COURSE OUTLINE

1. GENERAL

SCHOOL	AGRICULTURAL SCiENCES		
ACADEMIC UNIT	ANIMAL PRODUCTION, FISHERIES AND AQUACULTURE		
LEVEL OF STUDIES	UNDERGRATUATE		
COURSE CODE	**AS_100**	**SEMESTER**	**1ST**
COURSE TITLE	GENERAL BIOLOGY		

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**
	3 LECTURES + 2 LAB	7
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*	general background, special background,
PREREQUISITE COURSES:	None
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	GREEK. I t can be taught in English in case of foreign students' presence.
IS THE COURSE OFFERED TO ERASMUS STUDENTS	Yes
COURSE WEBSITE (URL)	

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 student, at the end of the relevant Learning Process, is in a position:

- To distinguish the levels of organization of life from the molecule to the biosphere.
- Identify the cell as a unit of life and know the cellular organelles and structures.
- Recognize the interaction between the parts of an ecosystem.
- Associate energy with the biological balance of systems.
- Be aware of cell division processes and understand their meaning.
- Know the mechanisms of energy production in the cell and the organisms
- Understand mechanisms for inheritance of the characteristics of organisms.
- Be aware of the structure and properties of genetic material and interpret its role in the transfer of genetic information.
- To integrate the evolution of a species into the general context of species evolution.
- Recognize the reproduction and development standards of organisms.
- Describe the architectural model of animal development
- Be aware of the concept of the species, in the various forms proposed.
- Recognize the systematics system of the organisms and the methods used for it.

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	*Project planning and management*
Adapting to new situations	*Respect for difference and multiculturalism*
Decision-making	*Respect for the natural environment*
Working independently	*Showing social, professional and ethical responsibility and sensitivity to gender issues*
Team work	*Criticism and self-criticism*
Working in an international environment	*Production of free, creative and inductive thinking*
Working in an interdisciplinary environment	*……*
Production of new research ideas	*Others…*
	…….

Search for, analysis and synthesis of data and information, with the use of the necessary technology
Decision-making
Working independently
Team work
Respect for the natural environment
Criticism and self-criticism
Production of free, creative and inductive thinking

3. SYLLABUS

Lectures:

1. Biology, Physics and Chemistry in the Study of Life. Introduction.
2. Chemistry of living beings (chemical elements, chemical bonds in life, water).
3. Chemistry of living beings (macromolecules, origin of life).
4. Cell, (prokaryotic and eukaryotic cells and cellular organelles).
5. Cellular metabolism (energy flow, biological reactions (enzyme catalysts).
6. Cellular respiration (factors affecting it, energy production).
7. Cell cycle and division (mitosis, meiosis).
8. Genetics (Mendel's Laws, DNA-RNA, central dogma of molecular biology).
9. Evolution (Darwinian theory, Neo-Darwinism, ontogenesis and phylogeny, adaptation, evolution of species).
10. Development (main development phases and mechanisms).
11. Architectural model of animals.
12. Taxonomy and phylogeny.
13. Principles of Ecology

Lab exercises:

1. Laboratory safety rules, instrument use.
2. 2. Introduction to microscopy
3. 3. Observation of mitosis and meiosis specimens.
4. 4. Observation of micro-organisms (specimens) under the microscope.
5. 5. Observation of live micro-organisms under the microscope.
6. 6. DNA extraction from living organisms using household chemicals.
7. Osmosis
8. 8. Natural selection

9. TEACHING and LEARNING METHODS - EVALUATION

DELIVERY *Face-to-face, Distance learning, etc.*	Face to face teaching. During the course the students will be invited to approach a research question and write a brief bibliographic essay, form their own questions to their colleagues based on the new information and participate in the interaction and learning activities after the lectures (eg coaching of colleagues, questioning their colleagues, class summary, "teach my classmate", etc.).
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY *Use of ICT in teaching, laboratory education, communication with students*	• Power Point in lectures • Power Point in laboratory exercises • Using the e-Class platform for: ➢ Distribution of lectures ➢ Self-assessment exercises ➢ Learning streamline ➢ Deposit, monitoring and evaluation of work ➢ "After-class" activities ➢ Laboratory Examinations ➢ Progress evaluation ➢
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***
1. Lectures (3 hours X 13 weeks)	39
2. literature search and reading connected with (1) (2 hours X 13 weeks)	26
3. Self-evalution exesrcises in e-Class (1 hours X 13 weeks)	13
4. LAB exercises (2 hours X 13 weeks)	16
5. Writing short lab reports or lab evaluation connected to (4) (1 hours X 13 weeks)	8
6. Writing and/or presenting fo a short bibliographic essay (1 hours X 13 weeks)	13
7. Participation in the "after class" activities (2hours X 13 weeks)	26
8. Study and preparation for the evaluation workload	37
9. Final exams	3
Course total *(7X25)*	***175***

STUDENT PERFORMANCE EVALUATION *Description of the evaluation procedure* *Language of evaluation, methods of evaluation, summative or conclusive, multiple*	The evaluation will be done in Greek unless there is necessity for an avluation in English because of the presebce of foreign students. The evaluation will be done as following:

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.

Writing short lab reports or lab evaluation (Average of the report grades)	20%
Participation in the "after class" activities (Average)	10%
Writing and/or presenting of a short bibliographic essay (Average)	10%
Participation in the "after class" activities (Average)	10%
Final exams	50%

Minimum grade to pass: 5 (Range: 0-10)

In the case of evaluation failure (in theory of the lab) the exams will be repeated but the follow up of the lab exercises it is not obligatory as long as the student was present in all the necessary lab exercises.
The evaluation grades of the other activities (eg after class) will be valid for the next two (2) years, meaning four (4) semesters from the typical semester taught.

10. **ATTACHED BIBLIOGRAPHY**

- Suggested bibliography:

Biology, Today and Tomorrow (with Physiology) (2014) C. Starr, C. Evers and L. Starr. UTOPIA

Integrated Principles of Zoology (2015), 16e, Hickman, Roberts, Keen, Larson, l'Anson, Eisenhour. UTOPIA

Campbell & Reece (2008) "Biology", Pearson Education Inc., 8th edition

- Related academic journals:

Cell
Biochemistry
Genetics
Journal of Molecular Ecology
Evolution
Ecology
Human Physiology
Zoology