General Information	
Academic subject	Apiculture
Degree course	Agricultural Science and Technology; Land and Environmental Science and Technology; Protection and Management of the Agro-Forest Environment
Curriculum	
ECTS credits	6
Compulsory attendance	No
Language	Italian

Subject teacher	Name Surname	Mail address	SSD
	Rocco Addante	rocco.addante.uniba.it	AGR/11

ECTS credits details			
Basic teaching activities	07	AGR/11	6

Class schedule	
Period	II semester
Year	II
Type of class	Lectures and practice

Time management	
Hours	150
In-class study hours	60 (32 lectures + 28 practice)
Out-of-class study hours	90

Academic calendar	
Class begins	1 marzo 2021
Class ends	11 giugno 2021

Syllabus	
Prerequisites/requirements	
Expected learning outcomes (according to Dublin Descriptors) (it is recommended that they are congruent with the learning outcomes contained in A4a, A4b, A4c tables of the SUA-CdS)	• *Knowledge and understanding* o Knowledge of morphology, anatomy and physiology of honey bees. o Knowledge of honey bee ethology. o Knowledge of relationships between bees, agriculture and the environment. o Knowledge of bee-friendly flora. o Knowledge of honey bee enemies and pathogens. o Knowledge of honey bee breeding techniques. o Knowledge of honey bee products • Applying knowledge and understanding o Ability to manage an apiary. o Ability to recognize the symptoms of honey bee diseases. • Making informed judgments and choices o Ability to judge the correctness of bee management practices, honey extraction and pollination service. • Communicating knowledge and understanding o Ability to clearly and correctly express the concepts and knowledge acquired. • Ability to learn o Ability to learn and deepen the main subjects of the teaching. The expected learning outcomes, in terms of knowledge and skills, are reported in Annex A of the Didactic Regulations of the Study Program (expressed through the European Descriptors of the qualification).

Contents	• **Introduction to the course. Honey bees systematics.** • **Honey bee society:** origins of bee social life, determination of sex and division into castes. • **Honey bee morphology, anatomy and physiology.** • **Development and tasks of queen, drone and worker bees.** • **Social physiology of honey bees:** colony cohesion and social importance of the queen; pheromones and their functions; thermal regulation; bee constructions; food search; bee language; defense of the colony. • **Bee-friendly flora.** • **Relationships between beekeeping-agriculture-environment.** • **Enemies and pathogens:** enemies; adult diseases: acariosis, varroasis, nosemiasis, amoebiasis, other minor diseases, virosis; brood diseases: American foulbrood, European foulbrood, parapest, sack brood, mycosis, virosis; intoxications and poisonings. • **Honey bee breeding:** materials and beekeeping operations. • **Honey bee products:** honey, pollen, royal jelly, wax, propolis, venom. • **Elements of beekeeping legislation.**
Course program	
Bibliography	• Notes on the lectures and other didactic material distributed during the course. • Contessi A., 2004. Le Api. Biologia, allevamento, prodotti (terza edizione). Edagricole, Bologna: 497 pp. • For further information: • Chauvin R., 1968. Traité de biologie de l'abeille. Masson et Cie, Paris. • Lodesani M., 2004. L'ape regina. Ed. Avenue Media, Bologna, 452 pp.
Notes	The teacher's Power Point presentations are available by registering on the website: http://tempus-it.agrif.bg.ac.rs/registration.php?register=Registra
Teaching methods	The course topics will be featured with PowerPoint presentations and movie support.
Assessment methods (indicate at least the type written, oral, other)	For students enrolled in the course year in which the lessons are held, an oral intermediate examination is envisaged, whose vote is expressed in thirtieths. The Profit Exam consists of an oral exam on the topics developed during the theoretical and practical lessons in the classroom and in the laboratory as reported in the Didactic Regulations of STA, STAF e TUGEST Courses (Annex A). The assessment of the student's preparation takes place on the basis of established criteria, as detailed in Annex A of the Teaching Regulations of the Bachelor's Degree. For students who have passed the intermediate examination, the final grade is obtained as the average between the grade on the intermediate examination and the final exam. For foreign students the exam can be made as a written questionnaire in multiple closed answers.
Evaluation criteria (Explain for each expected learning outcome what a student has to know, or is able to do, and how many levels of achievement there are.	• *Knowledge and understanding* ○ *The student must demonstrate to know:* ○ morphology, anatomy and physiology of honey bees. ○ ethology of honey bees. ○ relationships between bees, agriculture and the environment. ○ flora of beekeeping interest. ○ adversity of bees.

	○ honey bees breeding techniques. ○ characteristics of bee products • Applying knowledge and understanding ○ *The student must own the ability*: ○ manage an apiary ○ recognize the symptoms of honey bee diseases. • Making informed judgments and choices ○ The student must demonstrate the ability to judge the correctness of bee management, honey extraction and pollination service practices. • Communicating knowledge and understanding o The student must have the ability to clearly and correctly express the concepts and knowledge acquired. • Ability to learn o Learning skills will be assessed by asking questions on the main teaching topics.
Further information	