

COURSE OUTLINE

(1) GENERAL

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|---|---|-----------------|---|
| SCHOOL | NATURAL SCIENCES | | |
| ACADEMIC UNIT | BIOLOGY | | |
| LEVEL OF STUDIES | UNDER GRADUATE | | |
| COURSE CODE | BIO_EY05 | SEMESTER | 5 |
| COURSE TITLE | Molecular Biology II | | |
| INDEPENDENT TEACHING ACTIVITIES <i>if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits</i> | WEEKLY TEACHING HOURS | CREDITS | |
| Lectures | 3 | 6 | |
| Laboratory Practice | 3 | | |
| <i>Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).</i> | | | |
| COURSE TYPE <i>general background, special background, specialised general knowledge, skills development</i> | Scientific Field | | |
| PREREQUISITE COURSES: | None | | |
| LANGUAGE OF INSTRUCTION and EXAMINATIONS: | Greek and English in case that foreign students participate | | |
| IS THE COURSE OFFERED TO ERASMUS STUDENTS | Yes | | |
| COURSE WEBSITE (URL) | No | | |

(2) LEARNING OUTCOMES

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| <p>Learning outcomes <i>The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.</i></p> <p><i>Consult Appendix A</i></p> <ul style="list-style-type: none"> • <i>Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area</i> • <i>Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B</i> • <i>Guidelines for writing Learning Outcomes</i> |
| <p>By the completion of the course the students should:</p> <ul style="list-style-type: none"> • Have an in depth understanding of the genetic information flow (transcription and translation) in prokaryotic and eukaryotic organisms. • Know the main biochemical interactions between the molecules that participate in the processes of transcription and translation. • Comprehend the basic mechanisms that rule the regulation of the genetic information. • Understand some of the basic techniques, which contributed to today's knowledge of Molecular Biology. • Obtained laboratory experience in certain basic Molecular Biology techniques. |

General Competences

By the completion of the course the student should gain:

- The ability to critically encounter questions and problems concerning Molecular Biology.
- The competence to teach High School students.
- The capability to independently perform simple Molecular Biology laboratory tests.
- The aptitude to continue their graduate studies in Biomedical Sciences.

(3) SYLLABUS

Structure, function, stability and turnover of prokaryotic and eukaryotic mRNAs. Expression of genetic information in prokaryotic and eukaryotic organisms (transcription-translation). Protein/protein and protein/nucleic acid interactions. Structure and function of response elements and transcription factors. Transcriptional regulation of gene expression in prokaryotic and eukaryotic organisms. Post-transcriptional modifications of eukaryotic mRNAs. RNA splicing and editing. The catalytic RNA, ribozymes. Introduction to the chromatin regulation of gene expression

(4) TEACHING and LEARNING METHODS - EVALUATION

| <p style="text-align: center;">DELIVERY <i>Face-to-face, Distance learning, etc.</i></p> | Face to face | | | | | | | | | | | | | | | |
|---|---|--------------------------|------------------------|--------------------------|----------|----|---------------------|----|-------------------|----|--|--|--|--|---|------------|
| <p style="text-align: center;">USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY <i>Use of ICT in teaching, laboratory education, communication with students</i></p> | Power point, e-class | | | | | | | | | | | | | | | |
| <p style="text-align: center;">TEACHING METHODS</p> <p><i>The manner and methods of teaching are described in detail.</i></p> <p><i>Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc.</i></p> <p><i>The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS</i></p> | <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;"><i>Teaching Method</i></th> <th style="text-align: center;"><i>Semester Workload</i></th> </tr> </thead> <tbody> <tr> <td>Lectures</td> <td style="text-align: center;">39</td> </tr> <tr> <td>Laboratory practice</td> <td style="text-align: center;">18</td> </tr> <tr> <td>Independent study</td> <td style="text-align: center;">93</td> </tr> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> <tr> <td>Total number of hours for the Course</td> <td style="text-align: center;">150</td> </tr> </tbody> </table> | | <i>Teaching Method</i> | <i>Semester Workload</i> | Lectures | 39 | Laboratory practice | 18 | Independent study | 93 | | | | | Total number of hours for the Course | 150 |
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| <p style="text-align: center;">STUDENT PERFORMANCE EVALUATION <i>Description of the evaluation procedure</i></p> <p><i>Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other</i></p> <p><i>Specifically-defined evaluation criteria are given, and if and where they are accessible to students.</i></p> | <p>The student assessment language is Greek. The assessment is based on midterm and final written exams, comprised of both multiple choice and short answers to questions regarding the lectures (70% of the final grade) and short written answers regarding laboratory questions (30% of the final grade). Foreign students can take the exams in English. The students are informed about the assessment criteria during the first day of class.</p> | | | | | | | | | | | | | | | |

(5) ATTACHED BIBLIOGRAPHY

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| <ul style="list-style-type: none"> • Genes VIII, LewinB, Edited by Person Prentice Hall, 8th edition • Molecular Biology of the Gene: Watson JD., Baker TA., Bell SP., Gann A., Levine M., Losick R. by Cold Spring Harbor Laboratory, 6th edition. |
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