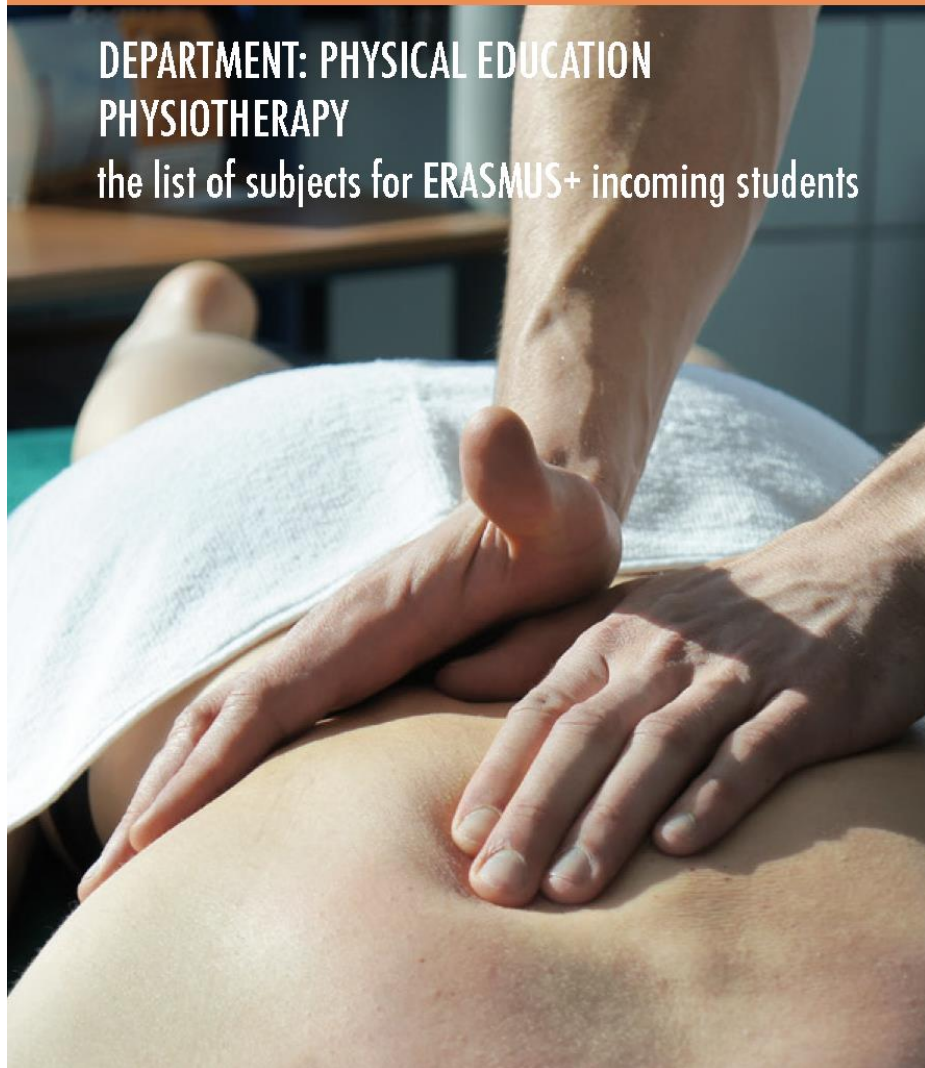


**DEPARTMENT: PHYSICAL EDUCATION  
PHYSIOTHERAPY**

the list of subjects for ERASMUS+ incoming students



**ERASMUS+ PROGRAMME**  
**DEPARTMENT OF PHYSICAL EDUCATION, SPORT AND REHABILITATION OF AWF**  
**FIELD OF STUDY: PHYSIOTHERAPY**  
**LIST OF SUBJECTS FOR WINTER OR SUMMER SEMESTER 2017/2018**

