

# BACTERIAL PHYSIOLOGY

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|------|---|--|
| 1    | Course Title:   | BACTERIAL PHYSIOLOGY   |
| 2    | Course Code:  | BYL4089  |
| 3    | Type of Course:   | Optional   |
| 4    | Level of Course:  | First Cycle  |
| 5    | Year of Study:  | 4  |
| 6    | Semester:   | 7  |
| 7    | ECTS Credits Allocated:                                 | 4.00   |
| 8    | Theoretical (hour/week):                                | 2.00   |
| 9    | Practice (hour/week):                                   | 0.00   |
| 10   | Laboratory (hour/week):                                 | 0  |
| 11   | Prerequisites:  | None   |
| 12   | Language:   | Turkish  |
| 13   | Mode of Delivery:                                       | Face to face   |
| 14   | Course Coordinator:                                     | Prof. Dr. Elif Demirkan  |
| 15   | Course Lecturers:                                       |  |
| 16   | Contact information of the Course Coordinator:          | edemirkan@uludag.edu.tr<br>Tel: (0224)2941794<br>Uludağ Üniversitesi Fen-Edebiyat Fakültesi, Biyoloji Bölümü, B Blok<br>Görükle Kampüsü, Nilüfer/BURSA 16059<br>Uludag University, Faculty of Science&Letters, Department of<br>Biology, Nilufer/BURSA 16059 |
| 17   | Website:  |  |
| 18   | Objective of the Course:                                | The goal of this course is understand concepts in bacterial physiology with emphasis on basic biochemical pathways, metabolism and bacterial cellular development.   |
| 19   | Contribution of the Course to Professional Development: |  |
| 20   | Learning Outcomes:                                      |  |
|      | 1   | To be able see the continuity of the relationship between the environment and living   |
|      | 2   | The ability to effectively employ communication technologies   |
|      | 3   | To earn the ability to transfer information  |
|      | 4   | The ability to win the professional and ethical responsibility awareness   |
|      | 5   | To have sufficient knowledge in areas of Natural Sciences for which one might be consulted   |
|      | 6   | Be aware of scientific innovation about bacteria   |
|      | 7   | To comprehend the position and responsibility of microorganisms beings in nature   |
|      | 8   | To be able to reach up to date information   |
|      | 9   |  |
|      | 10  |  |
| 21   | Course Content:   |  |
|      | <b>Course Content:</b>                                  |  |
| Week | Theoretical   | Practice   |
| 1    | General characters of bacteria: morphological features  |  |

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|--|--|--|
| 2  | Bacteria anatomical structures: internal structures                            |  |
| 3  | Bacteria anatomical structures: external structures                            |  |
| 4  | Chemical structure of bacteria, nutrition and reproduction                     |  |
| 5  | Factors Influencing bacterial Growth: physical and chemical factors            |  |
| 6  | Factors Influencing bacterial Growth: biological and mechanical factors        |  |
| 7  | Control of microbial reproduction: the use of chemical and physical items      |  |
| 8  | Bacterial Metabolism and regulation  |  |
| 9  | Genetic adaptation   |  |
| 10   | Phototropism and Chemotropism  |  |
| 11   | Specific metabolic pathways:metilotrofy, syntrophy, Asetogenesis, anammox etc. |  |
| 12   | Archaeobacteria  |  |
| 13   | Proteobacteria   |  |
| 14   | The communication between bacteria: Quorum Sensing                             |  |
|  |  |  |
| 22   | Textbooks, References and/or Other Materials:                                  | E. Demirkan, Bacterial Physiology Lecture Notes<br><br>Madigan, M, Martinko, JM., Parker,J. Brock Biology of Microorganisms. |
| 23   | Assesment  |  |
| <b>TERM LEARNING ACTIVITIES</b>                                  |  | <b>NUMBE R</b>   |
|  |  | <b>WEIGHT</b>  |
| Midterm Exam   |  | 1  |
| Quiz   |  | 0  |
| Home work-project  |  | 0  |
| Final Exam   |  | 1  |
| Total  |  | 2  |
| Contribution of Term (Year) Learning Activities to Success Grade |  | 40.00  |
| Contribution of Final Exam to Success Grade                      |  | 60.00  |
| Total  |  | 100.00   |
| Measurement and Evaluation Techniques Used in the Course         |  |  |
| 24   | <b>ECTS / WORK LOAD TABLE</b>  |  |

| 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 | 15     | 6.00            | 90.00                  |
| Homeworks                  | 0      | 0.00            | 0.00                   |
| Projects                   | 0      | 0.00            | 0.00                   |
| Field Studies              | 0      | 0.00            | 0.00                   |
| Midterm exams              | 1      | 1.00            | 1.00                   |
| Others                     | 0      | 0.00            | 0.00                   |
| Final Exams                | 1      | 1.00            | 1.00                   |
| Total Work Load            |        |                 | 120.00                 |
| Total work load/ 30 hr     |        |                 | 4.00                   |
| ECTS Credit of the Course  |        |                 | 4.00                   |

| 25   | CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAMME QUALIFICATIONS |     |       |     |          |     |        |     |             |      |      |      |      |      |      |      |
|--|---|-----|-------|-----|----------|-----|--------|-----|-------------|------|------|------|------|------|------|------|
|  | PQ1   | PQ2 | PQ3   | PQ4 | PQ5      | PQ6 | PQ7    | PQ8 | PQ9         | PQ10 | PQ11 | PQ12 | PQ13 | PQ14 | PQ15 | PQ16 |
| ÖK1  | 0   | 0   | 0     | 0   | 0        | 5   | 0      | 0   | 0           | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| ÖK2  | 0   | 4   | 0     | 0   | 0        | 0   | 0      | 0   | 0           | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| ÖK3  | 0   | 0   | 0     | 0   | 0        | 0   | 0      | 0   | 4           | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| ÖK4  | 0   | 0   | 4     | 0   | 0        | 0   | 0      | 0   | 0           | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| ÖK5  | 0   | 0   | 0     | 4   | 0        | 0   | 0      | 0   | 0           | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| ÖK6  | 0   | 0   | 0     | 0   | 0        | 0   | 0      | 0   | 0           | 0    | 5    | 0    | 0    | 0    | 0    | 0    |
| ÖK7  | 0   | 0   | 0     | 0   | 0        | 5   | 0      | 0   | 0           | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| ÖK8  | 0   | 0   | 0     | 0   | 0        | 0   | 0      | 0   | 0           | 0    | 0    | 5    | 0    | 0    | 0    | 0    |
| LO: Learning Objectives PQ: Program Qualifications |   |     |       |     |          |     |        |     |             |      |      |      |      |      |      |      |
| Contribution Level:                                | 1 very low  |     | 2 low |     | 3 Medium |     | 4 High |     | 5 Very High |      |      |      |      |      |      |      |