

## SUBJECT OUTLINE

## 1. Information on the programme

1.1. Higher education institution	University of Agricultural Science and Veterinary Medicine Cluj-Napoca
1.2. Faculty	Agriculture
1.3. Department	Plants culture
1.4. Field of study	Agronomy
1.5. Cycle of study <sup>1</sup>	Degree
1.6. Specialization/ Study programme	Montanology
1.7. Form of education	IF

## 2. Information on the discipline

2.1. Name of the discipline	Apiculture							
2.2. Course coordinator	Professor Daniel Dezmirean, PhD							
2.3. Seminar/ laboratory/ project coordinator	Professor Daniel Dezmirean, PhD							
2.4. Year of study	III	2.5. Semester	II	2.6. Type of evaluation	Continuous	2.7. Discipline status	Content <sup>2</sup>	AP
							Compulsoriness <sup>3</sup>	CD

## 3. Total estimated time (teaching hours per semester)

3.1. Hours per week – full time programme	4	out of which: 3.2. lecture	2	3.3. seminar/ laboratory/ project	2
3.4. Total number of hours in the curriculum	40	Out of which: 3.5. lecture	20	3.6. seminar/laboratory	20
Distribution of the time allotted					Hours
3.4.1. Study based on book, textbook, bibliography and notes					30
3.4.2. Additional documentation in the library, specialized electronic platforms and field					20
3.4.3. Preparing seminars/ laboratories/ projects, subjects, reports, portfolios and essays					20
3.4.4. Tutorials					6
3.4.5. Examinations					4
3.4.6. Other activities					
3.7. Total hours of individual study	80				
3.8. Total hours per semester	120				
3.9. Number of credits <sup>4</sup>	3				

## 4. Prerequisites (is applicable)

4.1. curriculum-related	Entomology, Plants physiology, Microbiology
4.2. skills-related	The student should have knowledge on the role of pollinators and their integration into the mountain ecosystems and products obtained from such activities

## 5. Conditions (if applicable)

5.1. for the lecture	The course takes place interactively; students were involved in discussions on the content of the course. Academic discipline enforces time start and end of the course. We do not allow any other activities during the lecture, mobile phones are closed.
5.2. for the seminar/ laboratory/ project	At practical work is compulsory the consultation of practical guide, virtually every student will develop an individual activity with laboratory materials made available and described in practical works guide. Academic discipline is necessary for the duration of practical works. The project is prepared according to theme and can also be a case study.

## 6. Specific competences acquired

Professional competences	<p>To develop, implement and coordinate specific technologies for obtaining and processing of bee products under the conditions of exploitation natural mountain resources;</p> <p>To use specialized terminology characteristic beekeeping discipline;</p> <p>To understand the biology of bee families and how to obtain bee products;</p> <p>To use the operating system of bee families and obtaining bee products in Romania and the EU;</p> <p>To master the concepts related to bee products properties and their primary processing, apiary management and bee products marketing obtaining in mountain area;</p> <p>To exploit on the basis of the sustainability, the melliferous potential of Romania;</p> <p>To provide consultancy and extension in the use, marketing and processing bee products.</p>
Transversal competences	<p>To demonstrate ability to implement technology for production in a bee farm from a mountain area;</p> <p>To be able to lead a bee farm under diversification of beekeeping production;</p> <p>To be able to design and develop an experimental plan for scientific activities in the field of beekeeping;</p> <p>To demonstrate preoccupation for professional development;</p> <p>To participate in research activities conducted in bio base and research laboratories for properties of bee products of the discipline.</p>

## 7. Course objectives (based on the list of competences acquired)

7.1. Overall course objective	To acquire knowledge on beekeeping and natural resources in the mountain area
7.2. Specific objectives	<p>To know how to obtain the bee products and their characteristics;</p> <p>To master beekeeping management and marketing concepts, treatments and their mode of action upon product quality;</p> <p>To know the melliferous potential and the factors that influence the quality and productivity of melliferous plants from mountain area.</p>

