COURSE OUTLINE

(1) GENERAL

SCHOOL	ANIMAL BIOSCIENCES		
ACADEMIC UNIT	DEPARTMENT OF ANIMAL SCIENCE		
LEVEL OF STUDIES	Undergraduate [Required]		
COURSE CODE	1500	**SEMESTER**	2nd
COURSE TITLE	APICULTURE – SERICULTURE		

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 (ECTS)**
Lectures	3	3
Practical Exercises	1	1
Total	**4**	**4**
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*	Scientific expertise
PREREQUISITE COURSES:	General and Systematic Agricultural Entomology
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek
IS THE COURSE OFFERED TO ERASMUS STUDENTS:	Yes (in English)
COURSE WEBSITE (URL):	http://efp.aua.gr/el/beelab

(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*

Upon successful completion of the course (theory and laboratory), students should be able (descriptive indicator 6, 7 of the European Qualifications Framework) to:

• Familiarize themselves with the basic characteristics of the main bee species in Greece, the anatomy, physiology, and ethology of the honeybee and the silkworm, the social organization of the honeybee, and the structure of its hive. Moreover, they should be familiar with the nutritional requirements of the honeybee and the silkworm, the most important beekeeping plants, the necessary beekeeping equipment, the products of the honeybee and the silkworm, the pollination contribution of the honeybee, the potential risks of applying plant protection products, and the significance of all the above.

• Possess skills in designing basic beekeeping operations, queen rearing methods, production and harvesting of beekeeping products (pollen, royal jelly, venom, propolis, wax), identification and control of major pests and diseases of the honeybee and the silkworm.

• Be capable of maintaining a beekeeping and silkworm rearing unit of basic scale, performing basic beekeeping operations, and harvesting products from the honeybee and the silkworm, as well as staying informed and evaluating cutting-edge issues related to beekeeping and sericulture

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 difference 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* *.....* *Others...* *.....*

- Adaptation to new situations. References to climate change are increasing, requiring the sciences primarily involved in primary production to adapt techniques, methods, and perceptions in order to remain productive and sustainable.
- Autonomous work. Several agricultural scientists may be interested in exclusively engaging in beekeeping as specialized producers with key knowledge.
- Teamwork. The strong economic pressures of the era often require the formation of a group of producers in order to be more competitive.
- Respect for the natural environment. Beekeeping is inherently connected to nature, as beekeepers utilize the nectar flows and honeydew without being able to influence their development. In this sense, beekeeping acts as a protector of nature while simultaneously contributing to pollination as much as anyone else. Any negative impacts on the natural environment will have a direct effect on bees.

(3) SYLLABUS

Systematic classification, sociality of bees and other insects species. Morphology - Physiology of bees (anatomy, systems, senses), honeycomb - hive structure. Bee ethology (behavior, division of labor, communication, swarming), Pollination - Beekeeping plants, bee nutrition. Queen rearing - genetic improvement of bees, basic beekeeping practices, beekeeping products. Introduction to pests and diseases (parasitic and non-parasitic) of bees. Economic and social significance of Sericulture. Biology of the silkworm and its rearing stages. Cocoon stifling, processing of silk fiber. Introduction to pests and diseases of the silkworm. Cultivation of mulberry and its significance as animal feed.

(4) TEACHING and LEARNING METHODS - EVALUATION

TEACHING METHOD *Face-to-face, Distance learning, etc.*	In-class lecturing
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY *Use of ICT in teaching, laboratory education, communication with students*	Use of slide presentation and blackboard. Communication with students. Learning process support by access to e-class asynchronous distance learning 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-*	

Activity	***Semester workload***
Lectures	39
Laboratory practice	13
Study and analysis of literature	10
Personal study	24
Field study	16
Sample demonstration	12
Course total (25 h of workload per ECTS)	***100***

directed study according to the principles of the ECTS	
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.*	I. **Final written exam in the theory** of the course including a combination of shortanswer questions, open-ended questions and multiple choice questions. II. **The written examination in the laboratory part of the course** includes short answer, open-ended, problem solving and documentation questions, as well as sample recognition (the ability to apply the principles and mechanisms and the way of approaching and documenting the answer is evaluated).

(5) ATTACHED BIBLIOGRAPHY

Books

1. Harizanis, P. 2017. Bee and Beekeeping Techniques. Melissokomiki Epitheorisi Publications.
2. Thrasyvoulou, A. 2015. Practical Beekeeping, Problems, Causes & Solutions. Melissokomiki Epitheorisi Publications.
3. Caron, D.M. and L. J. Connor. 2022. Honeybee biology and beekeeping (revised edition). Wicwas Press, USA.
4. Yfantidis, M. 2005. Modern Beekeeping as Science and Practice. Melissokomiki Epitheorisi Publications.
5. Harizanis, P. 2007. Sericulture Handbook. AUA Publications.

Scientific Journals

1. Journal of Apicultural Research
2. Apidologie.