AYDIN ADNAN MENDERES UNIVERSITY
COURSE INFORMATION FORM

Course Title	Varroatosis Of Bees								
Course Code	VPR652		Couse Level	Third Cycle (Doctorate Degree)					
ECTS Credit	1	Workload	24 *(Hours)*	Theory	1	Practice	0	Laboratory	0
Objectives of the Course	The objective of this course, to learn that morphology, differential diagnosis, important criteria in diagnose which were varroa species in bee, these species of knowledge about which biology, treatment and preservation								
Course Content	Morphology and biology of varroa species in bee, symptom in desease, distribution in Turkey, methods of diagnose, treatment and control								
Work Placement	N/A								
Planned Learning Activities and Teaching Methods	Explanation (Presentation), Discussion, Case Study								
Name of Lecturer(s)	Prof. Nuran AYSUL, Prof. Tülin KARAGENÇ								

Assessment Methods and Criteria		
Method	Quantity	Percentage (%)
Midterm Examination	1	20
Final Examination	1	60
Quiz	2	10
Assignment	4	10

Recommended or Required Reading	
1	AKKAYA, H., VURUŞANER, C. (1996). Bal Arısı Hastalıkları ve Zararlıları, Teknik Yayın, İstanbul
2	BAİLEY L., BALL, B.V. (1991). Honey Bee Pathology, Second Edition, Academic Press, 1205 p
3	BALL, B.V. (1993). The Damaging Effects of Varroa jacopsani infestation. In: Living With Varroa, Ed: Andrew Matheson. IBRA, 58 p.
4	ELLIS, M. (2001). Chemical control of Varroa mites. In: Mites of Honey Bee, Ed: Webster, T.C., Deleplane K.S., Ohio: Dadant and Sons Inc, 280 p
5	FRIES I. (1993). Varroa biology, In: Living With Varroa, Ed: Andrew Matheson. IBRA, 58 p
6	MARTIN, J.S. (2001). Biology and Life history of Varroa mites, In: Mites of Honey Bee, Ed: Webster, T.C., Deleplane K.S., Ohio: Dadant and Sons Inc, 280 p
7	ZEYBEK, H. (1991). Arı Hastalık ve Zaralıları, Etlik, Ankara 96 s
8	EREN, H., KARAGENÇ, T., BAKIRCI, S. (2005). In: Arıların Parazit hastalıklarında Tedavi, Ed: Burgu, A., Karaer, Z. Parazit Hastalıklarında Tedavi. Türkiye Parazitoloji Derneği, Yayın No:19

Week	**Weekly Detailed Course Contents**	
1	Theoretical	Systematics of the genus varroa, the prevalence of the species, morphology of varroa agents
2	Theoretical	Prevalence and spread of Varroatosis
3	Theoretical	Biology of agents that cause varroatosis
4	Theoretical	Pathogenicity in varroatosis
5	Theoretical	Clinical symptoms in varroatosis
6	Theoretical	Diagnose in varroatosis
7	Theoretical	Reference to laboratory of infected material with Varroatosis
8	Intermediate Exam	Midterm Examination
9	Theoretical	Methods used in clinical examination
10	Theoretical	Steps dealing with Varroatosis
11	Theoretical	Physical control with Varroatosis
12	Theoretical	Biological control with Varroatosis
13	Theoretical	Chemicalcontrol with Varroatosis
14	Theoretical	Developing new methods of treatment and prevention
15	Theoretical	Discussion
16	Final Exam	Final exam
17	Final Exam	Final exam

Workload Calculation				
Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	0	1	14
Assignment	1	0	0.5	0.5
Quiz	2	1	0.5	3
Midterm Examination	1	1	0.5	1.5
Final Examination	1	4	1	5
			Total Workload (Hours)	24
			[Total Workload (Hours) / 25*] = **ECTS**	1
**25 hour workload is accepted as 1 ECTS*				

Learning Outcomes	
1	Become have knowledge about morphology and biology of varroa species
2	Apiaries sending which were infected material in the laboratory and for sampling in varroatosis
3	Use of various diagnostic techniques for varroa
4	To have knowledge about the distribution, clinical and pathologic features of varroa
5	To have knowledge about the control methods and treatment of varroatosis

Programme Outcomes *(Parasitology (Veterinary Medicine) Doctorate)*	
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Contribution of Learning Outcomes to Programme Outcomes *1:Very Low, 2:Low, 3:Medium, 4:High, 5:Very High*

	L1	L2	L3	L4	L5
P1	5	4	5	5	5
P2	4	5	3	4	4
P3	4	5	3	4	4
P4	3	3	4	4	4
P5	5	5	5	5	5
P6	5	5	4	4	4
P7	4	5	5	5	5
P8	2	2	3	3	3
P9	2	2	3	3	3
P11	4	4	5	5	5