

# MOLECULAR GENETICS

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|------|---|---|--|
| 1    | Course Title:   | MOLECULAR GENETICS  |  |
| 2    | Course Code:  | MBG3001-BH  |  |
| 3    | Type of Course:   | Compulsory  |  |
| 4    | Level of Course:  | Third Cycle   |  |
| 5    | Year of Study:  | 0   |  |
| 6    | Semester:   | 0   |  |
| 7    | ECTS Credits Allocated:   | 6.00  |  |
| 8    | Theoretical (hour/week):  | 3.00  |  |
| 9    | Practice (hour/week):   | 0.00  |  |
| 10   | Laboratory (hour/week):   | 0   |  |
| 11   | Prerequisites:  |   |  |
| 12   | Language:   | Turkish   |  |
| 13   | Mode of Delivery:   | Face to face  |  |
| 14   | Course Coordinator:   | Prof. Dr. SEZAİ TÜRKEL  |  |
| 15   | Course Lecturers:   |   |  |
| 16   | Contact information of the Course Coordinator:                                | sturkel@uludag.edu.tr   |  |
| 17   | Website:  |   |  |
| 18   | Objective of the Course:  | To teach structure, expression and control mechanisms of genes in different organisms and organelles. |  |
| 19   | Contribution of the Course to Professional Development:                       | Knows gene structures and expression  |  |
| 20   | Learning Outcomes:  |   |  |
|      |   | 1   | Learns gene structures   |
|      |   | 2   | Learns molecular mechanisms of gene regulations                      |
|      |   | 3   | Learns control mechanisms of gene expressions in different organisms |
|      |   | 4   |  |
|      |   | 5   |  |
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|      |   | 10  |  |
| 21   | Course Content:   |   |  |
|      |   | <b>Course Content:</b>  |  |
| Week | Theoretical   | Practice  |  |
| 1    | Introduction, DNA structure and packaging                                     |   |  |
| 2    | Genome organization in different organisms                                    |   |  |
| 3    | Basic principles of transcription and RNA polymerases                         |   |  |
| 4    | Control mechanisms of transcription in different gene groups in eukaryotes -1 |   |  |
| 5    | Control mechanisms of transcription in different gene groups in eukaryotes -1 |   |  |

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| 6  | RNA processing and localization  |  |
| 7  | Gene structure and organizations in bacteria, and control mechanisms of gene expression                  |  |
| 8  | The genetic code. Introduction to translation  |  |
| 9  | Mechanisms of translational control  |  |
| 10 | Genome organization in organelles, control mechanisms of gene expression in mitochondria nad chloroplast |  |
| 11 | protooncogenes and their cellular functions  |  |
| 12 | post translational reglation mechanisms and its significance   |  |
| 13 | Gene structure and organization in different viruses, control mechanisms of gene expression in viruses-1 |  |
| 14 | Gene structure and organization in different viruses, control mechanisms of gene expression in viruses-2 |  |

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| 22 | Textbooks, References and/or Other Materials: | 1- Genomlar 3: T.A. Brown., Çeviri editörü: F. Bardakçı, C. Ülger. 2015 (İngilizce/Türkçe)<br>Barkod (ISBN) : 978-605-320-207-3<br>2- Lewin's Genes XII. (İngilizce)<br>Barkod: 13: 978-1-284-10449-3<br>3- Moleküler Biyoloji, Editör . Prof.Dr. M Karataş (Türkçe)<br>Barkod: 978-605-88012-7-1<br>4- Temel Moleküler Biyoloji, Lisabeth A. Allison. Çeviri editörü: Prof.Dr. Ali Osman Beldüz (Türkçe) Barkod: 978-605-88012-7-1 |
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| Activites  |           | Number | Duration (hour) | Total Work Load (hour) |
|--|-----------|--------|-----------------|------------------------|
| Theoretical  |           | 14     | 3.00            | 42.00                  |
| 23   | Assesment |        |                 |                        |
| Practicals/Labs  |           | 0      | 0.00            | 0.00                   |
| Self study and preperation                                       | R         | 14     | 7.00            | 98.00                  |
| Homeworks  |           | 0      | 0.00            | 0.00                   |
| Quiz   | 0         | 0      | 0.00            | 0.00                   |
| Field Studies  |           | 0      | 0.00            | 0.00                   |
| Final Exam   | 1         | 60     | 15.00           | 15.00                  |
| Others   |           | 0      | 0.00            | 0.00                   |
| Contribution of Term (Year) Learning Activities to Success Grade |           | 40     | 25.00           | 25.00                  |
| Total Work Load  |           |        |                 | 195.00                 |
| Contribution of Final Exam to Success Grade                      |           | 60     | 6.00            | 6.00                   |
| Total work load/ 30 hr   |           |        |                 |                        |
| ECTS Credit of the Course  |           |        |                 | 6.00                   |

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| Measurement and Evaluation Techniques Used in the Course | Midterm and final exam scores determines the final grade |
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## 24 ECTS / WORK LOAD TABLE

| 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 | 1   | 5   | 4   | 4   | 5   | 5   | 4   | 5   | 5   | 4    | 0    | 0    | 0    | 0    | 0    | 0    |
| ÖK2 | 2   | 4   | 4   | 3   | 3   | 4   | 2   | 5   | 4   | 5    | 0    | 0    | 0    | 0    | 0    | 0    |

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|--|------------|---|-------|---|----------|---|--------|---|-------------|---|---|---|---|---|---|---|
| ÖK3  | 2          | 4 | 3     | 4 | 2        | 3 | 4      | 5 | 5           | 5 | 0 | 0 | 0 | 0 | 0 | 0 |
| LO: Learning Objectives   PQ: Program Qualifications |            |   |       |   |          |   |        |   |             |   |   |   |   |   |   |   |
| Contrib<br>ution<br>Level:                           | 1 very low |   | 2 low |   | 3 Medium |   | 4 High |   | 5 Very High |   |   |   |   |   |   |   |