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| Doctorate Degree |
| **Code** | **Lesson Name** | **ECTS** | **T+U+L** | **C/E** | **Language** |
| **Autumn Term** |
| 521903305 | [TRANSMISSION ELECTRON MICROSCOPY AND ITS STUDY PRINCIPLES](#DERS521901305) | 7,5 | 2+2+0 | COMPULSORY | TURKISH |
| 521903308 | [HISTOCHEMISTRY AND IMMUNOHISTOCHEMISTRY](#DERS521901308) | 7,5 | 2+2+0 | COMPULSORY | TURKISH |
| 521903301 | [METHODS AND ULTRASTRUCTURE IN DIGESTIVE SYSTEM](#DERS521901301) | 7,5 | 3+0+0 | ELECTIVE | TURKISH |
| 521905302 | [DEVELOPMENT AND HISTOLOGY OF LYMPHATIC TISSUES AND ORGANS](#DERS521901302) | 5,0 | 2+0+0 | ELECTIVE | TURKISH |
| 521905304 | [DEVELOPMENT OF THE HEAD AND NECK REGION](#DERS521901304) | 5,0 | 2+0+0 | ELECTIVE | TURKISH |
| 521903306 | [CONGENITAL MALFORMATIONS IN EMBRYOLOGY](#DERS521901306) | 7,5 | 3+0+0 | ELECTIVE | TURKISH |
| 521905307 | [MICROMANIPULATION](#DERS521901307) | 5,0 | 2+1+0 | ELECTIVE | TURKISH |
| 521905309 | [EMBRYONIC STEM CELLS AND CLONING](#DERS521901309) | 5,0 | 1+2+0 | ELECTIVE | TURKISH |
| 521905310 | [CELL INJURY, ADAPTATION AND DEATH](#DERS521901310) | 5,0 | 1+2+0 | ELECTIVE | TURKISH |
| 521905311 | [INFLAMMATION AND TISSUE REPAIR](#DERS521901311) | 5,0 | 1+2+0 | ELECTIVE | TURKISH |
| 521901600 | COURSE OF PROVINCE | 5 | 3+0+0 | COMPULSORY | TURKISH |
|  |  |  |  |  |
| **Spring Term** |
| 521904301 | [ORGANOGENESIS](#DERS521902301) | 7,5 | 3+0+0 | COMPULSORY | TURKISH |
| 521906302 | [DEVELOPMENT AND HISTOLOGY OF CARDIOVACULAR SYSTEM](#DERS521902302) | 5,0 | 2+0+0 | ELECTIVE | TURKISH |
| 521904303 | [DEVELOPMENT AND HISTOLOGY OF NERVOUS SYSTEM ORGANS](#DERS521902303) | 7,5 | 3+0+0 | ELECTIVE | TURKISH |
| 521904304 | [LIGHT AND ELECTRON MICROSCOPIC EXAMINATION OF UROGENITAL SYSTEM](#DERS521902304) | 7,5 | 3+0+0 | ELECTIVE | TURKISH |
| 521906306 | [DEVELOPMENT AND HISTOLOGY OF ENDOCRINE SYSTEM](#DERS521902306) | 5,0 | 2+0+0 | ELECTIVE | TURKISH |
| 521904307 | [SCANNING ELECTRON MICROSCOPY AND ITS STUDY PRINCIPLES](#DERS521902307) | 7,5 | 2+2+0 | ELECTIVE | TURKISH |
| 521901600 | COURSE OF PROVINCE | 5 | 3+0+0 | COMPULSORY | TURKISH |
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| **COURSE CODE:** | **521903301** | **DEPARTMENT:** | HISTOLOGY AND EMBRYOLOGY |
| **COURSE NAME:** | METHODS AND ULTRASTRUCTURE IN DIGESTIVE SYSTEM |
| **INSTRUCTOR NAME** | **COURSE LANGUAGE** | **COURSE CATEGORY** |
| Prof. Dr. Varol ŞAHİNTÜRK | **Turkish** | **English** | **Technical** | **Medical** | **Other** |
| **X** |  |  | **X** |  |

**COURSE LEVEL**

|  |  |  |  |
| --- | --- | --- | --- |
| **PROPAEDEUTIC** | **MASTER OF SCIENCE** | **DOCTORATE** | **COURSE OF PROVINCE** |
|  |  | **X** |  |

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| --- | --- | --- |
| **SEMESTER** | **WEEKLY COURSE PERIOD** | **COURSE OF** |
| **Autumn** | **Spring** | **Theoretic** | **Practice** | **Laboratory** | **Credit** | **ECTS** | **Type** |
| **X** |  | 3 | 0 | 0 | 3 | 7,5 | Compulsory: |
| Elective: **X** |

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| **ASSESMENT CRITERIA** |
| **MID-TERM EXAM** | **Activity** | **Quantity** | **Percentage (%)** |
| 1st Mid-Term | 1 | 50 |
| 2nd Mid-Term |  |  |
| Quiz |  |  |
| Homework |  |  |
| Project |  |  |
| Oral Exam |  |  |
| Other (………) |  |  |
| **FINAL EXAM** | Quiz |  |  |
| Homework |  |  |
| Project |  |  |
| Oral Exam | 1 | 50 |
| Other (………) |  |  |
| **MAKE-UP EXAM** | Oral | Written | Oral and Written | Multiple Choice |
|  | **X** |  |  |
| **PREREQUISITE(S)** |  |
| **COURSE CONTENT** | Development and histology of digestive system organs |
| **COURSE AIMS** | Teaching of development and histology of digestive system organs |
| **COURSE OBJECTIVES** | Comprehension and explaining of development and histology of digestive system organs  |
| **TEXTBOOK(S)** | Histology-A Text and Atlas, M. H. Ross and W. Pawlina, Seventh Edition, Wolters Kluwer, USA, 2016. |
| **REFERENCES** | Langman’s Medical Embryology, T. W. Sadler, Thirteenth Edition, Wolters Kluwer, USA, 2015. |

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| **COURSE SYLLABUS** |
| **WEEK** | **DATE** | **SUBJECTS/TOPICS** |
| 1 |  | İntroducing to digestive system |
| 2 |  | Foregut development |
| 3 |  | Midgut development |
| 4 |  | Hindgut development |
| 5 |  | Mouth and correlated organs |
| 6 |  | Esophagus |
| 7 |  | **Mid-Term Exam** |
| 8 |  | Stomach |
| 9 |  | Small intestine |
| 10 |  | Colon and rectum |
| 11 |  | Liver and gallbladder |
| 12 |  | Pancreas |
| 13 |  | Examination methods of digestive system |
| 14 |  | Preferred literatures |
| 15 |  | Microscopic observation |
| 16 |  | **Final Exam** |

**PROGRAM OUTCOMES**

Up skills of Course: Please choose never (1), few (2) or many (3) regarding your course

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **NO** |  | **1** | **2** | **3** |
| 1 | Gather as well as apply knowledge of health sciences |  |  | **X** |
| 2 | Ask scientific questions and form hypothesis |  |  | **X** |
| 3 | Search and interpret scientific literature |  | **X** |  |
| 4 | Design and conduct experiments as well as analyze and interpret the data |  | **X** |  |
| 5 | Learn how to use the experimental equipment effectively |  | **X** |  |
| 6 | Function on multi-disciplinary teams |  | **X** |  |
| 7 | Identify, formulate, and solve medical problems |  | **X** |  |
| 8 | Use computer effectively both in conducting the experiments and analyzing the data | **X** |  |  |
| 9 | Understand the impact of experimental solutions on national and international sciences |  |  | **X** |
| 10 | Use effective written and oral communication/presentation skills |  | **X** |  |
| 11 | Get an understanding of professional and ethical responsibility |  | **X** |  |
| 12 | Get a recognition of the need for, and an ability to engage in lifelong learning |  |  | **X** |
| 13 | Get a recognition of basic concepts in medical education |  |  | **X** |
| 14 | Get a skill of approach to ethical problems by focusing on basic concepts |  | **X** |  |

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| **Instructor Name****Prof. Dr. Varol ŞAHİNTÜRK****Sign** | **Date****06.03.2018** |

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| --- | --- | --- | --- |
| **COURSE CODE:** | **521905302** | **DEPARTMENT:** | HISTOLOGY AND EMBRYOLOGY |
| **COURSE NAME:** | [DEVELOPMENT AND HISTOLOGY OF LYMPHATIC TISSIUES AND ORGANS](#DERS521901302) |
| **INSTRUCTOR NAME** | **COURSE LANGUAGE** | **COURSE CATEGORY** |
| Prof. Dr. Varol ŞAHİNTÜRK | **Turkish** | **English** | **Technical** | **Medical** | **Other** |
| **X** |  |  | **X** |  |

**COURSE LEVEL**

|  |  |  |  |
| --- | --- | --- | --- |
| **PROPAEDEUTIC** | **MASTER OF SCIENCE** | **DOCTORATE** | **COURSE OF PROVINCE** |
|  |  | **X** |  |

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| --- | --- | --- |
| **SEMESTER** | **WEEKLY COURSE PERIOD** | **COURSE OF** |
| **Autumn** | **Spring** | **Theoretic** | **Practice** | **Laboratory** | **Credit** | **ECTS** | **Type** |
| **X** |  | 2 | 0 | 0 | 2 | 5,0 | Compulsory: |
| Elective: **X** |

