**Faculty of Dentistry**

**Cytology, embryology, histology**

**Syllabus**

**Spring semester**

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| **EDUCATIONAL PROGRAM (SILLABUS) on the subject of** SPECİAL HISTOLOGY **Azerbaijan Medical University** | **"CONFIRM" Head of the Department of Histology, Cytology and Embryology Gasimov E.K.****Signature** \_\_\_\_\_\_\_\_\_\_\_\_\_\_ 16.09.2019 |

**FACULTY: 070104** Dentistry

**SUBJECT CODE:** İPF- B05

**SUBJECT TYPE:** Mandatory

**SEMESTER OF LEARNING THE SUBJECT:** S1

**SUBJECT CREDIT:** 3 credits

**FORM OF LEARNING THE SUBJECT:** Full-time

**LEARNING LANGUAGE:** Azerbaijani, Russian, English

**ОБУЧАЮЩИЕ ПРЕДМЕТУ** Teaching staff of the department

**CONTACT PHONE NUMBERS OF THE DEPARTMENT:**012 595-25-65

**E – MAİL:** eldar49@ rambler.ru department\_histology@amu.edu.az

**PREREQUISITES:** No subject to be studied before studying the subject

**CORREQUESITES:** Teaching the subject "Human Anatomy" must be carried out in parallel with the teaching of this subject.

**POST-REQUISITES:** Students who have not completed a semester in cytology, embryology and histology should not be allowed to study pathological anatomy.As a result of studying the subject, students will learn about the types of human cells and tissues, the morphological foundations of organs and general structural plans, their microscopic and ultrastructural features, learn to analyze histological images and electronograms, characteristics of the stages of development of organs and systems in the prenatal and postnatal periods, as well as mechanisms the formation of the organs of the head and neck, in particular the formation in the embryonic period, cyto-histogenesis, the occurrence of random variations and anomalies of the teeth.

**The result of training in the subject**

1. Know the general principles of the formation of living matter, general and distinctive features of prokaryotic and eukaryotic cells, classification, structural features and functions of organelles.

2. They can analyze microscopic images and electrograms displayed with the help of modern technical means.

3. Know the important stages of the formation of organs and systems in the prenatal (pre-embryonic, embryonic and fetal) and postnatal periods of individual development.

4. Explaining the general patterns of interaction between different types of tissues involved in the classification of tissues and the organization of organs.

5. Can describe the systems involved in the organization of the body using microscopic methods.

6. Know the main, variations and abnormalities of the structures surrounding the primary oral cavity stages, and their participation in the formation of organs located on the face and neck.

7. Know the histogenesis of temporary and permanent teeth, light and electron-microscopic structural features of their hard and soft structures, the mechanism of tooth replacement, the causes of variations and anomalies.

**PLAN OF LECTURES FOR SPECIAL HISTOLOGY**

 **(I year, II semester)**

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| **№** | **Topics** | **hours** |
| 1 | General morphofunctional characteristics of sensory organs. Conception about analyzers. Structural pecularities of receptor cells involved in reception of different stimuli. Endocrine system Morphological bases of neuro – hormonal regulation.. | 2 |
| 2 | Differentiation of parts of primitive gut tube (foregut, midgut and hindgut). Morpho –functional characteristics and general plan of structural organisation of tubular and glandular organs in digestive system. The role of primitive oral cavity and surrounding it structures (frontal and heart diverticuli, branchial apparatus) in development of face of the embryo. Abnormalities and variations taking place in lip, palate and facial regions. | 2 |
| 3 | Structural features, blood supply and innervation of organs (lips, cheeks, tongue, hard and soft palates, throat and pharinx), which involved in mastication and swallowing. Histophysiology of swallowing process. Main stages of tooth formation in pre- and postnatal periods. Molecular regulation of formation of teeth with different shapes. Development and mineralisation features of hard tissues of teeth (enamelum, dentinum and cementum). Mechanisms of deciduous teeth eruption and their replacement by permanent teeth. | 2 |
| 4 | Sources of development and structural features of soft elements of tooth (gingiva, alveolar periosteum, periodontal ligament and dental pulp) as well as their role in nourishment of hard elements of tooth. Parts of gingiva and morphological basis of its role as biological barrier between the oral cavity and structural elements located around dental root. Roles of gingiva and periodontal ligament in tooth and dental alveoli connections. | 2 |
| 5 | Cardiovascular system: development, general morpho-functional plan. Relations between hemodynamic condition and structure of vascular wall. Heart. Arteries. Microcirculation network. Capillaries. Venous network. Anastomoses. Neuro-humoral regulation of cardiovascular system functioning. Age changes. Regeneration features. Organs of hematopoiesis. Immunity, histological bases of immune defense reactions.  | 2 |
| 6 | Integument: development, structural parts, functions. Skin. Skin appendixes: hairs, nails, sebaceous and sweat glands. Innervation, vascularization, age features. Respiratory system: development, structural parts, morpho-functional features. Respiratory portion. Air-blood barrier. Innervation, vascularization, age features. | 2 |
| 7 | Urogenital system: development, general morpho-functional features, hormonal regulation. Histophysiology of urine formation. Hemato – urinar, hemato – follicular and hemato – testicular barriers.  | 2 |

