**COURSE OUTLINE**

1. **GENERAL**

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| **SCHOOL** | HEALTH SCIENCES | | | | |
| **ACADEMIC UNIT** | DEPARTMENT OF BIOLOGICAL APPLICATIONS AND TECHNOLOGY | | | | |
| **LEVEL OF STUDIES** | undergraduate | | | | |
| **COURSE CODE** | **ΒΕΕ724** | **SEMESTER** | | **7th** | |
| **COURSE TITLE** | DESIGNING BIOLOGY TEACHINGS | | | | |
| **INDEPENDENT TEACHING ACTIVITIES** *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* | | | **WEEKLY TEACHING HOURS** | | **CREDITS** |
| Lectures | | | 2 | | 4 |
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| *Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).* | | |  | |  |
| **COURSE TYPE**  *general background,  special background, specialised general knowledge, skills development* | specialized background, skills development | | | | |
| **PREREQUISITE COURSES:** | n/a | | | | |
| **LANGUAGE OF INSTRUCTION and EXAMINATIONS:** | Greek | | | | |
| **IS THE COURSE OFFERED TO ERASMUS STUDENTS** | Yes (In English) | | | | |
| **COURSE WEBSITE (URL)** | <http://ecourse.uoi.gr/enrol/index.php?id=1908> | | | | |

1. **LEARNING OUTCOMES**

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| **Learning outcomes** | |
| *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.*  *Consult Appendix A*   * *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area* * *Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B* * *Guidelines for writing Learning Outcomes* | |
| The aim of the course "Designing Biology Teachings" is to involve undergraduate Biology students in the creation of original lesson plans and educational material for the General Lyceum and to gain teaching experience through mock teaching demonstrations.  Recent studies have suggested that early undergraduate teaching experiences may lead to improved scientists’ methodological research skills. Therefore, teaching projects work may boost the prospective scientists’ potential both as effective teachers and as researchers.  The creative process of student-generated teaching scenarios contributes original ideas to the teaching of biology, while promoting the active and empirical approach to knowledge. Students also become familiar with the use of information and communication technologies (ICT) and expand their knowledge and technological skills. In addition, mock teaching demonstrations provide students with teaching experience as they themselves face the challenges and requirements of the educational process. Finally, the broader theoretical background of the course is the promotion and application of good practices in biology teaching at all levels of education.   * By the end of the course, students are expected to be able to effectively design a Biology lesson plan and educational activities aimed for the General Lyceum. * Students will be able to produce accompanying worksheets and assessment sheets. * Students will become familiar with ICT in education, with the incorporation of digital collaborative tools into teaching, the use of interactive school books, “fotodentro” and other digital repositories, the concept of e-citizenship. * In the course, they will be able to teach and analyse teaching examples in order to identify the elements that make teaching effective. * Students will develop reflection and critical reflection skills in a context of collaboration and dissemination of good teaching practices. * Students will be introduced to technology literacy in Biology and the development of STEM (Science, Technology, Engineering and Mathematics) activities as a means of activating prior knowledge and motivation for learning. | |
| **General Competences** | |
| *Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?* | |
| *Search for, analysis and synthesis of data and information, with the use of the necessary technology*  *Adapting to new situations*  *Decision-making*  *Working independently*  *Team work*  *Working in an international environment*  *Working in an interdisciplinary environment*  *Production of new research ideas* | *Project planning and management*  *Respect for difference and multiculturalism*  *Respect for the natural environment*  *Showing social, professional and ethical responsibility and sensitivity to gender issues*  *Criticism and self-criticism*  *Production of free, creative and inductive thinking*  *……*  *Others…*  *…….* |
| * Search for, analysis and synthesis of data and information, with the use of the necessary technology * Decision-making * Working independently * Team work * Working in an international environment * Working in an interdisciplinary environment * Production of new research ideas * Criticism and self-criticism * Production of free, creative and inductive thinking | |

1. **SYLLABUS**

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| * General philosophy and aims of Biology Subject Didactics * Description of the basic elements of biology teaching * Lesson plan design based on the "Model of 5E" * Design principles and building blocks of Biology teaching * Design principles for worksheets and evaluation sheets * Brief analysis of the Biology Studies Program for the General Lyceum * Presentation and analysis of Biology lesson plans * Collaborative production of Biology lesson plans * Good practices and use of ICT in the educational practice * Technology literacy in Biology, Web 2.0 tools and STEM education * Elements of effective teaching * Mock teaching demonstrations, feedback and reflection * Teaching Activities and Educational Micro-Scenarios: Approaches for incorporation in teaching * Collaborative production of micro-scripts and micro-activities |

1. **TEACHING and LEARNING METHODS - EVALUATION**

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| **DELIVERY** *Face-to-face, Distance learning, etc.* | *Face-to-face* |
| **USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY** *Use of ICT in teaching, laboratory education, communication with students* | Use of PowerPoint software  Course information available on the electronic platform e-course  Announcements on the course website  Communication through e-mail correspondence |
| **TEACHING METHODS**  *The manner and methods of teaching are described in detail.*  *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.*  *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* | |  |  | | --- | --- | | ***Activity*** | ***Semester workload*** | | Lectures | 26 | | Personal study | 20 | | Exemption group project (3-4 people) on the design and implementation of Biology teaching on subjects chosen by the students under the guidance of the instructor | 66 | | Course total | 112 | |  |  | |  |  | |
| **STUDENT PERFORMANCE EVALUATION**  *Description of the evaluation procedure*  *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*  *Specifically-defined evaluation criteria are given, and if and where they are accessible to students.* | Exemption group project (3-4 people) in 4 parts:  Ι. Quiz based on objective assessment (objective question types include true/false answers, multiple choice, multiple-response and matching questions etc.) (individual grade; 25% of total score)  ΙΙ. Production of a Biology lesson plan for the General Lyceum, that conforms to the guidelines by the Ministry of Education, Research and Religious Affairs (group grade; 25% of total score)  III. Mock teaching demonstration of a Biology lesson (see II), video recording of the demonstration, reflection based on the produced audio-visual material and self-evaluation (individual grade; 25% of total score)  IV. Production of teaching activities and educational micro-scenarios using digital technologies (group grade; 25% of total score)  Evaluation criteria: They are reported at the first lecture of the course and repeated during the course if necessary. They are also posted on the course page (e-course). |

1. **ATTACHED BIBLIOGRAPHY**

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| Book: Instructor’s notes  *- Suggested bibliography:*   * Peraki, V., Kostaridis, P., Panagiotidou, V., Hadjikonti, O., Leonardos, I., Kalathaki, M., Kapsalis, A., Mardiris, Th., Baronas, F. & Papazisis, H. (2015). Guide for the Teacher: Biology (Classes A, B, C): General Lyceum. Athens: Ministry of Education & Religious Affairs - Institute of Educational Policy. * Zoga V. (2008). Topics of Biology Didactics. Metaichmio Publishing * Matsaggouras, H. G. (1995). Collaborative teaching. Athens: Ed. Gregoris.   *Related academic journals:*   * CBE life sciences education (American Society for Cell Biology) * Brains, minds & media: journal of new media in neural and cognitive science and education (Bielefeld University) * Biochemistry and molecular biology education (Wiley) * Biochemical Education (Elsevier) * Journal of Microbiology & Biology Education (American Society for Microbiology) * Journal of Biological Education (Taylor & Francis) |