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| **ASSESMENT CRITERIA** |
| **MID-TERM EXAM** | **Activity** | **Quantity** | **Percentage (%)** |
| 1st Mid-Term | 1 | 50 |
| 2nd Mid-Term |  |  |
| Quiz |  |  |
| Homework |  |  |
| Project |  |  |
| Oral Exam |  |  |
| Other (………) |  |  |
| **FINAL EXAM** | Quiz |  |  |
| Homework |  |  |
| Project |  |  |
| Oral Exam | 1 | 50 |
| Other (………) |  |  |
| **MAKE-UP EXAM** | Oral | Written | Oral and Written | Multiple Choice |
|  | **X** |  |  |
| **PREREQUISITE(S)** |  |
| **COURSE CONTENT** | Development and histology of lymphatic tissues and organs |
| **COURSE AIMS** | Teaching of developmental phases and histological features of lymphatic tissues and organs |
| **COURSE OBJECTIVES** | To get ready for understanding of diseases via learning normal features of immune system cells, tissues and organs |
| **TEXTBOOK(S)** | Histology-A Text and Atlas, M. H. Ross and W. Pawlina, Seventh Edition, Wolters Kluwer, USA, 2016. |
| **REFERENCES** | Langman’s Medical Embryology, T. W. Sadler, Thirteenth Edition, Wolters Kluwer, USA, 2015. |

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| **COURSE SYLLABUS** |
| **WEEK** | **DATE** | **SUBJECTS/TOPICS** |
| 1 |  | Introduction to lymphatic system |
| 2 |  | Immune system cells-neutrophil, basophil, eosinophil, monocyte, lymphocyte |
| 3 |  | Immune system cells-plasmocyte, reticular cell, dendritic cell, mononuclear phagocytic system |
| 4 |  | Development of bone marrow |
| 5 |  | Histology of bone marrow |
| 6 |  | Lymphatic tissues |
| 7 |  | **Mid-Term Exam** |
| 8 |  | Development and histology of lymphatic nodes |
| 9 |  | Development and histology of tonsils |
| 10 |  | Development of thymus |
| 11 |  | Histology of thymus |
| 12 |  | Development and histology of spleen |
| 13 |  | Functions of lymphatic organs |
| 14 |  | Immune system and tissue or organ transplantation |
| 15 |  | Some problems without answers in immune system |
| 16 |  | **Final Exam** |

**PROGRAM OUTCOMES**

Up skills of Course: Please choose never (1), few (2) or many (3) regarding your course

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **NO** |  | **1** | **2** | **3** |
| 1 | Gather as well as apply knowledge of health sciences |  | **X** |  |
| 2 | Ask scientific questions and form hypothesis |  |  | **X** |
| 3 | Search and interpret scientific literature |  | **X** |  |
| 4 | Design and conduct experiments as well as analyze and interpret the data |  | **X** |  |
| 5 | Learn how to use the experimental equipment effectively |  | **X** |  |
| 6 | Function on multi-disciplinary teams |  |  | **X** |
| 7 | Identify, formulate, and solve medical problems |  | **X** |  |
| 8 | Use computer effectively both in conducting the experiments and analyzing the data | **X** |  |  |
| 9 | Understand the impact of experimental solutions on national and international sciences |  |  | **X** |
| 10 | Use effective written and oral communication/presentation skills |  | **X** |  |
| 11 | Get an understanding of professional and ethical responsibility |  |  | **X** |
| 12 | Get a recognition of the need for, and an ability to engage in lifelong learning |  |  | **X** |
| 13 | Get a recognition of basic concepts in medical education |  |  | **X** |
| 14 | Get a skill of approach to ethical problems by focusing on basic concepts |  |  | **X** |

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| **Instructor Name****Prof. Dr. Varol ŞAHİNTÜRK****Sign** | **Date****06.03.2018** |

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| **COURSE CODE:** | **521905304** | **DEPARTMENT:** | HISTOLOGY AND EMBRYOLOGY |
| **COURSE NAME:** | DEVELOPMENT OF THE HEAD AND NECK REGION |
| **INSTRUCTOR NAME** | **COURSE LANGUAGE** | **COURSE CATEGORY** |
| Ass. Prof. Dr. Dilek BURUKOĞLU DÖNMEZ | **Turkish** | **English** | **Technical** | **Medical** | **Other** |
| **X** |  |  | **X** |  |

**COURSE LEVEL**

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| --- | --- | --- | --- |
| **PROPAEDEUTIC** | **MASTER OF SCIENCE** | **DOCTORATE** | **COURSE OF PROVINCE** |
|  |  | **X** |  |

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| --- | --- | --- |
| **SEMESTER** | **WEEKLY COURSE PERIOD** | **COURSE OF** |
| **Autumn** | **Spring** | **Theoretic** | **Practice** | **Laboratory** | **Credit** | **ECTS** | **Type** |
| **X** |  | 2 | 0 | 0 | 2 | 5,0 | Compulsory:  |
| Elective: **X** |

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| **ASSESMENT CRITERIA** |
| **MID-TERM EXAM** | **Activity** | **Quantity** | **Percentage (%)** |
| 1st Mid-Term | 1 | 50 |
| 2nd Mid-Term |  |  |
| Quiz |  |  |
| Homework |  |  |
| Project |  |  |
| Oral Exam |  |  |
| Other (………) |  |  |
| **FINAL EXAM** | Quiz |  |  |
| Homework |  |  |
| Project |  |  |
| Oral Exam | 1 | 50 |
| Other (………) |  |  |
| **MAKE-UP EXAM** | Oral | Written | Oral and Written | Multiple Choice |
|  | **X** |  |  |
| **PREREQUISITE(S)** |  |
| **COURSE CONTENT** | The role of pharyngeal apparatus in the development of head and neck regions |
| **COURSE AIMS** | To teach of the pharyngeal pouch, pharyngeal arcus, pharyngeal cleft and pharyngeal membrane, which are the components of pharyngeal apparatus |
| **COURSE OBJECTIVES** | This information will be used in the analysis of clinical problems |
| **TEXTBOOK(S)** | Langman’s Medical Embryology, T. W. Sadler, Thirteenth Edition, Wolters Kluwer, USA, 2015. |
| **REFERENCES** | Embriyoloji ve doğum defektlerinin temelleri, Before we are born. Moore KL, Persaud T.V.N. Çeviri edit.; Müftüoğlu, S., Atilla, P., Kaymaz, F., Güneş Tıp Kitabevleri, 7.Baskı, 2009. |

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| **COURSE SYLLABUS** |
| **WEEK** | **DATE** | **SUBJECTS/TOPICS** |
| 1 |  | Introduction to the development of the head and neck region |
| 2 |  | What is pharyngeal apparatus? |
| 3 |  | Pharyngeal arches |
| 4 |  | Pharyngeal pouches |
| 5 |  | Seminar 1 |
| 6 |  | Pharyngeal clefts |
| 7 |  | **Mid-Term Exam** |
| 8 |  | Pharyngeal membranes |
| 9 |  | Congenital malformations |
| 10 |  | Seminar 2 |
| 11 |  | Development of thyroid and parathyroid glands |
| 12 |  | Development of thymus |
| 13 |  | Development of tongue |
| 14 |  | Development of face |
| 15 |  | Clinical information |
| 16 |  | **Final Exam** |

**PROGRAM OUTCOMES**

Up skills of Course: Please choose never (1), few (2) or many (3) regarding your course

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **NO** |  | **1** | **2** | **3** |
| 1 | Gather as well as apply knowledge of health sciences |  | **X** |  |
| 2 | Ask scientific questions and form hypothesis |  | **X** |  |
| 3 | Search and interpret scientific literature |  | **X** |  |
| 4 | Design and conduct experiments as well as analyze and interpret the data | **X** |  |  |
| 5 | Learn how to use the experimental equipment effectively |  | **X** |  |
| 6 | Function on multi-disciplinary teams |  | **X** |  |
| 7 | Identify, formulate, and solve medical problems | **X** |  |  |
| 8 | Use computer effectively both in conducting the experiments and analyzing the data |  | **X** |  |
| 9 | Understand the impact of experimental solutions on national and international sciences |  | **X** |  |
| 10 | Use effective written and oral communication/presentation skills |  | **X** |  |
| 11 | Get an understanding of professional and ethical responsibility |  | **X** |  |
| 12 | Get a recognition of the need for, and an ability to engage in lifelong learning |  | **X** |  |
| 13 | Get a recognition of basic concepts in medical education |  | **X** |  |
| 14 | Get a skill of approach to ethical problems by focusing on basic concepts |  |  | **X** |

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| **Instructor Name****Ass. Prof. Dr. Dilek BURUKOĞLU DÖNMEZ****Sign** | **Date****06.03.2018** |

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| --- | --- | --- | --- |
| **COURSE CODE:** | **521903305** | **DEPARTMENT:** | HISTOLOGY AND EMBRYOLOGY |
| **COURSE NAME:** | TRANSMISSION ELECTRON MICROSCOPY AND STUDYING PRINCIPLES |
| **INSTRUCTOR NAME** | **COURSE LANGUAGE** | **COURSE CATEGORY** |
| Ass. Prof. Dr. Dilek BURUKOĞLU DÖNMEZ | **Turkish** | **English** | **Technical** | **Medical** | **Other** |
| **X** |  | **X** |  |  |

**COURSE LEVEL**

|  |  |  |  |
| --- | --- | --- | --- |
| **PROPAEDEUTIC** | **MASTER OF SCIENCE** | **DOCTORATE** | **COURSE OF PROVINCE** |
|  |  | **X** |  |

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| --- | --- | --- |
| **SEMESTER** | **WEEKLY COURSE PERIOD** | **COURSE OF** |
| **Autumn** | **Spring** | **Theoretic** | **Practice** | **Laboratory** | **Credit** | **ECTS** | **Type** |
| **X** |  | 2 | 0 | 2 | 3 | 7,5 | Compulsory: **X** |
| Elective: |

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| **ASSESMENT CRITERIA** |
| **MID-TERM EXAM** | **Activity** | **Quantity** | **Percentage (%)** |
| 1st Mid-Term | 1 | 50 |
| 2nd Mid-Term |  |  |
| Quiz |  |  |
| Homework |  |  |
| Project |  |  |
| Oral Exam |  |  |
| Other (………) |  |  |
| **FINAL EXAM** | Quiz |  |  |
| Homework |  |  |
| Project |  |  |
| Oral Exam | 1 | 50 |
| Other (………) |  |  |
| **MAKE-UP EXAM** | Oral | Written | Oral and Written | Multiple Choice |
|  | **X** |  |  |
| **PREREQUISITE(S)** |  |
| **COURSE CONTENT** | Place and importance of transmission electron microscope in histology |
| **COURSE AIMS** | To present transmission electron microscope  |
| **COURSE OBJECTIVES** | Explaining of transmission electron microscope and its application fields  |
| **TEXTBOOK(S)** | Histology-A Text and Atlas, M. H. Ross and W. Pawlina, Seventh Edition, Wolters Kluwer, USA, 2016. |
| **REFERENCES** | Elektron Mikroskopi Kurs Kitabı, İstanbul Cerrahpaşa Tıp Fakültesi, 1997. |

