| | OXIDATIVE S | YSTEI | M AND ANTIOXIDANTS | | | | | | | |
|----|--|--|--|--|--|--|--|--|--|--|
| 1 | Course Title: | OXIDAT | IVE SYSTEM AND ANTIOXIDANTS | | | | | | | |
| 2 | Course Code: | TBK 600 | 7 | | | | | | | |
| 3 | Type of Course: | Optional | | | | | | | | |
| 4 | Level of Course: | Third Cy | cle | | | | | | | |
| 5 | Year of Study: | 1 | | | | | | | | |
| 6 | Semester: | 1 | | | | | | | | |
| 7 | ECTS Credits Allocated: | 5.00 | | | | | | | | |
| 8 | Theoretical (hour/week): | 1.00 | | | | | | | | |
| 9 | Practice (hour/week): | 2.00 | | | | | | | | |
| 10 | Laboratory (hour/week): | 0 | | | | | | | | |
| 11 | Prerequisites: | No | | | | | | | | |
| 12 | Language: | Turkish | | | | | | | | |
| 13 | Mode of Delivery: | Face to face | | | | | | | | |
| 14 | Course Coordinator: | Prof. Dr. ZEHRA SERDAR | | | | | | | | |
| 15 | Course Lecturers: | - | | | | | | | | |
| 16 | Contact information of the Course Coordinator: | zserdar@uludag.edu.tr 2953914 Uludağ Üniversitesi Tıp Fakültesi, Temel Tıp Bilimleri Binası, Tıbbi Biyokimya Anabilim Dalı, 16059 | | | | | | | | |
| 17 | Website: | | | | | | | | | |
| 18 | Objective of the Course: | a) To teach the structures, physical and chemical characteristics, metabolites, endogen and exogen sources of the free radicals, and cellular damages such as lipid peroxidation, protein and carbohydrate oxidation and DNA damage and, their roles at the development of the diseases. b) To teach the structures and functions of the intracellular antioxidants, membrane antioxidants and extracellular antioxidants and, their roles at the development of the development of the diseases. | | | | | | | | |
| 19 | Contribution of the Course to Professional Development: | | | | | | | | | |
| 20 | Learning Outcomes: | | | | | | | | | |
| | | 1 | To explain the basic concepts related to free radicals | | | | | | | |
| | | 2 | To explain the basic concepts related to antioxidants | | | | | | | |
| | | 3 | To explain the roles of free radicals at the development of the several diseases | | | | | | | |
| | | 4 | To explain the roles of antioxidants at the development of the several diseases | | | | | | | |
| | | 5 | To acquire with the basic information that can be helpful in the evaluation and interpretation of some clinical cases. | | | | | | | |
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| 21 | Course Content: | | | | | | | | | |

| | Course Content: | | | | | | | | | | | |
|--------------------------------|--|--------|---|---|------------------------------|---------------------------|--|--|--|--|--|--|
| Week | Theoretical | | Р | Practice | | | | | | | | |
| 1 | Description of the free radicals | | In | Introduction of spectrophotometer | | | | | | | | |
| 2 | Metabolites and chemical structures | | M | Measurement of MDA at spectrophotometer | | | | | | | | |
| 3 | Reactivite and half-life | | M | Measurement of conjuge dien at spectrophotometer | | | | | | | | |
| 4 | Endogen sources | | In | Introduction of HPLC | | | | | | | | |
| 5 | Exogen sources | | Measurement of MDA at HPLC | | | | | | | | | |
| 6 | Role of free radicals in cellular damaged | ge | M | Measurement of protein carbonyls at spectrophotometer | | | | | | | | |
| 7 | Measurement methods of the free rac | dicals | M | Measurement of carotenoids at spectrophotometer | | | | | | | | |