**Totally: 14 hours**

**PROGRAM OF PRACTICAL LESSONS FOR SPECIAL HISTOLOGY**

**(I year, II semester)**

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| **№** | **Topics** | **hours** |
| 1. | Spinal cord. Spinal ganglion. The structure of peripheral nerve trunk. | 2 |
| 2. | Cerebellum. Cerebral hemispheres. | 2 |
| 3. | Organ of vision. Olfactory organ. | 2 |
| 4. | Organs of hearing and equilibrium. Taste organ. | 2 |
| 5. | Hypothalamus. Hypophysis (pituitary gland). Pineal gland. | 2 |
| 6. | Thyroid gland. Parathyroid gland. Adrenal glands. | 2 |
| 7. | I Quiz. | 2 |
| 8. | Histological structure of organs involving in formation walls of oral cavity. Lips. Palates. Cheeks. Tongue. | 2 |
| 9. | Histological structure of organs of oral cavity. Salivary glands. Palatine tonsils. | 2 |
| 10. | Structure, development of hard and soft tissues of tooth. | 2 |
| 11. | Esophagus. Stomach. | 2 |
| 12. | Small and large intestines. Appendix. | 2 |
| 13. | Liver. Pancreas. | 2 |
| 14. | II Quiz. | 2 |
| 15. | Arteries. Microcirculation. Veins. Heart. | 2 |
| 16. | Hemopoiesis. Bone marrow. Thymus.  | 2 |
| 17. | Lymph node. Spleen.  | 2 |
| 18. | Trachea. Lungs.  | 2 |
| 19. | Skin. Skin appendages. | 2 |
| 20. | Kidneys. Ureters. Urinary bladder.  | 2 |
| 21. | Testes. Epididymis. Seminiferous tubules. Prostate gland. | 2 |
| 22. | Ovaries. Uterus. Mammary gland. Placenta. | 2 |
| 23. | III Quiz. | 2 |

**Totally: 46 hours**

 **EVALUATION:**

It is possible to collect the necessary 100 points for obtaining a loan in this subject as follows:

50 points - before the exam

Including:

10 points - for attendance

10 points - for references

20 points - for intermediate assessment

10 points-gained in the classroom seminars.

Quizes will be held twice a semester. If you do not participate in the colloquium, 0 (zero) points will be recorded in the journal.

50 points - will be collected on the exam

The exam will be conducted by test method. The test will consist of 50 questions. Each question is one point. For incorrectly answered questions, points are removed from correctly answered questions.

**THE NOTE:**

If the exam does not score at least 17 points, the points earned prior to the exam will not be awarded. The points earned during and before the exam are added up and the final total is estimated as follows:

A-“excellent” -91-100

B-“very good” -81-90

C-“good” -71-80

D-“satisfactory” -61-70

E-“acceptable” -51-60

F-“ unsatisfactory” - less than 51

**REFERENCES:**

During the semester, 2 referencesare given. The performance of each is estimated with 5 points.

**SILLABUS - WORKING EDUCATIONAL PROGRAM**

The content of the bachelor's degree covers the planning of the educational process, the forms and methods of its implementation, the volume of the study load, the duration of educational stages (semesters), types of training (lectures, classes, laboratories, etc.), requirements for educational programs.