<b>No.</b>	<b>SUBJECT</b>	<b>TEACHER</b>	<b>ECTS POINTS</b>
1.	<b>Clinical Practice (Praktyki Kliniczne) - Medical Care and Rehabilitation Centre</b>	Maja Prętka, MSc PT	8
2.	<b>Clinical Practice (Praktyki Kliniczne) - Sports and Orthopedic Rehabilitation)</b>	Mateusz Kowalski, MSc PT	8
3.	<b>Clinical Practice (Praktyki Kliniczne) – Pulmonary Rehabilitation (Rehabilitacja Pulmonologiczna)</b>	Justyna Szymańska, MSc PT	2
4.	<b>Clinical Practice (Praktyki Kliniczne) - Rehasport Clinic</b>	Piotr Kaczmarek, PhD, PT, MT, NCSC	8
5.	<b>The basics of McKenzie Method and diagnostics of gross and fine motor skills with Functional Movement Screen (FMS™) (Podstawowe zagadnienia dotyczące terapii metodą McKenzie)</b>	Łukasz Michałowski, MSc PT	5
6.	<b>Recreational Sport and Wellness in the Llife and Prevention of Civilization Disease (Sport rekreacyjny i wellness w życiu i profilaktyce chorób cywilizacyjnych</b>	Jan M. Konarski, PhD Renata Śleboda, PhD	5
7.	<b>Objective physiotherapeutic assessment using motion capture, Zebris System, Delos System and e.t.c. (Obiektywna ocena fizjoterapeutyczna z wykorzystywaniem systemów obrazujących ruch, systemu zebris, systemy delos itp.)</b>	Daniel Choszczewski, MSc PT	5
8.	<b>Neurological Rehabilitation (Rehabilitacja neurologiczna)</b>	Magdalena Goliwąs, PhD PT Lech Furmaniuk, PhD PT	5

9.	<b>Adapted Physical Activity (Aktywność fizyczna osób niepełnosprawnych)</b>	Maciej Wilski, PhD, MSc PT	3
10.	<b>Human Anatomy (Anatomia człowieka)</b>	Piotr Bartkowiak, PhD	3
11.	<b>Genetics and Molecular Biology (Genetyka i biologia molekularna)</b>	Wojciech Jarosz, PhD	3
12.	<b>Motor Control (Sterowanie ruchem)</b>	Jan Celichowski, Prof., Piotr Krutki, Prof.	3
13.	<b>Histology (Histologia)</b>	Hanna Mizgajska - Wiktor, Prof	3
14.	<b>Wheelchair Dance (Taniec na wózkach)</b>	Przemysław Kwarta, PhD	1,5

**LIST OF SUBJECT ONLY FOR PHYSIOTHERAPY STUDENTS**

## OBLIGATIONS

### Classes for ERASMUS Incoming Students

All Incoming Students are obliged to respect the following rules:

1. **Students should establish/update** the list of classes/lectures to attend (learning agreements) as soon as possible (within one month of their arrival to Poznań). Student must not make changes in this document during the semester or shortly before the exams because it is the basis for preparation of an Exam Card.
2. Student must not stop attending **classes/lectures during the course. Institutional and Departmental Coordinator and teacher responsible for it should be informed earlier.**
3. Students should come to classes run by Polish teachers **on time.**
4. Within every chosen course an Erasmus Student has the maximum of 15 class-hours of **lectures** (in English) and, besides that, participates in some practical classes together with the Polish students. We offer a **module of subjects in English** with our academic teachers who are responsible for the subject and are obliged to do their best to help students. The module is based on proposals from incoming students (their Learning Agreements). Whether a course will be offered in English is subject to student demand (min. 50% of incoming students). For financial reasons **we can offer a MAXIMUM of 10 subjects per semester from each faculty and 5 subject for physiotherapy students (no more).**
5. In order to receive credits for the courses an Erasmus Student should see the teachers and present the **Exams Card** available from the Institutional Coordinator at the Erasmus+ Programme Office. This form is the basis for the preparation of the Transcript of Records which **will be sent directly to the coordinator at the partner institution not earlier than one month after the end of semester.**
6. In case of **any problems** an Erasmus Student should immediately contact his/her Polish partner-student, the Institutional or Departmental Coordinator.
7. According to the Bilateral Agreement signed with your university, the IRO will confirm the real time of your study only.

