Course Unit Descriptor

Study Programme: Master Academic Studies in Biochemistry; Master Academic Studies in Chemistry

Course Unit Title: Steroid Biochemistry

Course Unit Code: IB-524

Name of Lecturer(s): Professor Suzana Jovanović-Šanta

Type and Level of Studies: Master of Science Degree

Course Status (compulsory/elective): elective

Semester (winter/summer): summer

Language of instruction: English

Mode of course unit delivery (face-to-face/distance learning): Face-to-face

Number of ECTS Allocated: 6

Prerequisites: -

Course Aims:

Provide students with balanced and extended knowledge of the biosynthetic routes and the physiological effects of certain classes of steroids. Develop students' ability to alter the known methods and apply them to solve problems in the field of biochemistry of steroids. To enable students to plan and carry out experiments to process the results and discuss them critically.

Learning Outcomes:

After successful completion of the course, the student is able to:

1. Explain the role of various groups of steroids in physiological and / or pathological processes.
2. Explain the role of endogenous and exogenous factors in the changes in the biosynthesis and / or action of steroids.
3. Demonstrate the interconnections between the individual classes of steroids.
4. Critically represent own view on the importance of certain steroids and feasibility of use of commercial products for therapeutic or other purposes.
5. Choose the relevant scientific literature and prepare a presentation on the topic.
6. Modify existing methods by performing tests to quantify the physiological effects of steroids and critically interpret the results.

Syllabus:

Theory

Class of steroids: sterols, vitamin D, steroidal sapogenines, steroidal 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.

Practice

Methods for qualitative and quantitative analysis of steroids. Demonstration and determination of steroids; Inhibition of steroidogenesis enzymes; Measurement of the physiological effects of some steroids.

Required Reading:

1. Straus J.F. and Barbieri R.L.: Reproductive Endocrinology, Elsevier Saunders, 2004

2. 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

3. http://themedicalbiochemistrypage.org

4. Review and original scientific articles from selected research areas

Weekly Contact Hours: 5	**Lectures:** 3	**Practical work:** 2

Teaching Methods:

Lectures, laboratory work, seminar

Knowledge Assessment (maximum of 100 points): 100

Pre-exam obligations	points	**Final exam**	points
Active class participation	10	written exam	40
Practical work	30	oral exam	20
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.