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| **COURSE SYLLABUS** |
| **WEEK** | **DATE** | **SUBJECTS/TOPICS** |
| 1 |  | Operation principles of transmission electron microscope |
| 2 |  | Equipment of an electron microscope laboratory |
| 3 |  | Features of transmission electron microscope |
| 4 |  | Tissue fixation methods for transmission electron microscope |
| 5 |  | Tissue processing for transmission electron microscope |
| 6 |  | Obtaining tissue blocks for transmission electron microscope |
| 7 |  | **Mid-Term Exam** |
| 8 |  | Making glass knife |
| 9 |  | Ultra microtome |
| 10 |  | Semi-thin sectioning |
| 11 |  | Staining with toluidine blue |
| 12 |  | Ultra-thin sections |
| 13 |  | Grid staining |
| 14 |  | Principles of ultra-micrograph evaluation |
| 15 |  | Interpretation of ultra-micrographs |
| 16 |  | **Final Exam** |

**PROGRAM OUTCOMES**

Up skills of Course: Please choose never (1), few (2) or many (3) regarding your course

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **NO** |  | **1** | **2** | **3** |
| 1 | Gather as well as apply knowledge of health sciences |  | **X** |  |
| 2 | Ask scientific questions and form hypothesis |  | **X** |  |
| 3 | Search and interpret scientific literature |  |  |  |
| 4 | Design and conduct experiments as well as analyze and interpret the data |  |  | **X** |
| 5 | Learn how to use the experimental equipment effectively |  |  | **X** |
| 6 | Function on multi-disciplinary teams |  |  | **X** |
| 7 | Identify, formulate, and solve medical problems |  |  | **X** |
| 8 | Use computer effectively both in conducting the experiments and analyzing the data |  |  | **X** |
| 9 | Understand the impact of experimental solutions on national and international sciences |  |  | **X** |
| 10 | Use effective written and oral communication/presentation skills |  | **X** |  |
| 11 | Get an understanding of professional and ethical responsibility |  | **X** |  |
| 12 | Get a recognition of the need for, and an ability to engage in lifelong learning |  | **X** |  |
| 13 | Get a recognition of basic concepts in medical education |  | **X** |  |
| 14 | Get a skill of approach to ethical problems by focusing on basic concepts |  | **X** |  |

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| **Instructor Name****Ass. Prof. Dr. Dilek BURUKOĞLU DÖNMEZ****Sign** | **Date****06.03.2018** |

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| **COURSE CODE:** | **521903306** | **DEPARTMENT:** | HISTOLOGY AND EMBRYOLOGY |
| **COURSE NAME:** | CONGENITAL MALFORMATIONS IN EMBRYOLOGY  |
| **INSTRUCTOR NAME** | **COURSE LANGUAGE** | **COURSE CATEGORY** |
| Prof. Dr. Varol ŞAHİNTÜRK | **Turkish** | **English** | **Technical** | **Medical** | **Other** |
| **X** |  |  | **X** |  |

**COURSE LEVEL**

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| --- | --- | --- | --- |
| **PROPAEDEUTIC** | **MASTER OF SCIENCE** | **DOCTORATE** | **COURSE OF PROVINCE** |
|  |  | **X** |  |

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| --- | --- | --- |
| **SEMESTER** | **WEEKLY COURSE PERIOD** | **COURSE OF** |
| **Autumn** | **Spring** | **Theoretic** | **Practice** | **Laboratory** | **Credit** | **ECTS** | **Type** |
| **X** |  | 3 | 0 | 0 | 3 | 7,5 | Compulsory: |
| Elective: **X** |

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| **ASSESMENT CRITERIA** |
| **MID-TERM EXAM** | **Activity** | **Quantity** | **Percentage (%)** |
| 1st Mid-Term | 1 | 50 |
| 2nd Mid-Term |  |  |
| Quiz |  |  |
| Homework |  |  |
| Project |  |  |
| Oral Exam |  |  |
| Other (………) |  |  |
| **FINAL EXAM** | Quiz |  |  |
| Homework |  |  |
| Project |  |  |
| Oral Exam | 1 | 50 |
| Other (………) |  |  |
| **MAKE-UP EXAM** | Oral | Written | Oral and Written | Multiple Choice |
|  | **X** |  |  |
| **PREREQUISITE(S)** |  |
| **COURSE CONTENT** | Congenital malformations |
| **COURSE AIMS** | Teaching of reasons and results of congenital malformations |
| **COURSE OBJECTIVES** | Comprehension of reasons and results of congenital malformations |
| **TEXTBOOK(S)** | Langman’s Medical Embryology, T. W. Sadler, Thirteenth Edition, Wolters Kluwer, USA, 2015. |
| **REFERENCES** | Embriyoloji ve doğum defektlerinin temelleri, Çeviri editörü: Sevda Müftüoğlu, 7. Baskıdan çeviri, Güneş Kitabevi, 2009. |

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| **COURSE SYLLABUS** |
| **WEEK** | **DATE** | **SUBJECTS/TOPICS** |
| 1 |  | Introduction to congenital malformations |
| 2 |  | Teratology |
| 3 |  | Embryogenesis |
| 4 |  | Malformations of the nervous system |
| 5 |  | Malformations of the cardiovascular system |
| 6 |  | Malformations of the digestive system |
| 7 |  | **Mid-Term Exam** |
| 8 |  | Malformations of the skeletal and muscular system |
| 9 |  | Malformations of the female reproductive system |
| 10 |  | Malformations of the male reproductive system |
| 11 |  | Malformations of the urinary system |
| 12 |  | Chromosomal defects |
| 13 |  | Malformations of the integument |
| 14 |  | Malformations of the respiratory system |
| 15 |  | Other malformations |
| 16 |  | **Final Exam** |

**PROGRAM OUTCOMES**

Up skills of Course: Please choose never (1), few (2) or many (3) regarding your course

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **NO** |  | **1** | **2** | **3** |
| 1 | Gather as well as apply knowledge of health sciences |  |  | **X** |
| 2 | Ask scientific questions and form hypothesis |  |  | **X** |
| 3 | Search and interpret scientific literature |  | **X** |  |
| 4 | Design and conduct experiments as well as analyze and interpret the data |  | **X** |  |
| 5 | Learn how to use the experimental equipment effectively | **X** |  |  |
| 6 | Function on multi-disciplinary teams |  | **X** |  |
| 7 | Identify, formulate, and solve medical problems |  |  | **X** |
| 8 | Use computer effectively both in conducting the experiments and analyzing the data | **X** |  |  |
| 9 | Understand the impact of experimental solutions on national and international sciences |  | **X** |  |
| 10 | Use effective written and oral communication/presentation skills |  | **X** |  |
| 11 | Get an understanding of professional and ethical responsibility |  |  | **X** |
| 12 | Get a recognition of the need for, and an ability to engage in lifelong learning |  |  | **X** |
| 13 | Get a recognition of basic concepts in medical education |  |  | **X** |
| 14 | Get a skill of approach to ethical problems by focusing on basic concepts |  |  | **X** |

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| **Instructor Name****Prof. Dr. Varol ŞAHİNTÜRK****Sign** | **Date****06.03.2018** |

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| **COURSE CODE:** | **521905307** | **DEPARTMENT:** | HISTOLOGY AND EMBRYOLOGY |
| **COURSE NAME:** | MICROMANIPULATION |
| **INSTRUCTOR NAME** | **COURSE LANGUAGE** | **COURSE CATEGORY** |
| Prof. Dr. Varol ŞAHİNTÜRK | **Turkish** | **English** | **Technical** | **Medical** | **Other** |
| **X** |  | **X** |  |  |

**COURSE LEVEL**

|  |  |  |  |
| --- | --- | --- | --- |
| **PROPAEDEUTIC** | **MASTER OF SCIENCE** | **DOCTORATE** | **COURSE OF PROVINCE** |
|  |  | **X** |  |

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| --- | --- | --- |
| **SEMESTER** | **WEEKLY COURSE PERIOD** | **COURSE OF** |
| **Autumn** | **Spring** | **Theoretic** | **Practice** | **Laboratory** | **Credit** | **ECTS** | **Type** |
| **X** |  | 2 | 1 | 0 | 2,5 | 5,0 | Compulsory:  |
| Elective: **X** |

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| **ASSESMENT CRITERIA** |
| **MID-TERM EXAM** | **Activity** | **Quantity** | **Percentage (%)** |
| 1st Mid-Term | 1 | 50 |
| 2nd Mid-Term |  |  |
| Quiz |  |  |
| Homework |  |  |
| Project |  |  |
| Oral Exam |  |  |
| Other (………) |  |  |
| **FINAL EXAM** | Quiz |  |  |
| Homework |  |  |
| Project |  |  |
| Oral Exam | 1 | 50 |
| Other (………) |  |  |
| **MAKE-UP EXAM** | Oral | Written | Oral and Written | Multiple Choice |
|  | **X** |  |  |
| **PREREQUISITE(S)** |  |
| **COURSE CONTENT** | Techniques and information of oocytes, sperm and embryo micromanipulation  |
| **COURSE AIMS** | To learn the application of micromanipulation |
| **COURSE OBJECTIVES** | To get application skill of micromanipulation technique |
| **TEXTBOOK(S)** | Hikmet Hassa (Editör), İnfertil Olgulara Klinik Yaklaşım ve IVF Laboratuvar Uygulamaları, Osmangazi Üniversitesi Yayınları, Eskişehir, 2003. |
| **REFERENCES** | Lale Delilbaşı, A’dan Z’ye Tüp Bebek Laboratuvar, Veri Medikal Yayıncılık, İstanbul, 2008. |