<b>Subject</b>	<b>PRAKTYKI KLINICZNE</b> <b>CLINICAL PLACEMENT- MEDICAL CARE AND REHABILITATION</b>
<b>Unit of AWF</b>	<b>Zakład Opiekuńczo - Leczniczy i Rehabilitacji Medycznej, (Medical Care and Rehabilitation Center), ul. Mogileńska 42, 61-044 Poznań</b>
<b>Teacher's name</b>	<b>Maja Prętka, MSc PT</b>
<b>ECTS points</b>	<b>8</b>
<b>Methods of estimation</b>	<ul style="list-style-type: none"> <li>- <i>Active participation in the classes</i></li> <li>- <i>Preparation of a patient treatment plan, adequate to the type of injury / surgery and rehabilitation period</i></li> </ul>
<b>Effects/results of education</b>	<p><i>Students can:</i></p> <ul style="list-style-type: none"> <li>- <i>examine the functional patient after injury and in the course of neurological diseases</i></li> <li>- <i>plan and carry rehabilitation procedures</i></li> </ul>
<b>Topics of the classes</b>	<ul style="list-style-type: none"> <li>- <i>Rehabilitation in neurology: Encephalitis, Meningitis, Stroke, Cerebral Palsy, Brain Injuries, Multiple Sclerosis, Parkinson's and Alzheimer's Diseases, SLA</i></li> <li>- <i>Pathological Manifestation of aging, Musculoskeletal and Neurological disorders and disease, Cognitive disorders, Cardiovascular, Pulmonary, Skin conditions and diseases, Metabolic pathologies</i></li> <li>- <i>Various condition of Musculoskeletal System: Arthritic conditions, disorders of bones and soft tissues (fractures, sprains, strains, inflammations), upper and lower limb, spinal deformities and disorders, musculoskeletal pain management</i></li> </ul>
<b>Recommended literature</b>	

<b>Subject</b>	<b>PRAKTYKI KLINICZNE</b> <b>CLINICAL PLACEMENT - SPORTS AND ORTHOPEDIC REHABILITATION</b>
<b>Unit of AWF</b>	<b>Wielkopolska Przychodnia Sportowo –Lekarska (Sports and Orthopedic Rehabilitation), ul. Wł. Reymonta 35, 60-791 Poznań</b>
<b>Teacher’s name</b>	<b>Mateusz Kowalski, MSc PT</b>
<b>ECTS points</b>	<b>8</b>
<b>Methods of estimation</b>	<ul style="list-style-type: none"> <li>- <i>Active participation in the classes</i></li> <li>- <i>Preparation of a patient treatment plan</i></li> </ul>
<b>Effects/results of education</b>	<p><i>Students can:</i></p> <ul style="list-style-type: none"> <li>- <i>examine the functional patient</i></li> <li>- <i>plan and carry rehabilitation procedures</i></li> </ul>
<b>Topics of the classes</b>	<ul style="list-style-type: none"> <li>- <i>Degenerative changes in various joints;</i></li> <li>- <i>Various conditions of Musculoskeletal System: disorders of bones and soft tissues(fractures, sprains, strains, inflammations), upper and lower limb disorders, spinal deformities and disorders, musculoskeletal pain management, low back pain, hip/knee endoprosthesis patient management</i></li> <li>- <i>Autoimmune diseases: Rheumatoid arthritis, Osteoarthritis Adolescent</i></li> <li>- <i>Sport related injuries, reconstructive surgery;</i></li> <li>- <i>Sprains and strains of soft tissues, ligamentous injures, open and closed fractures, various joints replacements, inter vertebral disc lesions, low back pain, tendon transfer, tendonitis, joints dislocations and deformities, whiplash injury, wry neck, thoracic outlet syndrome, rotator cuff syndrome, periarthrits of shoulder, frozen shoulder, tennis and golf elbow, knee ligament injuries, muscle strain in thigh, menisci abnormalities, patellofemoral dysfunction, foot pain, plantar fasciitis, Achilles tendon injury, ankle instability, club foot, and other orthopedic condition.</i></li> </ul>
<b>Recommended literature</b>	

