# ANTIMICROBIAL EFFECTS AND MECHANISMS OF RESISTANCE

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| 1 | Course Title: | ANTIMICROBIAL EFFECTS AND MECHANISMS OF RESISTANCE | |
| 2 | Course Code: | TMK6009 | |
| 3 | Type of Course: | Optional | |
| 4 | Level of Course: | Third Cycle | |
| 5 | Year of Study: | 1 | |
| 6 | Semester: | 1 | |
| 7 | ECTS Credits Allocated: | 5.00 | |
| 8 | Theoretical (hour/week): | 2.00 | |
| 9 | Practice (hour/week): | 0.00 | |
| 10 | Laboratory (hour/week): | 0 | |
| 11 | Prerequisites: | Optional | |
| 12 | Language: | Turkish | |
| 13 | Mode of Delivery: | Face to face | |
| 14 | Course Coordinator: | Prof. Dr. EMİN HALİS AKALIN | |
| 15 | Course Lecturers: | Prof Dr Halis Akalın<br>Prof Dr Sibel Gürün<br>Prof Dr Cüneyt Özakın<br>Doç Dr Melda Sınırtaş | |
| 16 | Contact information of the Course Coordinator: | halis@uludag.edu.tr<br>0224 295 0315<br>Uludağ Üniversitesi Tıp Fakültesi Enfeksiyon Hastalıkları Anabilim Dalı 16059 Görükle Bursa | |
| 17 | Website: | http:/www.uludag.edu.tr | |
| 18 | Objective of the Course: | Be able to classify the antibiotics and synthetic antimicrobial agents, to comprehend the mechanisms of action of antimicrobials and bacterial resistance mechanisms developed against them | |
| 19 | Contribution of the Course to Professional Development: | | |
| 20 | Learning Outcomes: | | |
| | | **1** | To classify the antimicrobials and to learn the historical development of antibacterial treatment |
| | | **2** | To learn the antibacterials and mechanisms of effect |
| | | **3** | To learn the concepts of MIC, MBC, bacteriostatic and bactericidal effects |
| | | **4** | To learn the pharmacokinetic and pharmacodynamic of antibacterials |
| | | **5** | To learn and comment the in vitro susceptibility tests |
| | | **6** | To learn and comment the in vitro synergy tests |
| | | **7** | To understand the public health problems due to antibacterial resistance |
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| | | **9** | |
| | | **10** | |
| 21 | Course Content: | | |
| | **Course Content:** | | |
| Week | Theoretical | | Practice |

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| **1** | Antimicrobials: Overview | |
| **2** | Antibacterials and mechanisms of effect | |
| **3** | Beta-lactams | |
| **4** | Macrolides | |
| **5** | Aminoglycosides | |
| **6** | Quinolones | |
| **7** | Glycopeptides | |
| **8** | Tetracyclines and others | |
| **9** | Development of resistance to antibacterials and resistance mechanisms | |
| **10** | In vitro antibacterial susceptibility tests | |
| **11** | In vitro antibacterial synergy tests | |
| **12** | Pharmacokinetic and pharmacodynamic of antibacterials | |
| **13** | From laboratory to clinic. Work with together | |
| **14** | Stewardship of antibacterial usage | |

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| **22** | Textbooks, References and/or Other Materials: | Murray PR, Rosenthal KS, Pfaller MA. Medical Microbiology. 6th ed. Philladelphia:Mosby 2010<br>Mandell GL, Bennett JE, Dolin R. Principle and Practice of Infectious Diseases. 7th ed.<br>Churchill-Livingstone-Elsevier 2010. |

| Activites | Number | Duration (hour) | Total Work Load (hour) |
|---|---|---|---|
| Theoretical | 14 | 2.00 | 28.00 |
| Practicals/Labs | 0 | 0.00 | 0.00 |
| Self study and preperation | 12 | 8.50 | 102.00 |
| Homeworks | 0 | 0.00 | 0.00 |
| Projects | 0 | 0.00 | 0.00 |
| Field Studies | 0 | 0.00 | 0.00 |
| Midterm exams | 1 | 10.00 | 10.00 |
| Others | 0 | 0.00 | 0.00 |
| Final Exams | 1 | 10.00 | 10.00 |
| Total Work Load | | | 150.00 |
| Total work load/ 30 hr | | | 5.00 |
| ECTS Credit of the Course | | | 5.00 |

Midterm Exam 1 40.00
Home work-project 0 0.00
Total 2 100.00
Success Grade
Contribution of Final Exam to Success Grade 60.00
Total 100.00

**24 ECTS / WORK LOAD TABLE**

| **25** | **CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAMME QUALIFICATIONS** | | | | | | | | | | | | | | | |
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| | **PQ1** | **PQ2** | **PQ3** | **PQ4** | **PQ5** | **PQ6** | **PQ7** | **PQ8** | **PQ9** | **PQ10** | **PQ11** | **PQ12** | **PQ13** | **PQ14** | **PQ15** | **PQ16** |
| **ÖK1** | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **ÖK2** | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **ÖK3** | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **ÖK4** | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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| **ÖK5** | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 5 | 3 | 0 | 0 | 2 | 0 | 0 | 0 | 0 |
| **ÖK6** | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 5 | 3 | 0 | 0 | 2 | 0 | 0 | 0 | 0 |
| **ÖK7** | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**LO: Learning Objectives PQ: Program Qualifications**

| **Contribution Level:** | **1 very low** | **2 low** | **3 Medium** | **4 High** | **5 Very High** |
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