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| **COURSE SYLLABUS** |
| **WEEK** | **DATE** | **SUBJECTS/TOPICS** |
| 1 |  | Introduction  |
| 2 |  | What is oogenesis and spermatogenesis? |
| 3 |  | Equipment of IVF laboratory |
| 4 |  | What is a micromanipulation? |
| 5 |  | What are the devices in micromanipulation technique? |
| 6 |  | Preparation of culture medium used in micromanipulation. |
| 7 |  | **Mid-Term Exam** |
| 8 |  | Seminar |
| 9 |  | Complex of oocyte cumulus manipulation, oocyte retrieval and oocyte denudation  |
| 10 |  | Mounting of microinjection needle and holding pipette |
| 11 |  | Crushing of sperm tail, sperm capturing and collection |
| 12 |  | ICSI application  |
| 13 |  | Zygote control and scoring |
| 14 |  | Micromanipulation application 1 |
| 15 |  | Micromanipulation application 2 |
| 16 |  | **Final Exam** |

**PROGRAM OUTCOMES**

Up skills of Course: Please choose never (1), few (2) or many (3) regarding your course

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **NO** |  | **1** | **2** | **3** |
| 1 | Gather as well as apply knowledge of health sciences |  | **X** |  |
| 2 | Ask scientific questions and form hypothesis |  | **X** |  |
| 3 | Search and interpret scientific literature |  | **X** |  |
| 4 | Design and conduct experiments as well as analyze and interpret the data | **X** |  |  |
| 5 | Learn how to use the experimental equipment effectively |  |  | **X** |
| 6 | Function on multi-disciplinary teams | **X** |  |  |
| 7 | Identify, formulate, and solve medical problems | **X** |  |  |
| 8 | Use computer effectively both in conducting the experiments and analyzing the data | **X** |  |  |
| 9 | Understand the impact of experimental solutions on national and international sciences |  |  | **X** |
| 10 | Use effective written and oral communication/presentation skills |  | **X** |  |
| 11 | Get an understanding of professional and ethical responsibility |  |  | **X** |
| 12 | Get a recognition of the need for, and an ability to engage in lifelong learning |  | **X** |  |
| 13 | Get a recognition of basic concepts in medical education |  | **X** |  |
| 14 | Get a skill of approach to ethical problems by focusing on basic concepts |  |  | **X** |

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| **Instructor Name****Prof. Dr. Varol ŞAHİNTÜRK****Sign** | **Date****06.03.2018** |

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| **COURSE CODE:** | **521903308** | **DEPARTMENT:** | HISTOLOGY AND EMBRYOLOGY |
| **COURSE NAME:** | HISTOCHEMISTRY AND IMMUNOHISTOCHEMISTRY  |
| **INSTRUCTOR NAME** | **COURSE LANGUAGE** | **COURSE CATEGORY** |
| Prof. Dr. Varol ŞAHİNTÜRK | **Turkish** | **English** | **Technical** | **Medical** | **Other** |
| **X** |  |  | **X** |  |

**COURSE LEVEL**

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| **PROPAEDEUTIC** | **MASTER OF SCIENCE** | **DOCTORATE** | **COURSE OF PROVINCE** |
|  |  | **X** |  |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | **COURSE OF** |
| **Autumn** | **Spring** | **Theoretic** | **Practice** | **Laboratory** | **Credit** | **ECTS** | **Type** |
| **X** |  | 2 | 2 | 0 | 3 | 7,5 | Compulsory: **X** |
| Elective:  |

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| **ASSESMENT CRITERIA** |
| **MID-TERM EXAM** | **Activity** | **Quantity** | **Percentage (%)** |
| 1st Mid-Term | 1 | 50 |
| 2nd Mid-Term |  |  |
| Quiz |  |  |
| Homework |  |  |
| Project |  |  |
| Oral Exam |  |  |
| Other (………) |  |  |
| **FINAL EXAM** | Quiz |  |  |
| Homework |  |  |
| Project |  |  |
| Oral Exam | 1 | 50 |
| Other (………) |  |  |
| **MAKE-UP EXAM** | Oral | Written | Oral and Written | Multiple Choice |
|  | **X** |  |  |
| **PREREQUISITE(S)** |  |
| **COURSE CONTENT** | Basic histochemical and immunohistochemical techniques |
| **COURSE AIMS** | Teaching of the basic histochemical and immunohistochemical techniques |
| **COURSE OBJECTIVES** | Comprehension and application of the basic histochemical and immunohistochemical techniques |
| **TEXTBOOK(S)** | Uygulamalı İmmünohistokimya Teknikleri Kurs Kitabı, 1997, Ankara, Alp Can. |
| **REFERENCES** |  |

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| **COURSE SYLLABUS** |
| **WEEK** | **DATE** | **SUBJECTS/TOPICS** |
| 1 |  | Introduction to histochemistry |
| 2 |  | Biochemical composition of cells, their secretions and extracellular matrix |
| 3 |  | Basic mechanisms of stain reaction |
| 4 |  | Determination methods and techniques of various tissue components |
| 5 |  | Histochemical applications by paraffin and frozen sections |
| 6 |  | Fluorescent microscopy |
| 7 |  | **Mid-Term Exam** |
| 8 |  | Basic principles of immunohistochemical methods |
| 9 |  | Determination of lipids in tissue sections |
| 10 |  | Determination of mucins in tissue sections |
| 11 |  | Determination of nucleic acids in tissue sections |
| 12 |  | Determination of glycosaminoglycans in tissue sections |
| 13 |  | Determination of biogenic amins in tissue sections |
| 14 |  | Acridin orange method |
| 15 |  | Basic approaches for choosing of techniques |
| 16 |  | **Final Exam** |

**PROGRAM OUTCOMES**

Up skills of Course: Please choose never (1), few (2) or many (3) regarding your course

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **NO** |  | **1** | **2** | **3** |
| 1 | Gather as well as apply knowledge of health sciences |  | **X** |  |
| 2 | Ask scientific questions and form hypothesis |  |  | **X** |
| 3 | Search and interpret scientific literature |  | **X** |  |
| 4 | Design and conduct experiments as well as analyze and interpret the data |  |  | **X** |
| 5 | Learn how to use the experimental equipment effectively |  |  | **X** |
| 6 | Function on multi-disciplinary teams |  |  | **X** |
| 7 | Identify, formulate, and solve medical problems |  |  | **X** |
| 8 | Use computer effectively both in conducting the experiments and analyzing the data |  | **X** |  |
| 9 | Understand the impact of experimental solutions on national and international sciences |  |  | **X** |
| 10 | Use effective written and oral communication/presentation skills |  | **X** |  |
| 11 | Get an understanding of professional and ethical responsibility |  | **X** |  |
| 12 | Get a recognition of the need for, and an ability to engage in lifelong learning |  |  | **X** |
| 13 | Get a recognition of basic concepts in medical education |  |  | **X** |
| 14 | Get a skill of approach to ethical problems by focusing on basic concepts |  | **X** |  |

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| **Instructor Name****Prof. Dr. Varol ŞAHİNTÜRK****Sign** | **Date****06.03.2018** |

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| **COURSE CODE:** | **521905309** | **DEPARTMENT:** | HISTOLOGY AND EMBRYOLOGY |
| **COURSE NAME:** | EMBRYONIC STEM CELLS AND CLONING |
| **INSTRUCTOR NAME** | **COURSE LANGUAGE** | **COURSE CATEGORY** |
| Prof. Dr. Varol ŞAHİNTÜRK | **Turkish** | **English** | **Technical** | **Medical** | **Other** |
| **X** |  | **X** |  |  |

**COURSE LEVEL**

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| --- | --- | --- | --- |
| **PROPAEDEUTIC** | **MASTER OF SCIENCE** | **DOCTORATE** | **COURSE OF PROVINCE** |
|  |  | **X** |  |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | **COURSE OF** |
| **Autumn** | **Spring** | **Theoretic** | **Practice** | **Laboratory** | **Credit** | **ECTS** | **Type** |
| **X** |  | 1 | 2 | 0 | 2 | 5,0 | Compulsory:  |
| Elective: **X** |

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| **ASSESMENT CRITERIA** |
| **MID-TERM EXAM** | **Activity** | **Quantity** | **Percentage (%)** |
| 1st Mid-Term | 1 | 50 |
| 2nd Mid-Term |  |  |
| Quiz |  |  |
| Homework |  |  |
| Project |  |  |
| Oral Exam |  |  |
| Other (………) |  |  |
| **FINAL EXAM** | Quiz |  |  |
| Homework |  |  |
| Project |  |  |
| Oral Exam | 1 | 50 |
| Other (………) |  |  |
| **MAKE-UP EXAM** | Oral | Written | Oral and Written | Multiple Choice |
|  | **X** |  |  |
| **PREREQUISITE(S)** |  |
| **COURSE CONTENT** | Embryonic stem cells and cloning technique |
| **COURSE AIMS** | To teach embryonic stem cells and principles of cloning |
| **COURSE OBJECTIVES** | To explain and interpret of embryonic stem cells and cloning |
| **TEXTBOOK(S)** | Alp Can, Kök Hücre, Akademisyen Tıp Kitabevi, Ankara, 2014. |
| **REFERENCES** | Erdal Karaöz ve Ercüment Ovalı, Kök Hücreler, ATİ Teknoloji, Trabzon, 2004. |

