

|   |                 |                          |                              |
|---|-----------------|--------------------------|------------------------------|
| <b>Study program:</b> Integrated academic studies in dentistry  |                 |                          |                              |
| <b>Type and level of the study program:</b> integrated academic studies   |                 |                          |                              |
| <b>Course title: Experimental animals and experimental pharmacology in medical research (DII-EXAN)</b>  |                 |                          |                              |
| <b>Teacher:</b> Isidora N.Samojlik, Momir M. Mikov, Aleksandar L.Rašković, Saša N.Vukmirović, Boris T.Milijašević, Nebojša P.Stilinović, Ivan Đ. Čapo   |                 |                          |                              |
| <b>Course status:</b> elective (compulsory prior to preparing experimental student/graduation paper that includes experimental animals)   |                 |                          |                              |
| <b>ECTS Credits: 3</b>  |                 |                          |                              |
| <b>Condition:</b> -   |                 |                          |                              |
| <b>Course aim</b> To get students acquainted with the methods, possibilities and conditions of working with experimental animals in biomedical research   |                 |                          |                              |
| <b>Expected outcome of the course:</b> The students will get acquainted with conditions and possibilities of working with experimental animals and particular experimental models of importance for in vivo biomedical research. The students will get informed on legal regulations pertaining to protection of welfare of experimental animals, animal models and species used in particular investigations, the housing and care of experimental animals, application of investigated substances, monitoring the effects of applied substances, euthanasia and safe disposal of residual/waste material. The students will be trained for experimental work with laboratory animals (handling, administration of substances, sampling of biomaterial, anesthesia, monitoring of stress and pain parameters...) as well as for creating relevant documentation aimed to obtain necessary approvals for experimental work with laboratory animals. |                 |                          |                              |
| <b>Course description</b>   |                 |                          |                              |
| <i>Theoretical education:</i> Legislation and welfare of experimental animals in biomedical research. The principles of ethics of working with experimental animals. The rule of "3-R's" and "five freedoms" in working with experimental animals. Categories of invasiveness in animal experiments. Alternative methods for in vivo experiments. Laboratory (experimental) animals - classification and nomenclature, types. Maintenance of experimental animals - accommodation, food and drinking water, hygiene, monitoring health status (stress and pain). Animal models - the model definition, requirements, selection. Basic rules of handling experimental animals - keeping, labeling, application of experimental substances, sampling material for analysis. Experimental models in non-anesthetized animals. Experimental models in anesthetized animals. Euthanasia and risks when working with experimental animals.                |                 |                          |                              |
| <i>Practical education: exercises, other forms of education, research related activities:</i> Preparing the Request for approval of the experiment on laboratory animals to the Ethics Committee, pursuant to relevant legislation, Getting acquainted with the maintenance of laboratory animals - practical work. Skills for handling laboratory animals – practical work (housing, labeling, administration of experimental substances, sampling of materials for analysis), Designing an experimental model in line with the Request to Ethical Committee (research plan that foresees the use of experimental animals), Practical handling of the material of animal origin (samples, carcasses of sacrificed animals), substances and equipment used in the experimental research.  |                 |                          |                              |
| <b>Literature</b>   |                 |                          |                              |
| <i>Compulsory</i>   |                 |                          |                              |
| 1. Animal Welfare Act, Official Gazette of RS, No. 41/09  |                 |                          |                              |
| 2. The regulations on conditions for entry into registry of animal experiments, Official Gazette of RS, No. 39/10.  |                 |                          |                              |
| 3. Chow P, Ng R, Ogden B. Using animal models in biomedical research. World Scientific Publishing Co. Pte. Ltd., Singapore 2007.  |                 |                          |                              |
| 4. Wahlsten D. Mouse Behavioral Testing. Academic Press, Elsevier, London NW1 7BY, UK, 2011.  |                 |                          |                              |
| 5. Hau J, Van Hoosier GL. Handbook Of Laboratory Animal Science, Vol I &II. CRC Press, Boca Raton, Florida 33431, 2003.   |                 |                          |                              |
| <i>Additional</i>   |                 |                          |                              |
| 1. Kaliste E. The Welfare of Laboratory Animals. Springer, Dordrecht, The Netherlands, 2007.  |                 |                          |                              |
| <b>Number of active classes</b>   |                 |                          | <b>Other:</b>                |
| Lectures:<br>30   | Practice:<br>15 | Other types of teaching: | Research related activities: |
| <b>Teaching methods</b> Theoretical and practical   |                 |                          |                              |
| <b>Student activity assessment (maximally 100 points)</b>   |                 |                          |                              |
| <b>Pre-exam activities</b>  | <b>points</b>   | <b>Final exam</b>        | <b>points</b>                |
| Lectures  | 20              | Written                  | 40                           |
| Practices   | 20              | Oral                     |                              |
| Colloquium  |                 | .....                    |                              |
| Essay   | 20              |                          |                              |