# AYDIN ADNAN MENDERES UNIVERSITY
# COURSE INFORMATION FORM

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|---|---|---|---|---|---|---|---|---|---|
| Course Title | Development of Nervous System in The Fowl and Mammalian | | | | | | | | |
| Course Code | VHE644 | | Couse Level | | Third Cycle (Doctorate Degree) | | | | |
| ECTS Credit | 3 | Workload | 75 *(Hours)* | Theory | 2 | Practice | 0 | Laboratory | 0 |
| Objectives of the Course | The aim of the course is to teach development of cerebral organs, development of spinal cord and development of ganglia. | | | | | | | | |
| Course Content | Development of cerebral organs, development of spinal cord and development of ganglia. | | | | | | | | |
| Work Placement | N/A | | | | | | | | |
| Planned Learning Activities and Teaching Methods | Explanation (Presentation), Discussion, Individual Study | | | | | | | | |
| Name of Lecturer(s) | | | | | | | | | |

| **Assessment Methods and Criteria** | | |
|---|---|---|
| Method | Quantity | Percentage (%) |
| Midterm Examination | 1 | 40 |
| Final Examination | 1 | 60 |

| **Recommended or Required Reading** | |
|---|---|
| 1 | Hassa, O., Aşti, R. N. (2003) Embriyoloji.Yorum Matbaacılık, Ankara. |
| 2 | Balinsky, B. I. (1975). An introductiontoembryology . Saunders, Philedelphia. . |
| 3 | Kierszenbaum, A. L. (2007) Histologyand Cell Biology. An introductiontoPathology, Mosby, Elsevier, Kanada |
| 4 | Wolpert, L. (1998). Principles of development. CurrentBiology Ltd., New York |

| Week | Weekly Detailed Course Contents | |
|---|---|---|
| 1 | Theoretical | Development of neural plaque |
| 2 | Theoretical | Signalling pathways involved in differentiation of nerve cells |
| 3 | Theoretical | The importance of asymmetric cell division in differentiation of nerve cells-article discussion |
| 4 | Theoretical | Development of cerebral organs |
| 5 | Theoretical | Development of spinal cord |
| 6 | Theoretical | Mechanisms of cellular differentiation along the dorsal-ventral axis of spinal cord |
| 7 | Theoretical | Development of cranial nerves and ganglia |
| 8 | Intermediate Exam | Midterm |
| 9 | Theoretical | Development of spinal nerves and ganglia |
| 10 | Theoretical | Development of autonomic nervous system |
| 11 | Theoretical | Development and migration of neural crest cells-article discussion |
| 12 | Theoretical | The formation of nerve cell networks |
| 13 | Theoretical | Mechanism of the snaps of motor neurons. |
| 14 | Theoretical | The importance of apoptosis in the regulation of synaptic connections by nerve cells. |
| 15 | Theoretical | Article discussion |
| 16 | Final Exam | Final Exam |

| **Workload Calculation** | | | | |
|---|---|---|---|---|
| Activity | Quantity | Preparation | Duration | Total Workload |
| Lecture - Theory | 14 | 0 | 1 | 14 |
| Assignment | 2 | 5 | 1 | 12 |
| Seminar | 1 | 10 | 1 | 11 |
| Midterm Examination | 1 | 15 | 1 | 16 |
| Final Examination | 1 | 21 | 1 | 22 |
| | | | Total Workload (Hours) | 75 |
| | | | [Total Workload (Hours) / 25*] = **ECTS** | 3 |

**25 hour workload is accepted as 1 ECTS*

| Learning Outcomes | |
|---|---|
| 1 | The student learns development of central nervous system from neural plate. |
| 2 | The student learns signal pathway at neuron differentiation. |
| 3 | The student learns differentiation and migration of neural crest cells. |
| 4 | The student gains importance of apoptosis at snaps of neural cells. |
| 5 | Understand the importance of nervous system development in poultry and mammals |

| **Programme Outcomes** *(Histology and Embryology (Veterinary Medicine) Doctorate)* | |
|---|---|
| 1 | Gains expert knowledge on the function and basic histological features of cells, tissues and systems in animals. |
| 2 | Gains expert knowledge on the stages of embryonal and fetal development in both mammals and birds. |
| 3 | Based on his/her training during the Master of Science program, he/she has in depth knowledge in the field of histology/embryology as well as in areas related to his/her area of expertise. |
| 4 | Using basic knowledge gained during the undergraduate and master of science program, develops ,critically evaluates and tests novel ideas in his/her area of expertise. |
| 5 | Endowed with theoretical and practical knowledge as for the scientific research and methodology to be able to conduct an independent research project. |
| 6 | Has theoretical knowledge concerning skills (leadership, entrepreneurship, ability to reach information technologies, organization, industrial correspondence etc.). Knows laws and regulations concerning his/her area of expertise and related subjects. |
| 7 | Determines and uses laboratory equipment and consumables in a histology laboratory. Has the ability to solve problems in his/her area of expertise. |
| 8 | Has the ability to design and develop scientific methodology concerning new developments in his/her area of expertise. Has the ability to put established methods in use to tackle current problems in his/her area of expertise. |
| 9 | Designs and conducts an independent research project on his/her own. |
| 10 | Critically evaluates and reaches to a synthesis of new ideas in his/her area of expertise and related fields. |
| 11 | Uses and develops modern technologies in his/her area of expertise towards the industry in a systematic and critical manner. |
| 12 | Performs his/her expertise with the recognition of the rights and responsibilities obtained with the completion of doctorate program in histology/embryology. |
| 13 | Is able to break down new and immature ideas into simple components and suggest alternative solutions by using his/her ability to recognize possible relationships among these components. |
| 14 | If the need arises, designs an interdisciplinary research project , forms a team, leads and finalizes the research project to solve an old or a new problem in the field of histology/embryology. |
| 15 | Attends to activities such as congresses, panels, symposiums, workshops, seminars, journal clubs in his/her area of expertise, shares information in his/her area of expertise and contributes to the solution of a problem by interacting with experts in other fields. |
| 16 | Expands a growing body of information in his/her area of expertise by publishing scientific articles in national and international journals. |
| 17 | Is in recognition of taking professional and ethical responsibilities. |
| 18 | Develop new ideas and methods that has the potential to ignite social and cultural progress or add values to the information society by using practical and theoretical knowledge gained throughout his/her training and his/her skill to work independently and to take responsibilities. |
| 19 | Makes the concept of life-long learning a matter of principle and recognizes the fact that evidence-based information is the most important gain of education. |
| 20 | Provides information and manages information exchanges on issues of public and animal health in committees with the aim of defining and solving a problem using his/her expertise. |

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

| | L1 | L2 | L3 | L4 |
|---|---|---|---|---|
| P2 | 5 | 5 | 5 | 5 |
| P3 | 4 | 4 | 4 | 4 |