<b>Subject</b>	<b>PRAKTYKI KLINICZNE</b> <b>CLINICAL PLACEMENT - PULMONOLOGY AND THORACIC SURGERY</b>
<b>Unit of AWF</b>	<b>Wielkopolskie Centrum Pulmonologii I Torakochirurgii (Eugenia and Janusz Zeyland Wielkopolska Center of Pulmonology and Thoracic Surgery), ul. Szamarzewskiego 62, 60-101 Poznań</b>
<b>Teacher's name</b>	<b>Justyna Szymańska MSc PT</b>
<b>ECTS points</b>	<b>2</b>
<b>Methods of estimation</b>	<i>- Active participation in the classes</i>
<b>Effects/results of education</b>	<i>Students can:</i> <i>- examine the functional patient</i> <i>- plan and carry rehabilitation procedures</i>
<b>Topics of the classes</b>	<ol style="list-style-type: none"> <li>1. <i>Theory of respiratory system</i></li> <li>2. <i>Rehabilitation before and after thoracic surgery</i></li> <li>3. <i>Observation and results analyses of bronchoscopy and spirometry</i></li> <li>4. <i>Home oxygen therapy</i></li> <li>5. <i>Nuss treatment method</i></li> <li>6. <i>Lobectomy and another special, surgery method</i></li> </ol> <p><i>Clinical rehabilitation in pulmonology: Thoracotomy, pneumonectomy, seminectomy and other pulmonological procedures; Pneumothorax, haemothorax, ribs fractures, flail chest, lung abscess, pneumonia, emphysema, TB, lung carcinoma, ribs contusions. Injury to the heart and lung vessels. Obstructive lung diseases, Restrictive lung diseases. Respiratory failure Bronchitis, Asthma. Flat chest and Pigeon chest.</i></p>
<b>Recommended literature</b>	<ol style="list-style-type: none"> <li>1. <i>S.E. Weinberger, B.A. Cocrill, J. Mandel "Choroby płuc", red. W. Pierzchała 2011, Elsevier &amp; Partner.</i></li> <li>2. <i>T. Similowski, "POChP", 2011, Elsevier &amp; Partner.</i></li> </ol>

<b>Subject</b>	<b>PRAKTYKI KLINICZNE</b> <b>CLINICAL PLACEMENT - REHASPORT CLINIC</b>
<b>Unit of AWF</b>	<b>Rehasport Clinic (Sports and Orthopedic Rehabilitation)</b> <b>ul. Górecka 30, 60-185 Poznań</b>
<b>Teacher's name</b>	<b>Piotr Kaczmarek, PhD, PT, MT, NCSC</b>
<b>ECTS points</b>	<b>8</b>
<b>Methods of estimation</b>	<ul style="list-style-type: none"> <li>- Active participation in the classes (one absence allowed)</li> <li>- Preparation for classes (doing home tasks)</li> <li>- Preparation of a patient treatment plan, adequate to the type of injury / surgery and rehabilitation period</li> </ul>
<b>Effects/results of education</b>	<p><i>This course is designed for physiotherapy students. Basic knowledge of human anatomy and biomechanics is required. The course will cover basic orthopaedic conditions and various conditions of musculoskeletal system like:</i></p> <ul style="list-style-type: none"> <li>- Degenerative changes in various joints</li> <li>- Disorders of bones and soft tissues (fractures, sprains, strains, inflammations)</li> <li>- Tendons and ligamentous injuries (raptures)</li> <li>- Low back pain</li> <li>- Open and close fractures</li> <li>- Various joints replacements</li> <li>- Sports related injuries</li> <li>- Reconstructive surgery</li> <li>- Other orthopaedic conditions</li> </ul> <p><i>Practical classes will be held at the rehabilitation room, where students will be able to observe physiotherapists during their work with the patient, perform some basic procedures / evaluations and carry out exercises with the patient.</i></p> <p><i>Dress code: black long trousers and white t-shirt without imprints.</i></p> <ul style="list-style-type: none"> <li>- Presentation and supervision of exercises performed by patients - recommended by the leading physiotherapist</li> <li>- Operation of equipment and selected measuring devices</li> <li>- Learning to perform basic functional tests</li> <li>- Analyzing test results and proper clinical reasoning</li> </ul> <p><i>Participation in the development of a patient treatment plan.</i></p>
<b>Topics of the classes</b>	<ul style="list-style-type: none"> <li>- Nonoperative treatment of acute and overuse injuries of lower and upper extremities.</li> <li>- Rehabilitation of the upper extremity (shoulder, elbow, wrist) after common arthroscopic procedures.</li> <li>- Rehabilitation of the lower extremity (hip, knee, ankle) after common arthroscopic procedures.</li> </ul>



