



<b>Study program:</b> Doctoral Academic Studies in Biomedical Sciences		
<b>Name of the subject:</b> Current Issues In Histology And Embryology		
<b>Teacher(s):</b> Matilda A. Đolai, Dušan M. Lalošević, Ivan Đ. Čapo, Bojana M. Andrejić Višnjić, Aleksandra M. Fejsa Levakov, Jelena R. Ilić Sabo		
<b>Status of the subject:</b> elective		
<b>Number of ECTS points:</b> 20		
<b>Condition:</b> -		
<b>Goal of the subject</b> Acquiring knowledge from all areas of modern research and clinically oriented histology and embryology, including human tissues and the application of animal models for research purposes		
<b>Outcome of the subject</b> Mastering the basics of work in the histological laboratory and training for proper sampling, processing and special histological methods (histochemistry, immunohistochemistry, immunofluorescence, electron microscopy). Introduction and application of new technologies in the analysis of tissue samples and biological materials, such as molecular medicine techniques, primarily PCR and the possibilities of their application in scientific research, but also in personalized medicine. The candidate is trained in working with laboratory animals as well as on cell cultures. Understanding the purpose and application of embryology in clinical practice with a detailed understanding of <i>in vivo</i> fertilization and correlation with <i>in vitro</i> fertilization. Introduction to the application of clinically oriented embryology in gynecology, pediatrics, pathology and other fields. In parallel with the proper development, the aim is to explain the development of congenital malformations (teratology), mechanism of occurrence and the importance of their recognition and practical application (consequences, possibility of medical care).		
<b>Content of the subject</b> <i>Theoretical lectures</i> 1. Principles of work in the histological laboratory, basic and special histological staining techniques 2. PCR and cell cultures 3. Histology and animal models in neuroscience 4. Histology and animal models in tumor research and hematology 5. Histology and animal models in the study of metabolic disorders and oxidative stress 6. <i>in vivo</i> and <i>in vitro</i> fertilization and early embryonic development, theory of fetal origin of disease 7. Clinically oriented embryology of the nervous, cardiovascular and respiratory systems 8. Clinically oriented embryology of the digestive, reproductive and urinary systems  <i>Practical lectures</i> 1. Tissue sampling, histological processing and molding of preparations 2. Histological staining - standard and histochemical methods and analysis of microscopic specimens 3. Special staining methods and analysis of microscopic preparations 4. Work with cell cultures 5. Stereotaxy and sampling of nervous system organs 6. Macroscopic and microscopic analysis of fetal preparations 7. Macroscopic and microscopic analysis of congenital disorders		
<b>Recommended literature</b> 1. Ross M, Kaye G, Pawlina W. Histology: A Text and Atlas. 8th ed. Wolters Kluwer Health; 2019. 928p 2. Sadler T. Langman's medical embryology, 14th ed. Baltimore: Lippincott, Williams & Wilkins; 2018. 456 p 3. Singh V. Textbook of clinical embryology. Elsevier India; 2013. 352 p 4. Treuting P, Dintzis S, Montine KS. Comparative Anatomy and Histology. 2nd ed. Elsevier; 2017. 570p. 5. Relevant Journals and articles		
<b>Number of active classes</b>	<b>Theory:</b> 60	<b>Practice:</b> 45
<b>Methods of delivering lectures:</b> interactive oral lectures, Power point and video presentations, case presentations		
<b>Evaluation of knowledge (maximum number of points 100)</b> active participation during lectures: 25 active participation during practical classes: 25		

seminar: 20  
oral exam: 30