The planning and organization of the educational process (exemplary workers and individual) are implemented on the basis of work programs in the subjects. The form and structure of these documents are determined by the university.

Subject programs are developed by higher educational institutions in accordance with the requirements of higher education programs in specialties and are approved by the Ministry of Education of the Republic of Azerbaijan. Work programs (syllables) are developed on the basis of subject programs and are approved by higher educational institutions.

Working plan (syllabus) - a description of the subject, its purpose and objectives, a summary, duration and types of lessons, assignments for the student's independent work, their duration, consultation hours, information about the teacher, prepared on the basis of the corresponding curriculum of the subject; this is a document containing the teacher's requirements, assessment criteria, an intermediate grading schedule, a list of references.

**LITERATURE AND MATERIALS:**

1. Abdullayev M.S., Abiyev H.S. Histoloji nomenklatura: Ali məktəblər üçün dərs vəsaiti. Bakı: Az. Döv. Tibb İnst., 1972, 181 s.
2. Abdullayev M.S., Abiyev H.S. Ümumi histologiya : Ali məktəblər üçün dərslik. Bakı: Maarif, 1975, 323 s.
3. Qasımov E.K. Sitologiya: Ali məktəblər üçün dərslik. Bakı: “Time Print”, 2013, 272 s.
4. E.K.Qasımov. Histologiya atlası. Bakı: Oskar, 2010, 510s.
5. Xüsusi histologiya. E.K. Qasımovun redaktəsi ilə. Bakı, 2015, 310s.
6. Алмазов И.В., Сутулов Л.С. Атлас по гистологии и эмбриологии. М.: Медицина, 1978, 543 с.
7. Гистология: (введение в патологию). Учебник для студентов / Под ред. Э.Г.Улумбекова, Ю.А.Челышева. М.: ГЭОТАР-МЕД, 1998, 960 с.
8. Гистология: (введение в патологию). Учебник для студентов / Под ред. Э.Г.Улумбекова, Ю.А.Челышева. М.: ГЭОТАР-МЕД, 2005, 672c.
9. Кузнецов С.Л., Мушкамбаров Н.Н. Гистология, цитология и эмбриология. Учебник для студентов медицинских вузов. М.: ООО "Медицинское информационное агенство", 2012, 600 с.
10. Хэм А., Кормак Д. Гистология (в пяти томах). Перевод с английского / Под ред. Ю.И.Афанасьева, Ю.С.Ченцова. М.: Мир, 1983, 1362 с.
11. Ю.И.Афанасьев, Н.А.Юрина. Гистология. М., 2006, 766 с.
12. Alberts B, Johnson A, Lewis J, Raff M, Roberts K, Walter P. Molecular Biology of the Cell. 5th ed. New York: Garland Publishing; 2008, 1601 p.
13. Gartner LP, Hiatt JL. Color textbook of histology. 4th international ed. Philadelphia: PA:, Elsevier, 2017, 657 p.
14. Gray`s anatomy. 38th ed. / Chairman of the editorial board Peter L. Williams. New York:Churchill Livingstone Inc., 1995, 2092 p.
15. Junqueira LC, Carneiro J. Basic histology. New York: McGraw Hill Companies, 2013, 515 p.
16. Kerr JB. Atlas of functional histology. London: Mosby, 1999, 402 p.
17. Ross MH, Pawlina W. Histology. A text and atlas with correlated cell and molecular biology. 7th ed. Baltimore: Lippincott Williams & Wilkins, 2016, 984 p.
18. Sadler TW. Langman's Medical Embryology. 13th edition. Philadelphia: Lippincott Williams &Wilkins, 2015, 407 p.
19. Terminologia Histologica. International terms for human Cytology and Histology. Philadelphia: Lippincott Williams & Wilkins, 2008, 207 p.
20. Wheater`s functional histology. 4th ed. / Edit. Young B and Heath JW. Edinburgh: Churchill Livingstone, 2000, 413 p.

**CUORSEWORK**

Coursework on this subject is not provided.

**PRACTICE**

Industrial practice on this subject is not provided.

 **PREPARED**  Ayyubova Gunel

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 Guliyeva Nigar