| 8 | Description of the antioxidants | | M | Measurement of vitamin E at spectrophotometer | | | | | | | | |
| 9 | Intracellular antioxidants | | M | Measurement of vitamin E at HPLC | | | | | | | | |
| 10 | Membrane antioxidants | | M | Measurement of catalase at spectrophotometer | | | | | | | | |
| 11 | Extracellular antioxidants | M | Measurement of SOD at spectrophotometer | | | | | | | | | |
| 12 | Non-classifiable antioxidants | M | easurement of GPX at | spectrophotomete | er | | | | | | | |
| Activit | ll tooouromont mothodo of the ontiovi ies | donto | | Number | Duration (hour) | Total Work Load (hour) | | | | | | |
| Theore | | | | 14 | 1.00 | 14.00 | | | | | | |
| Practic | als/Labs | | | 14 | 2.00 | 28.00 | | | | | | |
| Self stu | dy and preperation | | 3 | 3(2): 110 – 118. Valka M. Laibfritz D. I | 7.00 | 98.00 | | | | | | |
| Homew | vorks | | | 0 | 0.00 | 0.00 | | | | | | |
| Project | 8 | | р | ysiological functions a | იტესოი disease | dntol Biochem | | | | | | |
| Field S | tudies | | | 0 | 0.00 | 0.00 | | | | | | |
| Midtern | n exams | | G | haskadbi SS, Lele RD Iman health: current st | Free radicals and | antiaxidants in | | | | | | |
| Others | • | | | 0 | 0.00 | 0.00 | | | | | | |
| Final E | kams | | 4. a | Laguerre M, Lecomte | 10 Villeneuve P. Ev | aluation of the | | | | | | |
| Total W | Vork Load | | | | | 150.00 | | | | | | |
| Total w | ork load/ 30 hr | | 5 | esearcn. 2007; 46: 244 Halliwell B. Gutteridge | –282. a J M C Free radica | 5.00 s in biology | | | | | | |
| ECTS | Credit of the Course | | | | | 5.00 | | | | | | |
| 23 | Assesment | | | | | | | | | | | |
| TERM LEARNING ACTIVITIES NUMBE | | | | EIGHT | | | | | | | | |
| Midterm Exam 0 | | | | 0.00 | | | | | | | | |
| Quiz 0 | | | | 0.00 | | | | | | | | |
| Home | work-project | 0 | 0.00 | | | | | | | | | |
| Final E | xam | 1 | 100.00 | | | | | | | | | |
| Total | | 1 | 10 | 100.00 | | | | | | | | |
| Contrib Succes | oution of Term (Year) Learning Activitiess Grade | es to | 0. | 0.00 | | | | | | | | |
| Contrib | oution of Final Exam to Success Grade | 9 | 10 | 100.00 | | | | | | | | |

| Total | | | | | | | | | 100.00 | | | | | | | | |
|--|--|-----|-----|-------|-----|-----|------|-----|--------|----------|------|-------------|----------|------|------|------|--|
| Measurement and Evaluation Techniques Used in the Course | | | | | | | ne | | | | | | | | | | |
| 24 ECTS / WORK LOAD TABLE | | | | | | | | | | | | | | | | | |
| 25 | CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAMME QUALIFICATIONS | | | | | | | | | | | | | | | | |
| | PQ1 | PQ2 | PQ3 | PQ4 | PQ5 | PQ6 | PQ7 | PQ8 | PQ9 | PQ1 0 | PQ11 | PQ12 | PQ1 3 | PQ14 | PQ15 | PQ16 | |
| ÖK1 | 2 | 1 | 0 | 3 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| ÖK2 | 2 | 1 | 0 | 3 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| ÖK3 | 2 | 1 | 0 | 3 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| ÖK4 | 2 | 1 | 0 | 3 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| ÖK5 | 2 | 1 | 0 | 3 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| LO: Learning Objectives PQ: Program Qualifications | | | | | | | | | | | | | | | | | |
| Contrib 1 very low ution Level: | | | | 2 Iow | | 3 | Medi | um | 4 High | | | 5 Very High | | | | | |