

Course Unit Descriptor

Study Programme: Doctoral Academic Studies in Biochemistry
Course Unit Title: Steroid Biochemistry-selected chapters
Course Unit Code: DSB-613
Name of Lecturer(s): Professor Suzana Jovanović-Šanta
Type and Level of Studies: PhD degree
Course Status (compulsory/elective): elective
Semester (winter/summer): winter
Language of instruction: English
Mode of course unit delivery (face-to-face/distance learning): Face-to-face
Number of ECTS Allocated: 15
Prerequisites: -
<p>Course Aims:</p> <p>Increase students' knowledge of the biosynthetic routes and the physiological effects of certain classes of steroids. Develop students' ability to apply standard methods to solve problems in the field of biochemistry of steroids and their synthetic analogues, but also to create new, appropriate methods to resolve current problems and tasks. To enable students to plan and carry out experiments to process the results and discuss them critically.</p>
<p>Learning Outcomes:</p> <p>After successful completion of the course the student is able to: Explain the role of certain classes of steroids in physiological and / or pathological processes; Explain the role of endogenous and exogenous factors in the changes in the biosynthesis and / or action of steroids; Critically represent view on the importance of certain steroids and feasibility of use of commercial products for therapeutic or other purposes; Choose the relevant scientific literature and prepare a presentation on the topic; Modify existing methods, performing tests to quantify the physiological effects of steroids and critically interpret the results; Independently plan and perform experiments.</p>
<p>Syllabus:</p> <p><i>Theory</i></p> <p>Class of steroids: sterols, vitamin D, steroid sapogenins, steroid alkaloids, cardiac glycosides, bile acids, progestins, corticosteroids, androgens, estrogens: metabolism, mode of action and physiological effects, regulation of biosynthesis. Compounds that modify the synthesis or action of certain classes of steroids, natural and synthetic origin.</p> <p><i>Practice</i></p> <p>Determination of the steroid hormone content in animal samples by ELISA or RIA methods and establishing a relationship with the function of reproductive tissues; Determination of phytoestrogen content in plant material by HPLC method. Study the available data and develop a mini-project on a topic related to the physiological or therapeutic effects of steroids.</p>
<p>Required Reading:</p> <ol style="list-style-type: none"> 1. G.M.K.B. Gunaherath¹, A.A.L Gunatilaka, Plant Steroids: Occurrence, Biological Significance and Their Analysis in Encyclopedia of Analytical Chemistry: Applications, Theory and Instrumentation, John Wiley & Sons, Ltd. 2014 2. Straus J.F. and Barbieri R.L.: Reproductive Endocrinology, Elsevier Saunders, 2004 3. Endocrinology and Endocrine Toxicology y IPCS GLOBAL ASSESSMENT OF EDCS, WHO, 2016 4. http://themedicalbiochemistrypage.org 5. Review and original scientific articles from selected research areas

Weekly Contact Hours: 10	Lectures: 5		Practical work: 5
Teaching Methods: Lectures, laboratory work, study projects			
Knowledge Assessment (maximum of 100 points): 100			
Pre-exam obligations	points	Final exam	points
Active class participation		written exam	
Project presentation	50	oral exam	50
Preliminary exam(s)		
Seminar(s)			
The methods of knowledge assessment may differ; the table presents only some of the options: written exam, oral exam, project presentation, seminars, etc.			