



AYDIN ADNAN MENDERES UNIVERSITY COURSE INFORMATION FORM

Course Title		Genetics and Biotechnology							
Course Code		OÖÖ407		Coure Level		First Cycle (Bachelor's Degree)			
ECTS Credit	4	Workload	102 (<i>Hours</i>)	Theory	3	Practice	0	Laboratory	0
Objectives of the Course		Basic concepts and principles about genetics and biotechnology							
Course Content		Biotechnology, genetic technology, scope, significance, effect on our life and a brief overview of the historical development. Rise of Modern Genetics: Mendel's theories, crossbreeding, Mendel's laws. Cytoplasmic inheritance. Natural selection, adaptation, mutation. Molecular Biology. Gene Technology: Molecular genetics. Human genetics and genetic disorders. Gene engineering and the opportunities provided by society and science. Basic Principles of Biotechnology: Microbial metabolism, plant-animal cell cultures, fermentation, and fermentation technology, biotechnology, basic operations. Applications of biotechnology: the production of microbial biomass (baker's yeast, single cell protein), production of primary metabolites (citric acid, fumaric acid, acetic acid, amino acids, vitamins), Fermentation (alcoholic fermentation, lactic acid production, butyric acid, butanol, acetone), production of secondary metabolites (antibiotic), enzyme production, gene biotechnology, environmental biotechnology							
Work Placement		N/A							
Planned Learning Activities and Teaching Methods				Explanation (Presentation), Case Study, Project Based Study					
Name of Lecturer(s)									

Assessment Methods and Criteria

Method	Quantity	Percentage (%)
Midterm Examination	1	40
Final Examination	1	70

Recommended or Required Reading

1	1. Genetike Başlarken, Vardar, Y., Kesercioğlu, T., Gelişim Basın Yayın Dağıtım, 2011, İzmir
2	2. Genetik, Yıldırım, A., Karadağ, Y., Kandemir, N., Sakin, M. A. Nobel Yayın Dağıtım, 2008, Ankara.
3	3. Genetik Kavramlar, Klug, W.S. & Cummings, M.R., Palme Yayıncılık, 2002. Ankara.

Week	Weekly Detailed Course Contents	
1	Theoretical	Basic genetic conceptions
2	Theoretical	Mendel genetics
3	Theoretical	Determination of gender
4	Theoretical	Sex chromosomes
5	Theoretical	Population genetics
6	Theoretical	Gene-chromosome-genome mutations
7	Theoretical	Genetic diseases
8	Intermediate Exam	Intermediate Exam
9	Theoretical	Definition of biology and it's importance
10	Theoretical	Biotechnological methods
11	Theoretical	Genetic engineering
12	Theoretical	Cloning
13	Theoretical	DNA isolation
14	Theoretical	DNA transfer
15	Theoretical	Fingerprint
16	Final Exam	FINAL EXAM

Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	0	3	42
Individual Work	14	0	3	42
Midterm Examination	1	0	8	8



Final Examination	1	0	10	10
Total Workload (Hours)				102
[Total Workload (Hours) / 25*] = ECTS				4
*25 hour workload is accepted as 1 ECTS				

Learning Outcomes

1	1. To define basic genetic concepts
2	2. Compherension of Mendel genetics
3	3. To comprehend gender determination
4	4. Compherension of sex chromosomes
5	5. Compherension of population genetics
6	6. Compherension gene-chromosome-genome mutations
7	7. Compherension of genetic diseases
8	8. Definition of biotechnology
9	9. Compherension of biotechnological methods
10	10. Definiton of genetic engineering
11	11. Compherension of cloning
12	12. Compherension of DNA isolation
13	13. Compherension of DNA transfer
14	14. Compherension of fingerprint

Programme Outcomes (Early Childhood Teacher Education)

1	To be able to gain subject knowledge of profession in theory and practice in the learning process.
2	To be able to gain the competence of using the appropriate approach, strategy, technique for the plans in the learning process, by making instructional plans related to the subject-matter.
3	To be able to gain skills of the teaching profession in the learning process.
4	To be able to implement teaching profession knowledge, skills, attitudes and habits related to the subject-matter in a real teaching and learning environment in the learning process.
5	To be able to comprehend contemporary approaches of education and the philosophies they are based on.
6	To be able to gain the basic skills such as comprehending, expressing, commenting, evaluating, being aware and enterprising, communicating, acknowledging the individual related to the subject-matter
7	To be able to become individuals faithful to the Principles and Revolutions of Ataturk, be modern, democratic,, secular, protecting and deveoping one's country, being alive to the nation, respecting human rights, preserving the nature, not being discriminatory, giving importance to the traditions and customs, protecting the values
8	To be able to improve oneself in terms of sport, art and culture
9	To be able to become individuals believing in lifelong learning.
10	To be able to educate individuals who keep up with developments in social, economic, technological and scientific areas, who investigate the main reasons of World problems and try to contribute to the solution of these problems

Contribution of Learning Outcomes to Programme Outcomes 1:Very Low, 2:Low, 3:Medium, 4:High, 5:Very High

	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	L12	L13	L14
P1	2	2	2	2	2	2	2	2	2	2	2	2	2	2
P2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
P3	2	2	2	2	2	2	2	2	2	2	2	2	2	2
P4	2	2	2	2	2	2	2	2	2	2	2	2	2	2
P5	2	2	2	2	2	2	2	2	2	2	2	2	2	2
P6	2	2	2	2	2	2	2	2	2	2	2	2	2	2
P7	2	2	2	2	2	2	2	2	2	2	2	2	2	2
P8	2	2	2	2	2	2	2	2	2	2	2	2	2	2
P9	3	3	3	3	3	3	3	3	3	3	3	3	3	3
P10	2	2	2	2	2	2	2	2	2	2	2	2	2	2

