

COURSE OUTLINE

(1) GENERAL

SCHOOL	NATURAL SCIENCES		
ACADEMIC UNIT	BIOLOGY		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE	BIO_HE18	SEMESTER	6/8
COURSE TITLE	AQUACULTURE		
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, Laboratory Exercises, Field Work		2 (lec) + 3 (lab)	6
<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>	Field of Science Skills Development		
PREREQUISITE COURSES:	NO		
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	Yes (in English)		
COURSE WEBSITE (URL)	https://eclass.upatras.gr/courses/BIO305/		

(2) LEARNING OUTCOMES

<p>Learning outcomes</p> <p><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>At the end of the course the student should be able to:</p> <ol style="list-style-type: none"> 1. know the categories of aquaculture rearing systems 2. know the basic parameters of water quality which are important for aquaculture 3. know the basic stages in the production process in marine aquaculture and biological components in production of fish larvae, live feed, fish juveniles and on-growing of the most important marine fish species 4. know the production process in culture of microalgae, rotifers and Artemia 5. comprehend the basic principles of microbial ecology in rearing systems, and processes during deterioration of flesh quality 6. know the basic impact of aquaculture on the environment and most important fish diseases in cultured fish populations 7. know the basic principles in culture of salmonids, eels, bivalves, and macroalgae

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...

By the end of this course the student will have developed the following **General Abilities**:

1. Autonomous (Independent) work
2. Group work
3. Generation of new research ideas
4. Respect for the natural environment
5. Development of free, creative and inductive thinking

Additionally, by the end of this course the student will have developed the following **Special skills/competences**:

1. The ability to culture microalgae and monitor their growth
2. The ability to culture rotifers and monitor their growth
3. The ability to rear fish larvae and monitor ontogenetical changes
4. The ability to feed fish larvae with live food organisms

(3) SYLLABUS

Introduction to aquaculture. Water quality. Mediterranean Marine Aquaculture. Broodstock management. Microalgae. Live food. Larval cultures. Fish nutrition. Microbial ecology. Fish Diseases. Flesh quality. Environmental impact of aquaculture. Salmonids. Bivalves. Macroalgae.

(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>	Powerpoint presentations. Support of educational procedure through the use of the e-class electronic platform	
<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>	Activity	Semester workload
	Lectures (13 weeks x 2 hours per week)	26
	Laboratory exercises (6 weeks x 3 hours per week)	12
	Home study	112
Course total	150	
<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>1) Written exams (at the semester's end), in Course theory and lab. Language: Greek. Exams through short answer questions.</p> <p>Final Course Grade: Theory Grade x 0.7 + Laboratory Grade x 0.3</p> <p>Grading scale: 1-10. Passing grade: 5</p> <p>Grading: 3 correspond to ECTS grade F. Grade 4 corresponds to ECTS grade FX.</p> <p>Passing grades correspond to ECTS grades as follows: 5=E, 6=D, 7=C, 8=B, 9=A.</p>	

(5) ATTACHED BIBLIOGRAPHY

<p>- Suggested bibliography:</p> <ol style="list-style-type: none"> 1. Notes in Aquaculture. G. Koumoundouros. 2. Manual on Hatchery Production of Seabass and Gilthead Seabream Volume 1, by A. Moretti, M. Pedini Fernandez-Criado, G. Cittolin, and R. Guidastrì. F.A.O. Rome, 1999. <p>- Related academic journals:</p>