## 8. Content

<p><b>8.1. LECTURE</b> Number of hours – 28</p> <p><b>CURRENT AND PROSPECTIVE PROBLEMS IN BEEKEEPING</b> Object of beekeeping. Evolution of beekeeping and its importance. Beekeeping in the worldwide and in our country. Historical landmarks</p> <p><b>BIOLOGY OF BEE COLONIES</b> Bee family composition. Species and breeds of bees. The composition of the bee family. Food and nutrition relationships of bees. Food and nutrition relationships of bees. Particularities of bee breeding. Functions performed by bees. Biological evolution of bee family over one year.</p> <p><b>BEEKEEPING TECHNOLOGY</b> Maintenance of bee families maintained in the mountainous area according to biological evolution over a year.</p> <p><b>BASE OF THE MOUNTAIN REGION AND POLLINATION OF ENTOMOGAME AGRICULTURAL PLANTS</b> Honeybee species producing nectar and mana pollination of plants with the help of bees.</p> <p><b>BEE PRODUCTS AND THEIR THERAPEUTIC PROPERTIES</b></p> <p><b>DISEASES AND PESTS OF BEES</b> Contagious Diseases Noncontagious Diseases</p> <p><b>BIOLOGICAL BEEKEEPING.GOOD APICULTURE PRACTICES</b></p> <p><b>MANAGEMENT OF APICULTURE FARMS IN THE CONDITIONS OF THE EXHIBITION OF NATURAL RESOURCES AND FARM</b></p>	<p>Teaching methods</p> <p>Lecture</p> <p>Lecture</p> <p>Lecture</p> <p>Lecture</p> <p>Lecture</p> <p>Lecture</p> <p>Lecture</p>	<p>Notes</p> <p>1 lecture</p> <p>2 lectures</p> <p>4 lectures</p> <p>3 lectures</p> <p>2 lectures</p> <p>1 lecture</p> <p>1 lecture</p>
<p><b>8.2. PRACTICAL WORK</b> Number of hours – 28</p> <p>Work protection in the apiary. The bees ' behavior. Research of Bee families. Thievery</p> <p>Bees morphophysiology</p> <p>Beehives and bee constructions</p>	<p>Practical work in apiary Practical work</p> <p>Practical work</p> <p>Practical work</p>	<p>1 practical work 1 practical work</p> <p>2 practical works</p> <p>1 practical work</p>

Practical works specific to bee technologies particularised on the mountain area	Practical work	2 practical work
Artificial multiplication of bee families	Practical work	1 practical work
Artificial growth of dandruff in mountain bee pools.	Practical work	1 practical work
Melliferous plants. Appreciation of the honeybee capacity of an area.	Practical work	1 practical work
Establishing the optimum herd of bee families for a bioapicultural base	Practical work	1 practical work
Recognising the melliferous plants and the species of hand-producing insects.	Practical work	1 practical work
Exploitation of apiaries in the mountainous area for obtaining special honey sids.	Practical work	1 practical work
Bee products processing in the agro-touristic system.	Practical work	1 practical work

**Compulsory bibliography:**

1. Mărghitaş L. (2017) - Albinele și produsele lor, Ed. Ceres, București, Ediția a III-a
2. Dezmirean D.S. (2007) – Tehnologii Apicole Speciale , Ed. AcademicPress,

**Optional bibliography:**

1. L.Al.Mărghitaş, Daniel S. Dezmirean, Otilia Bobiș, Melinda Tofalvi – Extracte vegetale utilizate în hrana albinelor, Ed Academic Press, 2011
2. Dezmirean D.,Otilia Bobiș,Liviu AL.Mărghitaş (2013) – Îndrumător pentru lucrări practice în apicultură, Ed.AcademicPres, Cluj Napoca
3. Cărmu I. (1974) - Plante melifere, Ed. Ceres, București
4. Pierre Jean Prost, Yves le Conte- Apiculture(2005) – Connaitre labeille, Conduire le rucher
5. [www.beekeeping.com](http://www.beekeeping.com)
6. [www.aphiteraphy.blogspot.com](http://www.aphiteraphy.blogspot.com)
7. [www.madr.ro](http://www.madr.ro)

**9. Corroborating the course content with the expectations of the epistemic community representatives, of the professional associations and of the relevant employers in the corresponding field**

In order to update the knowledge in beekeeping, identifying ways of modernization and continuous improvement of teaching and course content with the current issues and practical problems, teachers will participate at Scientific events at home and abroad, the manifestations of the Beekeepers Association in Romania, at the annual meeting of the International Honey Commission.

**10. Assessment**

Type of activity	10.1. Assessment criteria	10.2. Assessment methods	10.3. Percentage of the final grade
<b>10.4. Lecture</b>	Bee farms management in the conditions of the exhibition of natural mountain resources and farm. Valorisation of the main bee products obtained from the exploitation of bee families in zonefarms. Use of bee products in the activity of the farm. The high recovery of the honeybee resources in the mountain forest area. The setting up of the bee mountain nature reserves.	oral	70%
<b>10.5. Seminar/Laboratory</b>	Bee products properties. Control techniques. Register of products in the mountain apiaries and in the farm areas. Use of products in nutritional supplements.	Colloquium	30%
<b>10.6. Project</b>	-	-	
<b>10.6. Minimum performance standards</b>			
Mastering scientific information transmitted through lectures and practical work at an acceptable level. Getting the pass mark in continuous assessment is a condition for graduation.			

Filled in on  
04.09.2019

Course coordinator and laboratory work  
Professor Daniel Dezmirean, PhD

Head of the Department  
Professor Marcel Duda, PhD

Approved by the  
department on 05.09.2019