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| **COURSE SYLLABUS** |
| **WEEK** | **DATE** | **SUBJECTS/TOPICS** |
| 1 |  | The first 3 weeks of embryo development  |
| 2 |  | What are stem cells and why are important? |
| 3 |  | What are the specific characteristics of stem cells? |
| 4 |  | What are the characteristics of embryonic stem cells? |
| 5 |  | How to make embryonic stem cell culture?  |
| 6 |  | Laboratory tests to identify of embryonic stem cells  |
| 7 |  | **Mid-Term Exam** |
| 8 |  | What is cloning? |
| 9 |  | The development of cloning technology  |
| 10 |  | The beginning of the era of cloning-Dolly  |
| 11 |  | Embryo cloning  |
| 12 |  | Uses of cloning technology  |
| 13 |  | Cloning animals health  |
| 14 |  | Embryonic stem cell researches and the ethical problems |
| 15 |  | Current articles |
| 16 |  | **Final Exam** |

**PROGRAM OUTCOMES**

Up skills of Course: Please choose never (1), few (2) or many (3) regarding your course

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **NO** |  | **1** | **2** | **3** |
| 1 | Gather as well as apply knowledge of health sciences |  | **X** |  |
| 2 | Ask scientific questions and form hypothesis |  | **X** |  |
| 3 | Search and interpret scientific literature |  | **X** |  |
| 4 | Design and conduct experiments as well as analyze and interpret the data | **X** |  |  |
| 5 | Learn how to use the experimental equipment effectively |  |  | **X** |
| 6 | Function on multi-disciplinary teams | **X** |  |  |
| 7 | Identify, formulate, and solve medical problems | **X** |  |  |
| 8 | Use computer effectively both in conducting the experiments and analyzing the data | **X** |  |  |
| 9 | Understand the impact of experimental solutions on national and international sciences |  |  | **X** |
| 10 | Use effective written and oral communication/presentation skills |  | **X** |  |
| 11 | Get an understanding of professional and ethical responsibility |  |  | **X** |
| 12 | Get a recognition of the need for, and an ability to engage in lifelong learning |  | **X** |  |
| 13 | Get a recognition of basic concepts in medical education |  | **X** |  |
| 14 | Get a skill of approach to ethical problems by focusing on basic concepts |  |  | **X** |

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| **Instructor Name****Prof. Dr. Varol ŞAHİNTÜRK****Sign** | **Date****06.03.2018** |

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| **COURSE CODE:** | **521905310** | **DEPARTMENT:** | HISTOLOGY AND EMBRYOLOGY |
| **COURSE NAME:** | CELL INJURY, ADAPTATION AND DEATH |
| **INSTRUCTOR NAME** | **COURSE LANGUAGE** | **COURSE CATEGORY** |
| Prof. Dr. Mustafa Fuat AÇIKALIN | **Turkish** | **English** | **Technical** | **Medical** | **Other** |
| **X** |  |  | **X** |  |

**COURSE LEVEL**

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| **PROPAEDEUTIC** | **MASTER OF SCIENCE** | **DOCTORATE** | **COURSE OF PROVINCE** |
|  |  | **X** |  |

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| --- | --- | --- |
| **SEMESTER** | **WEEKLY COURSE PERIOD** | **COURSE OF** |
| **Autumn** | **Spring** | **Theoretic** | **Practice** | **Laboratory** | **Credit** | **ECTS** | **Type** |
| **X** |  | 1 | 2 | 0 | 2 | 5,0 | Compulsory:  |
| Elective: **X** |

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| **ASSESMENT CRITERIA** |
| **MID-TERM EXAM** | **Activity** | **Quantity** | **Percentage (%)** |
| 1st Mid-Term | 1 | 40 |
| 2nd Mid-Term |  |  |
| Quiz |  |  |
| Homework |  |  |
| Project |  |  |
| Oral Exam |  |  |
| Other (………) |  |  |
| **FINAL EXAM** | Quiz |  |  |
| Homework |  |  |
| Project |  |  |
| Oral Exam |  |  |
| Other: written | 1 | 60 |
| **MAKE-UP EXAM** | Oral | Written | Oral and Written | Multiple Choice |
|  | **X** |  |  |
| **PREREQUISITE(S)** |  |
| **COURSE CONTENT** | Cell injury, adaptation and death |
| **COURSE AIMS** | To be informed about the cell injury, adaptation and death |
| **COURSE OBJECTIVES** | To be informed about the causes and the mechanisms of cell injury, the types of adaptations and cell death |
| **TEXTBOOK(S)** | Robbins Basic Pathology 8th edition, Nobel Tıp Kitabevi, 2008 |
| **REFERENCES** |  |

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| **COURSE SYLLABUS** |
| **WEEK** | **DATE** | **SUBJECTS/TOPICS** |
| 1 |  | Overview about cell injury, causes of cell injury |
| 2 |  | Mechanisms of cell injury-Biochemical mechanisms |
| 3 |  | Mechanisms of cell injury-Ischemic and hypoxic injury |
| 4 |  | Mechanisms of cell injury-Cell injury caused by free radicals |
| 5 |  | Mechanisms of cell injury-Chemical injury |
| 6 |  | Cellular adaptations-Atrophy and hypertrophy |
| 7 |  | **Mid-Term Exam** |
| 8 |  | Cellular adaptations-Hyperplasia and metaplasia |
| 9 |  | Intracellular accumulations |
| 10 |  | Pathologic calcification |
| 11 |  | Reversible and irreversible cell injury- Mechanisms |
| 12 |  | Reversible and irreversible cell injury-Morphology |
| 13 |  | Programmed cell death (apoptosis) |
| 14 |  | Cellular aging |
| 15 |  | Microscopic examination |
| 16 |  | **Final Exam** |

**PROGRAM OUTCOMES**

Up skills of Course: Please choose never (1), few (2) or many (3) regarding your course

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **NO** |  | **1** | **2** | **3** |
| 1 | Gather as well as apply knowledge of health sciences |  | **X** |  |
| 2 | Ask scientific questions and form hypothesis |  | **X** |  |
| 3 | Search and interpret scientific literature |  | **X** |  |
| 4 | Design and conduct experiments as well as analyze and interpret the data |  | **X** |  |
| 5 | Learn how to use the experimental equipment effectively |  | **X** |  |
| 6 | Function on multi-disciplinary teams |  | **X** |  |
| 7 | Identify, formulate, and solve medical problems |  | **X** |  |
| 8 | Use computer effectively both in conducting the experiments and analyzing the data |  | **X** |  |
| 9 | Understand the impact of experimental solutions on national and international sciences |  | **X** |  |
| 10 | Use effective written and oral communication/presentation skills |  | **X** |  |
| 11 | Get an understanding of professional and ethical responsibility |  | **X** |  |
| 12 | Get a recognition of the need for, and an ability to engage in lifelong learning |  |  | **X** |
| 13 | Get a recognition of basic concepts in medical education |  |  | **X** |
| 14 | Get a skill of approach to ethical problems by focusing on basic concepts |  | **X** |  |

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| **Instructor Name****Prof. Dr. Mustafa Fuat AÇIKALIN****Sign** | **Date****06.03.2018** |

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| **COURSE CODE:** | **521905311** | **DEPARTMENT:** | HISTOLOGY AND EMBRYOLOGY |
| **COURSE NAME:** | INFLAMMATION AND TISSUE REPAIR |
| **INSTRUCTOR NAME** | **COURSE LANGUAGE** | **COURSE CATEGORY** |
| Ass. Prof. Dr. Deniz ARIK | **Turkish** | **English** | **Technical** | **Medical** | **Other** |
| **X** |  |  | **X** |  |

**COURSE LEVEL**

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| --- | --- | --- | --- |
| **PROPAEDEUTIC** | **MASTER OF SCIENCE** | **DOCTORATE** | **COURSE OF PROVINCE** |
|  |  | **X** |  |

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| --- | --- | --- |
| **SEMESTER** | **WEEKLY COURSE PERIOD** | **COURSE OF** |
| **Autumn** | **Spring** | **Theoretic** | **Practice** | **Laboratory** | **Credit** | **ECTS** | **Type** |
| **X** |  | 1 | 2 | 0 | 2 | 5,0 | Compulsory:  |
| Elective: **X** |

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| **ASSESMENT CRITERIA** |
| **MID-TERM EXAM** | **Activity** | **Quantity** | **Percentage (%)** |
| 1st Mid-Term | 1 | 40 |
| 2nd Mid-Term |  |  |
| Quiz |  |  |
| Homework |  |  |
| Project |  |  |
| Oral Exam |  |  |
| Other (………) |  |  |
| **FINAL EXAM** | Quiz |  |  |
| Homework |  |  |
| Project |  |  |
| Oral Exam | 1 | 60 |
| Other (………) |  |  |
| **MAKE-UP EXAM** | Oral | Written | Oral and Written | Multiple Choice |
| **X** |  |  |  |
| **PREREQUISITE(S)** |  |
| **COURSE CONTENT** | Inflammation and tissue repair |
| **COURSE AIMS** | Learning about inflammation and tissue repair |
| **COURSE OBJECTIVES** | Learning of the types, benefits and harms of the inflammation and phases of the tissue repair  |
| **TEXTBOOK(S)** | Robbins Basic Pathology, 8th edition, Nobel Tıp Kitabevi, 2008 |
| **REFERENCES** |  |

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| **COURSE SYLLABUS** |
| **WEEK** | **DATE** | **SUBJECTS/TOPICS** |
| 1 |  | General information about inflammation |
| 2 |  | Acute inflammation-1 |
| 3 |  | Acute inflammation -2 |
| 4 |  | Chronic inflammation -1 |
| 5 |  | Chronic inflammation -2 |
| 6 |  | Chemical mediators and regulators of the inflammation |
| 7 |  | **Mid-Term Exam** |
| 8 |  | Systemic effects of the inflammation |
| 9 |  | General aspects of the tissue repair  |
| 10 |  | Cell and tissue regeneration -1 |
| 11 |  | Cell and tissue regeneration -2 |
| 12 |  | Scar formation |
| 13 |  | Factors affect the tissue repair  |
| 14 |  | Tissue sampling  |
| 15 |  | Tissue preparing and sectioning |
| 16 |  | **Final Exam** |

**PROGRAM OUTCOMES**

Up skills of Course: Please choose never (1), few (2) or many (3) regarding your course

