# DNA,RNA AND PROTEIN SYNTHESIS METABOLISM

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| 1 | Course Title: | DNA,RNA AND PROTEIN SYNTHESIS METABOLISM |
| 2 | Course Code: | KIM5041 |
| 3 | Type of Course: | Optional |
| 4 | Level of Course: | Third Cycle |
| 5 | Year of Study: | 1 |
| 6 | Semester: | 1 |
| 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: | None |
| 12 | Language: | Turkish |
| 13 | Mode of Delivery: | Face to face |
| 14 | Course Coordinator: | Prof. Dr. Bilgen Osman |
| 15 | Course Lecturers: | |
| 16 | Contact information of the Course Coordinator: | Prof. Dr. Bilgen OSMAN<br>bilgeno@uludag.edu.tr<br>0 224 294 17 21<br>Uludağ Üniversitesi Fen-Edebiyat Fakültesi Kimya Bölümü, Görükle/BURSA 16059 |
| 17 | Website: | |
| 18 | Objective of the Course: | The aim of this course is to give information about DNA,RNA and protein synthesis in cell. |
| 19 | Contribution of the Course to Professional Development: | To have knowledge about DNA, RNA and protein sysnthesis taking place in the cell |
| 20 | Learning Outcomes: | |
| | 1 | Knows the basic concepts of genes and chromosomes |
| | 2 | Distinguishes the differences of DNA,RNA and protein metabolism |
| | 3 | Knows the synthesis of DNA,RNA and protein |
| | 4 | Knows the basic concepts of gene regulation |
| | 5 | Learn the gene regulations of prokaryotic and eukaryotic cells |
| | 6 | |
| | 7 | |
| | 8 | |
| | 9 | |
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| 21 | Course Content: | |

**Course Content:**

| Week | Theoretical | Practice |
|---|---|---|
| 1 | Genes and chromosomes | |
| 2 | DNA replication | |
| 3 | DNA replication | |
| 4 | DNA repair and recombination | |

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|---|---|---|
| **5** | DNA-Dependent Synthesis of RNA | |
| **6** | DNA-Dependent Synthesis of RNA | |
| **7** | RNA-Dependent Synthesis of RNA and DNA | |
| **8** | Midterm | |
| **9** | Protein Synthesis (translation) | |
| **10** | Protein Synthesis (translation) | |
| **11** | Protein Targeting and Degradation | |
| **12** | Principles of Gene Regulation | |
| **13** | Regulation of Gene Expression in Prokaryotes | |
| **14** | Regulation of Gene Expression in Prokaryotes | |

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| **22** | Textbooks, References and/or Other Materials: | Lehninger,Principles of Biochemistry<br>Strayer, Biochemistry |
| **23** | Assesment | |

| **TERM LEARNING ACTIVITIES** | **NUMBER** | **WEIGHT** |
|---|---|---|
| Midterm Exam | 1 | 40.00 |
| Quiz | 0 | 0.00 |
| Home work-project | 0 | 0.00 |
| Final Exam | 1 | 60.00 |
| Success Grade | | |
| Contribution of Final Exam to Success Grade | | 60.00 |
| Total | | 100.00 |

| Activites | Number | Duration (hour) | Total Work Load (hour) |
|---|---|---|---|
| Theoretical | 14 | 3.00 | 42.00 |
| Practicals/Labs | 0 | 0.00 | 0.00 |
| Self study and preperation | 14 | 5.00 | 70.00 |
| Homeworks | 0 | 0.00 | 0.00 |
| Projects | 0 | 0.00 | 0.00 |
| Course | | | |

**24 ECTS / WORK LOAD TABLE**

| | | | |
|---|---|---|---|
| Field Studies | 0 | 0.00 | 0.00 |
| Midterm exams | 1 | 15.00 | 15.00 |
| Others | 3 | 10.00 | 30.00 |
| Final Exams | 1 | 20.00 | 20.00 |
| Total Work Load | | | 177.00 |
| Total work load/ 30 hr | | | 5.90 |
| ECTS Credit of the Course | | | 6.00 |

| **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** | 4 | 4 | 5 | 0 | 4 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **ÖK2** | 4 | 0 | 3 | 0 | 0 | 0 | 5 | 4 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 |
| **ÖK3** | 4 | 5 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **ÖK4** | 4 | 0 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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| **ÖK5** | 4 | 0 | 4 | 3 | 4 | 0 | 0 | 0 | 5 | 4 | 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** |