, compares, and exchanges dental knowledge with professional colleagues in social and scientific environments in written, verbal, and visual forms. | | | | | |
| 7) Within the framework of social, scientific, and ethical values including patient privacy, communicates with patients and their relatives, knows all the characteristics of the patient, and recommends the most appropriate treatment with a patient-centered approach. | | | | | |
| 8) Follows technological developments, participates in national and international studies, and shares and presents own observations, experiences, and research to further advance dental practices. | | | | | |
| 9) By adopting the principle of lifelong learning throughout the dentistry profession, follows current evidence-based dental knowledge and uses it during his professional practice. | | | | | |
| 10) During dental practice, in cases such as abuse and addiction, performs the treatment by exhibiting the behaviors required by social ethics and legal rules, and collects and records the relevant data. | | | | | |
| 11) Uses basic and current knowledge in the field of dentistry during professional practice for the benefit of society within the framework of national values and | | | | | |

| | | | | | |
|--|----------|----------|----------|----------|----------|
| country realities. Course Learning Outcomes | 1 | 2 | 3 | 4 | 6 |
| 12) In natural disasters and emergency cases, takes the protective measures required by the dentistry profession; performs professional practices that benefit patients and society | | | | | |
| 13) Generates ideas regarding health policy in dentistry, prioritizes individual and public health, and carries out preventive and therapeutic medical practices within the framework of scientific, ethical, and quality processes. | | | | | |
| 14) Differentiates the signs and symptoms commonly encountered in the dentistry profession, makes a treatment plan and refers when necessary, and manages diseases and clinical situations regarding their urgency and patient priority. | | | | | |
| 15) Can assume the leadership responsibility of the team he/she works for, manage it following scientific criteria, and support the professional development of the team. | | | | | |

Course - Learning Outcome Relationship

| No Effect | 1 Lowest | 2 Average | 3 Highest |
|-----------|----------|-----------|-----------|
| | | | |

| | Program Outcomes | Level of Contribution |
|----|--|-----------------------|
| 1) | Has basic and up-to-date knowledge in the field of dentistry, follows scientific publications, and applies evidence-based data to his/her professional practice. | 2 |
| 2) | Knows well and effectively uses devices, tools, and materials specific to diagnosis and treatment in the field of dentistry. | |
| 3) | Evaluates the knowledge in the field of dentistry critically, integrates it with the knowledge of disciplines in the field of health, uses it by analyzing and synthesizing it. | 2 |
| 4) | Produces projects related to the field of dentistry, can work with other health disciplines, takes part as a member of the research team and evaluates and reports the results obtained at a scientific level. | 2 |
| 5) | Uses information that will contribute to the dentistry profession during practice, takes responsibility, and produces solutions in unforeseen situations. | 2 |
| 6) | Shares, compares, and exchanges dental knowledge with professional colleagues in social and scientific environments in written, verbal, and visual forms. | |
| 7) | Within the framework of social, scientific, and ethical values including patient privacy, communicates with patients and their relatives, knows all the characteristics of the patient, | |

| | | |
|-----|--|--|
| | and recommends the most appropriate treatment with a patient-centered approach. | |
| 8) | Follows technological developments, participates in national and international studies, and shares and presents own observations, experiences, and research to further advance dental practices. | |
| 9) | By adopting the principle of lifelong learning throughout the dentistry profession, follows current evidence-based dental knowledge and uses it during his professional practice. | |
| 10) | During dental practice, in cases such as abuse and addiction, performs the treatment by exhibiting the behaviors required by social ethics and legal rules, and collects and records the relevant data. | |
| 11) | Uses basic and current knowledge in the field of dentistry during professional practice for the benefit of society within the framework of national values and country realities. | |
| 12) | In natural disasters and emergency cases, takes the protective measures required by the dentistry profession; performs professional practices that benefit patients and society | |
| 13) | Generates ideas regarding health policy in dentistry, prioritizes individual and public health, and carries out preventive and therapeutic medical practices within the framework of scientific, ethical, and quality processes. | |
| 14) | Differentiates the signs and symptoms commonly encountered in the dentistry profession, makes a treatment plan and refers when necessary, and manages diseases and clinical situations regarding their urgency and patient priority. | |
| 15) | Can assume the leadership responsibility of the team he/she works for, manage it following scientific criteria, and support the professional development of the team. | |

Assessment & Grading

| Semester Requirements | Number of Activities | Level of Contribution |
|-----------------------------|----------------------|-----------------------|
| Midterms | 1 | % 40 |
| Final | 1 | % 60 |
| total | | % 100 |
| PERCENTAGE OF SEMESTER WORK | | % 40 |
| PERCENTAGE OF FINAL WORK | | % 60 |
| total | | % 100 |

Workload and ECTS Credit Calculation

| | | | | | |
|--|--|--|--|--|--|
| | | | | | |
|--|--|--|--|--|--|

| Activities | Number of Activities | Preparation for the Activity | Spent for the Activity Itself | Completing the Activity Requirements | Workload |
|----------------|----------------------|------------------------------|-------------------------------|--------------------------------------|----------|
| Course Hours | 14 | 1 | 2 | | 42 |
| Midterms | 1 | 2 | 1 | | 3 |
| Final | 1 | 4 | 1 | | 5 |
| Total Workload | | | | | 50 |