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **NO** |  | **1** | **2** | **3** |
| 1 | Gather as well as apply knowledge of health sciences |  | **X** |  |
| 2 | Ask scientific questions and form hypothesis |  | **X** |  |
| 3 | Search and interpret scientific literature |  | **X** |  |
| 4 | Design and conduct experiments as well as analyze and interpret the data |  | **X** |  |
| 5 | Learn how to use the experimental equipment effectively |  | **X** |  |
| 6 | Function on multi-disciplinary teams |  | **X** |  |
| 7 | Identify, formulate, and solve medical problems |  | **X** |  |
| 8 | Use computer effectively both in conducting the experiments and analyzing the data |  | **X** |  |
| 9 | Understand the impact of experimental solutions on national and international sciences |  | **X** |  |
| 10 | Use effective written and oral communication/presentation skills |  | **X** |  |
| 11 | Get an understanding of professional and ethical responsibility |  | **X** |  |
| 12 | Get a recognition of the need for, and an ability to engage in lifelong learning |  |  | **X** |
| 13 | Get a recognition of basic concepts in medical education |  |  | **X** |
| 14 | Get a skill of approach to ethical problems by focusing on basic concepts |  | **X** |  |

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| **Instructor Name****Ass. Prof. Dr. Deniz ARIK****Sign** | **Date****06.03.2018** |

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| **COURSE CODE:** | **521904301** | **DEPARTMENT:** | HISTOLOGY AND EMBRYOLOGY |
| **COURSE NAME:** | ORGANOGENESIS |
| **INSTRUCTOR NAME** | **COURSE LANGUAGE** | **COURSE CATEGORY** |
| Ass. Prof. Dr. Dilek BURUKOĞLU DÖNMEZ | **Turkish** | **English** | **Technical** | **Medical** | **Other** |
| **X** |  |  | **X** |  |

**COURSE LEVEL**

|  |  |  |  |
| --- | --- | --- | --- |
| **PROPAEDEUTIC** | **MASTER OF SCIENCE** | **DOCTORATE** | **COURSE OF PROVINCE** |
|  |  | **X** |  |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | **COURSE OF** |
| **Autumn** | **Spring** | **Theoretic** | **Practice** | **Laboratory** | **Credit** | **ECTS** | **Type** |
|  | **X** | 3 | 0 | 0 | 3 | 7,5 | Compulsory: **X** |
| Elective: |

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| **ASSESMENT CRITERIA** |
| **MID-TERM EXAM** | **Activity** | **Quantity** | **Percentage (%)** |
| 1st Mid-Term | 1 | 50 |
| 2nd Mid-Term |  |  |
| Quiz |  |  |
| Homework |  |  |
| Project |  |  |
| Oral Exam |  |  |
| Other (………) |  |  |
| **FINAL EXAM** | Quiz |  |  |
| Homework |  |  |
| Project |  |  |
| Oral Exam | 1 | 50 |
| Other (………) |  |  |
| **MAKE-UP EXAM** | Oral | Written | Oral and Written | Multiple Choice |
|  | **X** |  |  |
| **PREREQUISITE(S)** |  |
| **COURSE CONTENT** | Organ systems are developed between the fourth and eighth weeks |
| **COURSE AIMS** | To learn the basic developmental events and changes in the external appearance of embryo |
| **COURSE OBJECTIVES** | Teratogens can be form of congenital anomalies in organogenesis period.The information learned in this course will be implemented in the clinic. |
| **TEXTBOOK(S)** | Langman’s Medical Embryology, T. W. Sadler, Thirteenth Edition, Wolters Kluwer, USA, 2015. |
| **REFERENCES** | Embriyoloji ve doğum defektlerinin temelleri, Before we are born. Moore KL, Persaud T.V.N. Çeviri edit.; Müftüoğlu, S., Atilla, P., Kaymaz, F., Güneş Tıp Kitabevleri, 7.Baskı, 2009. |

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| **COURSE SYLLABUS** |
| **WEEK** | **DATE** | **SUBJECTS/TOPICS** |
| 1 |  | What is organogenesis? |
| 2 |  | Stages of embryonic development |
| 3 |  | Folding of the embryo |
| 4 |  | Structures developed from the germ layers |
| 5 |  | Control of embryonic development |
| 6 |  | Seminar 1 |
| 7 |  | **Mid-Term Exam** |
| 8 |  | Main events in the fourth week |
| 9 |  | Main events in the fifth week |
| 10 |  | Main events in the sixth week |
| 11 |  | Main events in the seventh week |
| 12 |  | Seminar 2 |
| 13 |  | Main events in the eighth week |
| 14 |  | Summary of the 4-8. weeks |
| 15 |  | Clinical information |
| 16 |  | **Final Exam** |

**PROGRAM OUTCOMES**

Up skills of Course: Please choose never (1), few (2) or many (3) regarding your course

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **NO** |  | **1** | **2** | **3** |
| 1 | Gather as well as apply knowledge of health sciences |  | **X** |  |
| 2 | Ask scientific questions and form hypothesis |  | **X** |  |
| 3 | Search and interpret scientific literature |  | **X** |  |
| 4 | Design and conduct experiments as well as analyze and interpret the data | **X** |  |  |
| 5 | Learn how to use the experimental equipment effectively |  | **X** |  |
| 6 | Function on multi-disciplinary teams |  | **X** |  |
| 7 | Identify, formulate, and solve medical problems | **X** |  |  |
| 8 | Use computer effectively both in conducting the experiments and analyzing the data |  | **X** |  |
| 9 | Understand the impact of experimental solutions on national and international sciences |  | **X** |  |
| 10 | Use effective written and oral communication/presentation skills |  | **X** |  |
| 11 | Get an understanding of professional and ethical responsibility |  | **X** |  |
| 12 | Get a recognition of the need for, and an ability to engage in lifelong learning |  | **X** |  |
| 13 | Get a recognition of basic concepts in medical education |  | **X** |  |
| 14 | Get a skill of approach to ethical problems by focusing on basic concepts |  |  | **X** |

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| **Instructor Name****Ass. Prof. Dr. Dilek BURUKOĞLU DÖNMEZ****Sign** | **Date****06.03.2018** |

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| --- | --- | --- | --- |
| **COURSE CODE:** | **521906302** | **DEPARTMENT:** | HISTOLOGY AND EMBRYOLOGY |
| **COURSE NAME:** | DEVELOPMENT AND HISTOLOGY OF CARDIOVASCULAR SYSTEM |
| **INSTRUCTOR NAME** | **COURSE LANGUAGE** | **COURSE CATEGORY** |
| Prof. Dr. Varol ŞAHİNTÜRK | **Turkish** | **English** | **Technical** | **Medical** | **Other** |
| **X** |  |  | **X** |  |

**COURSE LEVEL**

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| **PROPAEDEUTIC** | **MASTER OF SCIENCE** | **DOCTORATE** | **COURSE OF PROVINCE** |
|  |  | **X** |  |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | **COURSE OF** |
| **Autumn** | **Spring** | **Theoretic** | **Practice** | **Laboratory** | **Credit** | **ECTS** | **Type** |
|  | **X** | 2 | 0 | 0 | 2 | 5,0 | Compulsory: |
| Elective: **X** |

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| **ASSESMENT CRITERIA** |
| **MID-TERM EXAM** | **Activity** | **Quantity** | **Percentage (%)** |
| 1st Mid-Term | 1 | 50 |
| 2nd Mid-Term |  |  |
| Quiz |  |  |
| Homework |  |  |
| Project |  |  |
| Oral Exam |  |  |
| Other (………) |  |  |
| **FINAL EXAM** | Quiz |  |  |
| Homework |  |  |
| Project |  |  |
| Oral Exam | 1 | 50 |
| Other (………) |  |  |
| **MAKE-UP EXAM** | Oral | Written | Oral and Written | Multiple Choice |
|  | **X** |  |  |
| **PREREQUISITE(S)** |  |
| **COURSE CONTENT** | Development and histology of heart and blood vessels |
| **COURSE AIMS** | Teaching of development and histology of heart and blood vessels |
| **COURSE OBJECTIVES** | To understanding of abnormal developmental and microscopic structures of heart and blood vessels via learning their normal development and structures |
| **TEXTBOOK(S)** | Histology-A Text and Atlas, M. H. Ross and W. Pawlina, Seventh Edition, Wolters Kluwer, USA, 2016. |
| **REFERENCES** | Langman’s Medical Embryology, T. W. Sadler, Thirteenth Edition, Wolters Kluwer, USA, 2015. |

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| **COURSE SYLLABUS** |
| **WEEK** | **DATE** | **SUBJECTS/TOPICS** |
| 1 |  | Development of heart-truncus arteriosus |
| 2 |  | Development of heart-atria |
| 3 |  | Development of heart-ventricles |
| 4 |  | Development of heart-bulbus cordis and sinus venosus |
| 5 |  | Histology of heart |
| 6 |  | Development of blood vessels |
| 7 |  | **Mid-Term Exam** |
| 8 |  | Seminar 1 |
| 9 |  | Histology of blood vessels-arteries |
| 10 |  | Histology of blood vessels-veins |
| 11 |  | Hematopoiesis |
| 12 |  | Microscopical structure of blood cells |
| 13 |  | Seminar 2 |
| 14 |  | Microscopical observation-heart and blood vessels |
| 15 |  | Microscopical observation-blood cells |
| 16 |  | **Final Exam** |

**PROGRAM OUTCOMES**

Up skills of Course: Please choose never (1), few (2) or many (3) regarding your course

