

COURSE OUTLINE

1. GENERAL

SCHOOL	APPLIED BIOLOGY AND BIOTECHNOLOGY		
ACADEMIC UNIT	BIOTECHNOLOGY		
LEVEL OF STUDIES	<i>Undergraduate</i>		
COURSE CODE	293	SEMESTER	2nd
COURSE TITLE	HISTORY OF MODERN BIOLOGY		
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 and Practicals	4	4	
<i>Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (4).</i>			
COURSE TYPE <i>general background, special background, specialised general knowledge, skills development</i>	Special background		
PREREQUISITE COURSES:	No		
LANGUAGE OF INSTRUCTION and EXAMINATIONS :	Greek		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	No		
COURSE WEBSITE (URL)	https://oeclass.aua.gr/eclass/modules/auth/courses.php?fc=37		

2. LEARNING OUTCOMES

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 course offers a framework for understanding the importance of modern scientific achievements in biological science, and their historical path.

The course material covers many aspects of biological sciences and is aimed at understanding the scientific method, formulating hypotheses and changing assumptions based on new experimental data. It also places the scientific achievements of modern biology in a human context, which has been influenced and is influenced by social and historical developments. The course seeks to instill enthusiasm for modern Biotechnology, as well as to convey the message that new discoveries can, at any time, help change our perspective and create new fields of research.

Upon successful completion of the course, the student will:

- have understood the history of basic biological concepts (evolution, organism, gene) and the controversies surrounding them
- have understood that scientific research is influenced by historical events, social

- conditions, prejudices, as well as stochastic factors, e.g. specific personalities
- have understood the importance of disseminating knowledge to the scientific community through publications and conference presentations, and the often different/fragmentary presentation of the same results to the general public (e.g. in newspaper articles)
 - have acquired knowledge of the historical development of the main branches of biology, specifically: genetic selection, the study of hereditary and infectious diseases, immunology, extraction of biomolecule and sequencing techniques, molecular biology, biotechnology, genomic modifications, genetic engineering, molecular evolution and bioinformatics
 - have understood the influence of other branches of science (e.g. physics, chemistry) and technology on the progress of biology

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 differences 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

- Search for, analysis and synthesis of data and information, with the use of the necessary technology
- Working independently
- Team work
- Working in an international environment
- Working in an interdisciplinary environment
- Production of new research ideas
- Production of free, creative and inductive thinking

3. SYLLABUS

1. Introduction: historical events, luck, prejudices, personalities, patents, publications
2. The position of biology in the sciences and its conceptual structure
3. Diversity and its inheritance
4. The nature of heredity
5. History of the study of evolution
6. History of molecular biology, biotechnology, and genomic modifications
7. Breakthroughs in Immunology
8. History of the extraction of biomolecules
9. History of biomolecule sequencing techniques and bioinformatics

As part of the course, educational visits to research centers and other institutions will be organized that will enrich the content of the course with the history of Biology within Greece. Possible visits: AUA Museum of Agriculture, Benaki Phytopathological Institute, Goulandris Museum of Natural History, Biomedical Sciences Research Center Alexander Fleming, Pasteur Institute, National Center for Scientific Research "Demokritos", National Hellenic Research Foundation, Athens University History Museum, Biomedical Research Foundation of the Academy of Athens, Hellenic Centre for Marine Research.

4. TEACHING and LEARNING METHODS - EVALUATION

<p align="center">DELIVERY <i>Face-to-face, Distance learning, etc.</i></p>	Face to face, in class	
<p align="center">USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY <i>Use of ICT in teaching, laboratory education, communication with students</i></p>	Power point presentations. Course material also made available to the students via the e-class platform.	
<p 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>	Activity	Semester workload
	Lectures/Educational Visits	52
	Student Projects	20
	Independent study	28
Course total (Total contact hours and training)	100	
<p align="center">STUDENT PERFORMANCE EVALUATION</p> <p><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>Written final examination in Theory (50%) containing multiple choice and viewpoint questions</p> <p>Student team projects preparation and Presentation (50%)</p>	

5. ATTACHED BIBLIOGRAPHY

-Suggested bibliography :

THE HISTORY OF MODERN SCIENCE An overview
 PETER J. BOWLER MORUS IWAN RHYS (Translation: Varvara Spyropoulou)
<https://www.cup.gr/book/i-istoria-tis-neoteris-epistimis/>
 Code in Eudoxos: 32998378

History of Biology
 Michel Morange (Translation: Laokratia Lakka)
https://www.utopiapublishing.gr/%CE%99%CF%83%CF%84%CE%BF%CF%81%CE%AF%CE%B1-%CF%84%CE%B7%CF%82-%CE%92%CE%B9%CE%BF%CE%BB%CE%BF%CE%B3%CE%AF%CE%B1%CF%82_p-2942254.aspx
 Code in Eudoxos: 68406480

-Relevant scientific journals:

Journal of the History of Biology
<https://www.springer.com/journal/10739>