

COURSE OUTLINE “ADVANCED TECHNIQUES AND APPLICATIONS IN CELL BIOLOGY”

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MOLECULAR BIOLOGY AND GENETICS		
STUDY LEVEL	ISCED LEVEL 6		
COURSE CODE	MBG604	SEMESTER	4 th and 8 th
COURSE TITLE	ADVANCED TECHNIQUES AND APPLICATIONS IN CELL BIOLOGY		
TEACHING ACTIVITIES <i>In case credits are awarded to individual components of the course eg. Lectures, laboratory practicals, etc. If credit units are awarded for the whole course, indicate the weekly teaching hours and total credits</i>	HOURS/WEEK	ECTS CREDITS	
	2	3	
COURSE TYPE <i>General, Background, Scientific field course, Expertise Course, Skills Development etc</i>	SCIENTIFIC FIELD		
PREREQUISITE COURSES:	NO		
LANGUAGE OF TEACHING AND EXAMINATIONS:	GREEK ENGLISH FOR ERASMUS STUDENTS		
THE COURSE IS OFFERED TO ERASMUS STUDENTS	YES		
COURSE WEBSITE (URL)	https://eclass.duth.gr/courses/ALEX01133/		

2. LEARNING OUTCOMES

Learning outcomes

Describe the learning outcomes of the course, the specific knowledge, skills and competencies that students will acquire after successfully completing the course. Refer to Appendix A.

- *Description of learning outcomes for the course according to the level of study - refer to the European Higher Education Area Qualifications Framework*
- *Descriptive Indicators of Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Annex B Curriculum Vitae Summary Guide*

The objectives of the course:

- In-depth understanding of modern techniques of Molecular Cell Biology and especially of microscopy
- Group study and presentation (by the students) of the relevant literature. The teaching method is based on problem-based learning, with the aim of developing information seeking and knowledge acquiring skills individually, and through the collaboration of a small group. The teaching is done in groups of 6-7 people.

Learning outcomes:

Upon successful completion of the course, students acquire the following skills and knowledge to:

- Understand the key questions in the field of Cell Biology, and propose experimental designs for approaching such questions
- Understand the principles behind the operation of modern cell biology technologies
- Work both within a group as well as individually to search for new concepts
- Find and evaluate research materials
- Demonstrate the basic principles of new technologies in a simple and understandable way as part of a teamwork
- Improve critical thinking, problem-solving abilities and communication

General Skills

Which of the general competencies that the student will have acquired on the completion of the studies (see also the Diploma Supplement and below) are relevant to this course?

Research, analysis and synthesize of data and information, using the necessary technologies

Adaptation to new situations

Decision making

Autonomous work

Team work

Work in an international environment

Work in an interdisciplinary environment

Production of new research ideas

Project design and management

Respect for diversity and multiculturalism

Respect for the natural environment

Development of social, professional and moral responsibility and gender sensitivity

Promotion of free, creative and inductive thinking

Search, analysis and synthesis of data and information, ICT Use
 Adaptation to new situations
 Decision making
 Teamwork
 Working in an interdisciplinary environment
 Production of new research ideas
 Equity and Inclusion
 Critical thinking
 Promoting free, creative and inductive reasoning

3. COURSE CONTENT

This course in modern techniques of Molecular Cell Biology has an emphasis on microscopy, as well as on presentation by students of the relevant literature with the aim of thoroughly understanding the techniques and their applications. The teaching method is based on problem-based learning (PBL), aiming to induce individual study and develop information-seeking and knowledge acquisition by each student individually, through collaboration within a small group. Teaching is conducted in groups of 3-6 students.

4. TEACHING and LEARNING METHODS - EVALUATION

TYPE OF TRAINING <i>Face-to-face, Distance learning, etc..</i>	Face to face, through small groups													
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY <i>Use of ICT in teaching, laboratory education, and in communication with the students</i>	Use of ICT in Teaching Use of ICT in Communication with students													
MODES OF DELIVERY <i>Describe the teaching methods in detail. Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, practicum, 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</i>	<table border="1" data-bbox="644 987 1378 1368"> <thead> <tr> <th data-bbox="644 987 1056 1043">Activity</th> <th data-bbox="1056 987 1378 1043">Workload/semester</th> </tr> </thead> <tbody> <tr> <td data-bbox="644 1043 1056 1122">Interactive teaching, work in the classroom</td> <td data-bbox="1056 1043 1378 1122">26</td> </tr> <tr> <td data-bbox="644 1122 1056 1193">Study & analysis of literature</td> <td data-bbox="1056 1122 1378 1193">14</td> </tr> <tr> <td data-bbox="644 1193 1056 1249">Project writing</td> <td data-bbox="1056 1193 1378 1249">20</td> </tr> <tr> <td data-bbox="644 1249 1056 1328">Essay presentation</td> <td data-bbox="1056 1249 1378 1328">30</td> </tr> <tr> <td data-bbox="644 1328 1056 1368">Course Total</td> <td data-bbox="1056 1328 1378 1368">90</td> </tr> </tbody> </table>		Activity	Workload/semester	Interactive teaching, work in the classroom	26	Study & analysis of literature	14	Project writing	20	Essay presentation	30	Course Total	90
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STUDENT PERFORMANCE EVALUATION <i>Describe of the methods of evaluation language, methods of evaluation, types of exams, 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 Are evaluation criteria known to the students?</i>	Student evaluation languages Greek, English Method (Formative or Concluding) Formative Student evaluation methods Presentation in audience (80%) Oral Exams (20%) The final grade is based on the student's participation in the weekly meetings, as well as the evaluation of the group's performance through the presentation of their final work. Evaluation criteria are known to the students at the beginning of the semester													

5. SUGGESTED READING

Molecular Biology of the Cell Bruce Alberts, Alexander Johnson, Julian Lewis, David Morgan, Martin Raff, Keith Roberts, Peter Walter, 2008, ISBN: 978-618-5173-29-6, Evdoxos code: 68401319

Molecular Cell Biology, Harvey Lodish, Arnold Berk, Chris Kaiser, Monty Krieger, Anthony Bretscher, Hidde Ploegh, Angelica Amon, Kelsey Martin, ISBN: 978-618-5173-39-5, Evdoxos code: 77113296

Course Notes:

Scientific articles and reviews, related websites, articles and videos are posted on the course's e-class website