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| 1. Course title: Physiology I. | | | | | |
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| 2. Code: | | 3. Type (lecture, practice etc.): lecture | | | |
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| 4. Contact hours: 2 hoursper week | | 5. Number of credits (ECTS): 2 | | | |
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| 6. Preliminary conditions (max. 3): | | | | | |
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| 7. Announced:fall semester, spring semester, both | | | | | |
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| 8. Limit for participants: 150 | | | | | |
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| 10. Responsible teacher (faculty, institute and department):  Tamas Atlasz PhD (Faculty of Science, Institute of Sport Sciences and Physical Education, Dept of. Sportbiology) | | | | | |
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| 11. Teacher(s) and percentage: | | Dr. Tamas ATLASZ | | 100 % | |
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| 12. Language:English | | | | | |
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| 13. Course objectives and/or learning outcomes:  The subject is part of the „basic principles” module, covers the fundamental principles of homeostasis in resting and exercise. Proper knowledge of human physiology is required to understand the different regulatory mechanisms, and to further study the adaptation of these systems during physical exercise. The first part of the course focuses blood and muscle movement in physiological terms. | | | | | |
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| 14. Course outline   1. Functional organization of the human body and control of the `internal environment. Intracellular and extracellular fluids. 2. The cell and its function. Transport of substances trough cell membranes. Active and passive transports. 3. Blood cells, blood types. Blood transfusion. Immunity. The immune system and the sports. 4. Transport of oxygen and carbon dioxide in blood and tissue fluids. Hameostasis and blood coagulation. 5. Acid-base regulation. Acidosis and physical activity. Body temperature regulation. 6. Resting membrane potentials. Action potentials. 7. Physiologic anatomy of skeletal muscle. General mechanism of muscle contraction. 8. Molecular mechanism of muscle contraction. Excitation-contraction coupling. Sliding filament mechanism. 9. Contraction of skeletal muscle. Isotoninic, isometric, auxotonic contractions. Tetanic tension. Fast and slow fibers. Body temperature regulations. 10. Basic functions of synapses and neurotransmitters. Motor endplate. Motor coordination. Neuromuscular transmission. 11. Energetics and metabolite rate. ATP functions. Control of energy release in the cell. 12. Electromiography (EMG). Contraction of smooth muscle. Nervous and hormonal control of smooth muscle contraction. 13. The structure of tendon connective tissues. Structure-function relationships in tendon. Muscle reflexes | | | | | |
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| 15. Mid-semester works  Attending lectures is highly recommended. | | | | | |
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| 16. Course requirements and grading  Written exam is based on lectures, accessible electronic sources and lecture materials.  2 written tests during the term (the satisfactory level is at least 50%)  Written or oral examination.  Grades:  0–50% fail  51–65% acceptable  66–75% average  76–90% good  91–100% excellent | | | | | |
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| 17. List of readings  1. Guyton and Hall (2012): Medical Physiology, Elsevier  2. Pocock G and Richard C.D. (2006) Human Physiology (Third edition), Oxford University press  3. Berne RM. and Levy MN (2000): Principles of Physiology (Third edition) Mosby  4. Wilmore JH, Costill DL, Kenney WL (2008): Physiology of Sport and Exercise (Fourth Edition) | | | | | |
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| 18. Recommended texts, further readings   1. McComas AJ (1996) Skeletal muscle. Form and Function | | | | | |
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| **Date** | 10 May, 2017 | **Prepared by** |  | | |
| Dr. Tamas Atlasz  responsible teacher | | |
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| **Endorsed by** | | |  | | |
| Dr. Mark Vaczi program supervisor | | |