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **NO** |  | **1** | **2** | **3** |
| 1 | Gather as well as apply knowledge of health sciences |  | **X** |  |
| 2 | Ask scientific questions and form hypothesis |  | **X** |  |
| 3 | Search and interpret scientific literature |  | **X** |  |
| 4 | Design and conduct experiments as well as analyze and interpret the data |  |  | **X** |
| 5 | Learn how to use the experimental equipment effectively |  | **X** |  |
| 6 | Function on multi-disciplinary teams |  |  | **X** |
| 7 | Identify, formulate, and solve medical problems |  | **X** |  |
| 8 | Use computer effectively both in conducting the experiments and analyzing the data | **X** |  |  |
| 9 | Understand the impact of experimental solutions on national and international sciences |  |  | **X** |
| 10 | Use effective written and oral communication/presentation skills |  | **X** |  |
| 11 | Get an understanding of professional and ethical responsibility |  | **X** |  |
| 12 | Get a recognition of the need for, and an ability to engage in lifelong learning |  |  | **X** |
| 13 | Get a recognition of basic concepts in medical education |  |  | **X** |
| 14 | Get a skill of approach to ethical problems by focusing on basic concepts |  |  | **X** |

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| **Instructor Name****Prof. Dr. Varol ŞAHİNTÜRK****Sign** | **Date****06.03.2018** |

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| **COURSE CODE:** | **521904303** | **DEPARTMENT:** | HISTOLOGY AND EMBRYOLOGY |
| **COURSE NAME:** | DEVELOPMENT AND HISTOLOGY OF NERVOUS SYSTEM ORGANS |
| **INSTRUCTOR NAME** | **COURSE LANGUAGE** | **COURSE CATEGORY** |
| Prof. Dr. Varol ŞAHİNTÜRK | **Turkish** | **English** | **Technical** | **Medical** | **Other** |
| **X** |  |  | **X** |  |

**COURSE LEVEL**

|  |  |  |  |
| --- | --- | --- | --- |
| **PROPAEDEUTIC** | **MASTER OF SCIENCE** | **DOCTORATE** | **COURSE OF PROVINCE** |
|  |  | **X** |  |

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| --- | --- | --- |
| **SEMESTER** | **WEEKLY COURSE PERIOD** | **COURSE OF** |
| **Autumn** | **Spring** | **Theoretic** | **Practice** | **Laboratory** | **Credit** | **ECTS** | **Type** |
|  | **X** | 3 | 0 | 0 | 3 | 7,5 | Compulsory: |
| Elective: **X** |

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| **ASSESMENT CRITERIA** |
| **MID-TERM EXAM** | **Activity** | **Quantity** | **Percentage (%)** |
| 1st Mid-Term | 1 | 50 |
| 2nd Mid-Term |  |  |
| Quiz |  |  |
| Homework |  |  |
| Project |  |  |
| Oral Exam |  |  |
| Other (………) |  |  |
| **FINAL EXAM** | Quiz |  |  |
| Homework |  |  |
| Project |  |  |
| Oral Exam | 1 | 50 |
| Other (………) |  |  |
| **MAKE-UP EXAM** | Oral | Written | Oral and Written | Multiple Choice |
|  | **X** |  |  |
| **PREREQUISITE(S)** |  |
| **COURSE CONTENT** | Development and histology of nervous system organs |
| **COURSE AIMS** | Teaching of development and histology of nervous system organs |
| **COURSE OBJECTIVES** | To prepare to understanding of abnormal developmental and microscopic structures of nervous system organs via learning their normal development and structures |
| **TEXTBOOK(S)** | Histology-A Text and Atlas, M. H. Ross and W. Pawlina, Seventh Edition, Wolters Kluwer, USA, 2016. |
| **REFERENCES** | Langman’s Medical Embryology, T. W. Sadler, Thirteenth Edition, Wolters Kluwer, USA, 2015. |

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| **COURSE SYLLABUS** |
| **WEEK** | **DATE** | **SUBJECTS/TOPICS** |
| 1 |  | Introduction to nervous system |
| 2 |  | Cells of nervous system-neurons |
| 3 |  | Cells of nervous system-neuroglial cells |
| 4 |  | General features of nervous system |
| 5 |  | Early developmental period of nervous system |
| 6 |  | Development of brain |
| 7 |  | **Mid-Term Exam** |
| 8 |  | Histology of brain |
| 9 |  | Development of spinal chord |
| 10 |  | Histology of spinal chord |
| 11 |  | Development of cerebellum |
| 12 |  | Histology of cerebellum |
| 13 |  | Development and histology of ganglion |
| 14 |  | Development and histology of peripheral nerve |
| 15 |  | Histology of capsulated nerve endings |
| 16 |  | **Final Exam** |

**PROGRAM OUTCOMES**

Up skills of Course: Please choose never (1), few (2) or many (3) regarding your course

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **NO** |  | **1** | **2** | **3** |
| 1 | Gather as well as apply knowledge of health sciences |  | **X** |  |
| 2 | Ask scientific questions and form hypothesis |  | **X** |  |
| 3 | Search and interpret scientific literature |  | **X** |  |
| 4 | Design and conduct experiments as well as analyze and interpret the data |  |  | **X** |
| 5 | Learn how to use the experimental equipment effectively |  | **X** |  |
| 6 | Function on multi-disciplinary teams |  |  | **X** |
| 7 | Identify, formulate, and solve medical problems |  | **X** |  |
| 8 | Use computer effectively both in conducting the experiments and analyzing the data | **X** |  |  |
| 9 | Understand the impact of experimental solutions on national and international sciences |  |  | **X** |
| 10 | Use effective written and oral communication/presentation skills |  | **X** |  |
| 11 | Get an understanding of professional and ethical responsibility |  | **X** |  |
| 12 | Get a recognition of the need for, and an ability to engage in lifelong learning |  |  | **X** |
| 13 | Get a recognition of basic concepts in medical education |  |  | **X** |
| 14 | Get a skill of approach to ethical problems by focusing on basic concepts |  |  | **X** |

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| **Instructor Name****Prof. Dr. Varol ŞAHİNTÜRK****Sign** | **Date****06.03.2018** |

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| **COURSE CODE:** | **521904304** | **DEPARTMENT:** | HISTOLOGY AND EMBRYOLOGY |
| **COURSE NAME:** | LIGHT AND ELECTRON MICROSCOPIC EXAMINATION OF UROGENITAL SYSTEM |
| **INSTRUCTOR NAME** | **COURSE LANGUAGE** | **COURSE CATEGORY** |
| Prof. Dr. Varol ŞAHİNTÜRK | **Turkish** | **English** | **Technical** | **Medical** | **Other** |
| **X** |  |  | **X** |  |

**COURSE LEVEL**

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| **PROPAEDEUTIC** | **MASTER OF SCIENCE** | **DOCTORATE** | **COURSE OF PROVINCE** |
|  |  | **X** |  |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | **COURSE OF** |
| **Autumn** | **Spring** | **Theoretic** | **Practice** | **Laboratory** | **Credit** | **ECTS** | **Type** |
|  | **X** | 3 | 0 | 0 | 3 | 7,5 | Compulsory: |
| Elective: **X** |

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| **ASSESMENT CRITERIA** |
| **MID-TERM EXAM** | **Activity** | **Quantity** | **Percentage (%)** |
| 1st Mid-Term | 1 | 50 |
| 2nd Mid-Term |  |  |
| Quiz |  |  |
| Homework |  |  |
| Project |  |  |
| Oral Exam |  |  |
| Other (………) |  |  |
| **FINAL EXAM** | Quiz |  |  |
| Homework |  |  |
| Project |  |  |
| Oral Exam | 1 | 50 |
| Other (………) |  |  |
| **MAKE-UP EXAM** | Oral | Written | Oral and Written | Multiple Choice |
|  | **X** |  |  |
| **PREREQUISITE(S)** |  |
| **COURSE CONTENT** | General view to urogenital system |
| **COURSE AIMS** | Teaching of development and histology of urogenital system organs  |
| **COURSE OBJECTIVES** | Explaining of relation between morphology and function by learning of development and histology of urogenital system organs |
| **TEXTBOOK(S)** | Histology-A Text and Atlas, M. H. Ross and W. Pawlina, Seventh Edition, Wolters Kluwer, USA, 2016. |
| **REFERENCES** | Langman’s Medical Embryology, T. W. Sadler, Thirteenth Edition, Wolters Kluwer, USA, 2015. |

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| **COURSE SYLLABUS** |
| **WEEK** | **DATE** | **SUBJECTS/TOPICS** |
| 1 |  | Development of urinary system |
| 2 |  | Kidney histology |
| 3 |  | Ureter, urinary bladder and urethra histology |
| 4 |  | Microscopic observation |
| 5 |  | Seminar |
| 6 |  | Development of male genital system |
| 7 |  | **Mid-Term Exam** |
| 8 |  | Testis histology and spermatogenesis |
| 9 |  | Histology of epididymis, ductus deferens and other canals |
| 10 |  | Histology of prostate, bulbourethral gland, seminal vesicle and penis |
| 11 |  | Development of female genital system |
| 12 |  | Ovarium histology and ovarian cycle |
| 13 |  | Uterus histology and uterine cycle |
| 14 |  | Vagina and uterine tube histology |
| 15 |  | Microscopic observation |
| 16 |  | **Final Exam** |

**PROGRAM OUTCOMES**

Up skills of Course: Please choose never (1), few (2) or many (3) regarding your course

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **NO** |  | **1** | **2** | **3** |
| 1 | Gather as well as apply knowledge of health sciences |  |  | **X** |
| 2 | Ask scientific questions and form hypothesis |  |  | **X** |
| 3 | Search and interpret scientific literature |  |  | **X** |
| 4 | Design and conduct experiments as well as analyze and interpret the data |  |  | **X** |
| 5 | Learn how to use the experimental equipment effectively |  |  | **X** |
| 6 | Function on multi-disciplinary teams |  |  | **X** |
| 7 | Identify, formulate, and solve medical problems |  |  | **X** |
| 8 | Use computer effectively both in conducting the experiments and analyzing the data |  |  | **X** |
| 9 | Understand the impact of experimental solutions on national and international sciences |  |  | **X** |
| 10 | Use effective written and oral communication/presentation skills |  |  | **X** |
| 11 | Get an understanding of professional and ethical responsibility |  |  | **X** |
| 12 | Get a recognition of the need for, and an ability to engage in lifelong learning |  | **X** |  |
| 13 | Get a recognition of basic concepts in medical education |  | **X** |  |
| 14 | Get a skill of approach to ethical problems by focusing on basic concepts |  | **X** |  |

