COURSE OUTLINE

1. GENERAL

SCHOOL	AGRICULTURAL SCIENCES		
ACADEMIC UNIT	ANIMAL PRODUCTION, FISHERIES & AQUACULTURE		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE	AS_800	**SEMESTER**	8th
COURSE TITLE	SHELLFISH AQUACULTURE		

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**
(the credits are awarded for the whole course)	3 (Lectures) + 2 (Lab. work)	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*	Specialized General Knowledge
PREREQUISITE COURSES:	There are no prerequisite courses. However, the students should already have a basic knowledge of Biology, Marine Biology and Aquaculture
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek. Teaching may be performed in English in case of foreign students
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*

By the end of this course the student will be able to:

- Understand the structure and operation of the breeding unit.
- Evaluate the equipment used in the breeding unit as appropriate
- Organize and handle the supply and acclimatization of the unit to the fetus as appropriate
- Control the physicochemical parameters of the culture medium
- To anticipate the impact of the environment on the livestock and on the environmental impact of its operation

- Manage the biomass of the breeding units
- Operate scraps & packaging units.
- Organize and perform live organism transports
- Designing production schedules

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
- Working independently
- Team work
- Decision making
- Project planning & management

3. SYLLABUS

The course is focusing on the following:

- Shellfish aquaculture, a short flashback
- The main farmed species. Selection criteria on a case-by-case basis
- Cultivation techniques. Diet. Development. Reproduction. Environmental impacts.
- Post-harvest technology (sanitation & packaging)
- Public health (bacteria, biotoxins, pollution, contamination)
- Bio-monitoring and quality control. Survivors and competitors
- Growing bivalve molluscs. Growing crustaceans. Growing of echinoderms, sponges, corals and pluvial worms. Glossary
- Interaction between the mussel cultures and the marine environment
- Closed circuit technology in shellfish recovery tanks. Planning of a mussel farming unit. Economical and engineering design of a mussel farming unit
- Delivery & Refinement Center specifications (production protocols, annual material budget, annual operating costs, investment calculation).

4. TEACHING and LEARNING METHODS - EVALUATION

DELIVERY *Face-to-face, Distance learning, etc.*	Face to face. During the course, students are asked to write and present a bibliography project. Laboratory exercises for the application of theoretical knowledge, in which students deliver concise reports of laboratory exercises
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY *Use of ICT in teaching, laboratory*	• Use of ICT (powerpoint) in teaching • Use of ICT (powerpoint) in laboratory exercises • Use of ICT in Student Communication (Learning

education, communication with students	Support through the e-class platform)

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 h X 13 weeks)	39
2. Further study, research and study of lecture material, associated with (1) (2 hours x 13 weeks)	26
3. Laboratory practice (2 hours x 13 weeks)	26
4. Writing short reports of laboratory exercises or laboratory examination, linked to (3) (1 h x 13 weeks)	13
5. Final examination of the laboratory part (2h X 1 w)	2
6. Writing and presentation of a short bibliography project (1h X 13 w)	13
7. Hours for the study and preparation of the laboratory exercises, assessment of progress (s) and final examination of the laboratory and theoretical part	53
8. Final examination of the theory part (2h X 1 w)	3
Course total	***175***

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.

Greek language is used. For foreign students (e.g. Erasmus students) it can be done in English

Evaluation contains:

Writing short reports of laboratory exercises or laboratory examination (Average of all laboratory reports) (A)	10%
Final examination of the laboratory part (B)	40%
Writing and presentation of a short bibliography project (C)	10%
Final examination of the Theory (D)	40%

1. Laboratory work, (Average score of individual reports of laboratory exercises) (A)
2. Written final examination of the Laboratory Part (B)

Each case is graded on a scale of 0-10.

Final Grade Laboratory Part (TBE):

TBE = 0.3A + 0.7B 3.

	3. Bibliographical Work (C) 4. Final written examination of the theoretical part (D) Final Theoretical Part (TBT): TBG = 0.2C + 0.8D Minimum portable grade: 5 Final grade (TB): TB = mean (TBE + TBT) Scoring Scale: 0-10) in each of the individual ratings) B and D take place during the current examination period, which is taught in the course and its iteration (September) (period where A & C scores are maintained). In case of failure of either the Laboratory or the Theoretical part of the course, the student repeats the whole educational process.

5. ATTACHED BIBLIOGRAPHY

- *Suggested bibliography:*

- ΥΔΑΤΟΚΑΛΛΙΕΡΓΕΙΕΣ-Οργανισμοί, συστήματα παραγωγής, προοπτικές. 2015. Βουλτσιάδου Ε., Αμπατζόπουλος Θ., Αντωνοπούλου Ε., Γκάνιας, Κ., Γκέλης Σ., Στάϊκου Α., Τριανταφυλλίδης Α. ΣΕΑΒ, ISBN: 978-960-603-184-7.
- Marine Bivalve Molluscs, 2nd Edition, Elizabeth Gosling,

ISBN: 978-0-470-67494-9, 536 pages, July 2015, Wiley-Blackwell

- FAO, 2015. Global Aquaculture Production.

Διαθέσιμο: http://www.fao.org/fishery/statistics/global-aquaculture-production/en.

- FAO, 2015. Cultured Aquatic Species Information Programme, Aquaculture Fact Sheets. *In:* FAO Fisheries and Aquaculture Department [online]. Rome.

Διαθέσιμο: http://www.fao.org/fishery/culturedspecies/search/en.

- Related academic sources and journals::

- *Journal of the shellfish research*
- *Aquaculture research- Related academic sources and journals:*