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| **Instructor Name****Prof. Dr. Varol ŞAHİNTÜRK****Sign** | **Date****06.03.2018** |

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| **COURSE CODE:** | **521906306** | **DEPARTMENT:** | HISTOLOGY AND EMBRYOLOGY |
| **COURSE NAME:** | DEVELOPMENT AND HISTOLOGY OF ENDOCRINE SYSTEM |
| **INSTRUCTOR NAME** | **COURSE LANGUAGE** | **COURSE CATEGORY** |
| Ass. Prof. Dr. Dilek BURUKOĞLU DÖNMEZ | **Turkish** | **English** | **Technical** | **Medical** | **Other** |
| **X** |  |  | **X** |  |

**COURSE LEVEL**

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| **PROPAEDEUTIC** | **MASTER OF SCIENCE** | **DOCTORATE** | **COURSE OF PROVINCE** |
|  |  | **X** |  |

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| **SEMESTER** | **WEEKLY COURSE PERIOD** | **COURSE OF** |
| **Autumn** | **Spring** | **Theoretic** | **Practice** | **Laboratory** | **Credit** | **ECTS** | **Type** |
|  | **X** | 2 | 0 | 0 | 2 | 5,0 | Compulsory:  |
| Elective: **X** |

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| **ASSESMENT CRITERIA** |
| **MID-TERM EXAM** | **Activity** | **Quantity** | **Percentage (%)** |
| 1st Mid-Term | 1 | 50 |
| 2nd Mid-Term |  |  |
| Quiz |  |  |
| Homework |  |  |
| Project |  |  |
| Oral Exam |  |  |
| Other (………) |  |  |
| **FINAL EXAM** | Quiz |  |  |
| Homework |  |  |
| Project |  |  |
| Oral Exam | 1 | 50 |
| Other (………) |  |  |
| **MAKE-UP EXAM** | Oral | Written | Oral and Written | Multiple Choice |
|  | **X** |  |  |
| **PREREQUISITE(S)** |  |
| **COURSE CONTENT** | Development and histology of the endocrine system organs  |
| **COURSE AIMS** | To teach of the development and histology of pituitary, hypothalamus, pineal gland, thyroid gland, parathyroid gland and adrenal gland |
| **COURSE OBJECTIVES** | Understanding of the development and histology of the endocrine system organs to use in analysis of clinical problems |
| **TEXTBOOK(S)** | Histology-A Text and Atlas, M. H. Ross and W. Pawlina, Seventh Edition, Wolters Kluwer, USA, 2016. |
| **REFERENCES** | Embriyoloji ve doğum defektlerinin temelleri, Before we are born. Moore KL, Persaud T.V.N. Çeviri editörü; Müftüoğlu, S., Atilla, P., Kaymaz, F., Güneş Tıp Kitabevleri, 7.Baskı, 2009. |

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| **COURSE SYLLABUS** |
| **WEEK** | **DATE** | **SUBJECTS/TOPICS** |
| 1 |  | Introduction to the development of endocrine system |
| 2 |  | Organs of the endocrine system |
| 3 |  | Functions of the organs of the endocrine system |
| 4 |  | Seminar 1 |
| 5 |  | Pituitary gland |
| 6 |  | Hypothalamus  |
| 7 |  | **Mid-Term Exam** |
| 8 |  | Pineal gland |
| 9 |  | Thyroid gland |
| 10 |  | Parathyroid gland |
| 11 |  | Seminar 2 |
| 12 |  | Adrenal gland |
| 13 |  | Diffuse neuroendocrine system |
| 14 |  | Other endocrine structures |
| 15 |  | Clinical information |
| 16 |  | **Final Exam** |

**PROGRAM OUTCOMES**

Up skills of Course: Please choose never (1), few (2) or many (3) regarding your course

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **NO** |  | **1** | **2** | **3** |
| 1 | Gather as well as apply knowledge of health sciences |  | **X** |  |
| 2 | Ask scientific questions and form hypothesis |  | **X** |  |
| 3 | Search and interpret scientific literature |  | **X** |  |
| 4 | Design and conduct experiments as well as analyze and interpret the data | **X** |  |  |
| 5 | Learn how to use the experimental equipment effectively |  | **X** |  |
| 6 | Function on multi-disciplinary teams |  | **X** |  |
| 7 | Identify, formulate, and solve medical problems | **X** |  |  |
| 8 | Use computer effectively both in conducting the experiments and analyzing the data |  | **X** |  |
| 9 | Understand the impact of experimental solutions on national and international sciences |  | **X** |  |
| 10 | Use effective written and oral communication/presentation skills |  | **X** |  |
| 11 | Get an understanding of professional and ethical responsibility |  | **X** |  |
| 12 | Get a recognition of the need for, and an ability to engage in lifelong learning |  | **X** |  |
| 13 | Get a recognition of basic concepts in medical education |  | **X** |  |
| 14 | Get a skill of approach to ethical problems by focusing on basic concepts |  |  | **X** |

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| **Instructor Name****Ass. Prof. Dr. Dilek BURUKOĞLU DÖNMEZ****Sign** | **Date****06.03.2018** |

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| **COURSE CODE:** | **521904307** | **DEPARTMENT:** | HISTOLOGY AND EMBRYOLOGY |
| **COURSE NAME:** | SCANNING ELECTRON MMCROSCOPY AND STUDYING PRINCIPLES |
| **INSTRUCTOR NAME** | **COURSE LANGUAGE** | **COURSE CATEGORY** |
| Ass. Prof. Dr. Dilek BURUKOĞLU DÖNMEZ | **Turkish** | **English** | **Technical** | **Medical** | **Other** |
| **X** |  | **X** |  |  |

**COURSE LEVEL**

|  |  |  |  |
| --- | --- | --- | --- |
| **PROPAEDEUTIC** | **MASTER OF SCIENCE** | **DOCTORATE** | **COURSE OF PROVINCE** |
|  |  | **X** |  |

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| --- | --- | --- |
| **SEMESTER** | **WEEKLY COURSE PERIOD** | **COURSE OF** |
| **Autumn** | **Spring** | **Theoretic** | **Practice** | **Laboratory** | **Credit** | **ECTS** | **Type** |
|  | **X** | 2 | 0 | 2 | 3 | 7,5 | Compulsory:  |
| Elective: **X** |

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| **ASSESMENT CRITERIA** |
| **MID-TERM EXAM** | **Activity** | **Quantity** | **Percentage (%)** |
| 1st Mid-Term | 1 | 50 |
| 2nd Mid-Term |  |  |
| Quiz |  |  |
| Homework |  |  |
| Project |  |  |
| Oral Exam |  |  |
| Other (………) |  |  |
| **FINAL EXAM** | Quiz |  |  |
| Homework |  |  |
| Project |  |  |
| Oral Exam | 1 | 50 |
| Other (………) |  |  |
| **MAKE-UP EXAM** | Oral | Written | Oral and Written | Multiple Choice |
|  | **X** |  |  |
| **PREREQUISITE(S)** |  |
| **COURSE CONTENT** | The place and importance of scanning electron microscopy in histology |
| **COURSE AIMS** | Teaching of scanning electron microscopy and its research fields |
| **COURSE OBJECTIVES** | Explaining of the use of scanning electron microscope research principles and interpretation of micrographs |
| **TEXTBOOK(S)** | Histology-A Text and Atlas, M. H. Ross and W. Pawlina, Seventh Edition, Wolters Kluwer, USA, 2016. |
| **REFERENCES** |  |

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| **COURSE SYLLABUS** |
| **WEEK** | **DATE** | **SUBJECTS/TOPICS** |
| 1 |  | Operation principles of scanning electron microscope |
| 2 |  | Equipment of an electron microscopy laboratory |
| 3 |  | Features of scanning electron microscope |
| 4 |  | Points to considering in sample preparation for scanning electron microscope |
| 5 |  | Tissue preparation methods for scanning electron microscope |
| 6 |  | Seminar 1 |
| 7 |  | **Mid-Term Exam** |
| 8 |  | Studying principles of scanning electron microscopy |
| 9 |  | Comparison of transmission and scanning electron microscopes |
| 10 |  | Seminar 2 |
| 11 |  | Other analyses made by scanning electron microscope |
| 12 |  | Preferred literatures |
| 13 |  | Principles of scanning electron microscopical image capturing |
| 14 |  | Interpretation of scanning electron microscope images |
| 15 |  | Clinical use of scanning electron microscope |
| 16 |  | **Final Exam** |

**PROGRAM OUTCOMES**

Up skills of Course: Please choose never (1), few (2) or many (3) regarding your course

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| **NO** |  | **1** | **2** | **3** |
| 1 | Gather as well as apply knowledge of health sciences |  | **X** |  |
| 2 | Ask scientific questions and form hypothesis |  |  | **X** |
| 3 | Search and interpret scientific literature |  |  | **X** |
| 4 | Design and conduct experiments as well as analyze and interpret the data |  |  | **X** |
| 5 | Learn how to use the experimental equipment effectively |  |  | **X** |
| 6 | Function on multi-disciplinary teams |  |  | **X** |
| 7 | Identify, formulate, and solve medical problems |  |  | **X** |
| 8 | Use computer effectively both in conducting the experiments and analyzing the data |  |  | **X** |
| 9 | Understand the impact of experimental solutions on national and international sciences |  |  | **X** |
| 10 | Use effective written and oral communication/presentation skills |  | **X** |  |
| 11 | Get an understanding of professional and ethical responsibility |  | **X** |  |
| 12 | Get a recognition of the need for, and an ability to engage in lifelong learning |  | **X** |  |
| 13 | Get a recognition of basic concepts in medical education |  | **X** |  |
| 14 | Get a skill of approach to ethical problems by focusing on basic concepts |  | **X** |  |

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| **Instructor Name****Ass. Prof. Dr. Dilek BURUKOĞLU DÖNMEZ****Sign** | **Date****06.03.2018** |