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- *Practical approach to rehabilitation (demonstration of exercises, justification for selection of exercises and sequence of their execution).*
  - *Differences in rehabilitation of the professional athletes.*
  - *Biomechanical evaluation and return to sport criteria after injury / surgery.*

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**Recommended literature**

*Peter Brukner, Karim Khan "Clinical Sports Medicine" McGraw-Hill Education / Australia 2012, 4th Edition*  
*S. Brent Brotzman, Kevin E. Wilk "Clinical Orthopaedic Rehabilitation" Mosby 2003, 2nd Edition (or new edition: Charles E. Giangarra, Robert C. Manske "Clinical Orthopaedic Rehabilitation: A Team Approach" Elsevier 2017, 4th Edition)*

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<b>Subject</b>	<p>PODSTAWOWE ZAGADNIENIA DOTYCZĄCE TERAPII METODĄ MCKENZIE ORAZ METODA FUNCTIONAL MOVEMENT SCREEN (FMS™) JAKO PRZYKŁAD GLOBALNEJ DIAGNOSTYKI FUNKCJONALNEJ</p> <p>THE BASICS OF MCKENZIE METHOD AND DIAGNOSTICS OF GROSS AND FINE MOTOR SKILLS WITH FUNCTIONAL MOVEMENT SCREEN (FMS™)</p>
<b>Unit of AWF</b>	Department of Musculoskeletal Rehabilitation/Katedra Rehabilitacji Narządu Ruchu
<b>Teacher's name</b>	Łukasz Michałowski , PhD PT
<b>ECTS points</b>	5
<b>Number of hours</b>	25
<b>Methods of estimation</b>	<p><i>The evaluation process consist of preparation to the classes and practical and written tests.</i></p>
<b>Effects/results of education</b>	<p><i>McKenzie Method is a concept based on knowledge of symptoms and the analysis of behavior of complaints and joint mechanics (motion segment), in an interview and physical examination. Examination of the McKenzie Method allows to determine the direction of movement of the damaged tissue so the therapist can determine which body movement can push those tissues back on the right place. McKenzie treatment uniquely emphasizes education and active patient involvement in the management of their treatment in order to decrease pain quickly, and restore function and independence, minimizing the number of visits to the clinic.</i></p> <p><i>The Functional Movement Screen (FMS™) is an assessment technique, which attempts to identify imbalances in mobility and stability during fundamental movement patterns. This assessment tool is thought to exacerbate the individual's compensatory movement problems, allowing for easy identification. It is these movement flaws that may lead to breakdown in the kinetic linking system, causing inefficiency and microtrauma during activity. In many cases, muscle flexibility and strength imbalances along with previous injuries may not be identified. These problems, which have been acknowledged as significant risk factors for injury, will be identified using the FMS™.</i></p>
<b>Topics of the classes</b>	<ol style="list-style-type: none"> <li>1. <i>The principles of McKenzie Method and Functional Movement Screen (FMS™).</i></li> <li>2. <i>Definitions and terms used in the McKenzie Method and Functional Movement Screen (FMS™).</i></li> <li>3. <i>Forms and documents used in the McKenzie Method and Functional Movement Screen (FMS™); The ranking and grading system.</i></li> </ol>

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4. *The epidemiology of body disorders; Injury prevention.*
  5. *Pain patterns and mechanism of pain production.*
  6. *The McKenzie classification of spinal pain; Treatment of the anatomical disruption or displacement within the motion segment (Derangement Syndrome). Treatment of the end-range stress of normal structures (Postural Syndrome) and end-range stress of shortened structures (Dysfunction Syndrome).*
  7. *Biomechanics and movement patterns; Limitations of strength, balance and range of motion.*
  8. *Functional Movement Screen (FMS™) - tool for analysing the stability of body segments during movement; Part of the comprehensive physiotherapeutic and biomechanical assessment of physically active persons as an element of primary prevention of sport injuries.*
  9. *Physical examination and assessment in McKenzie Method and Functional Movement Screen (FMS™)*
  10. *The mechanical therapy procedures; education of the patient and patient involvement in the treatment; Corrective exercise to restore movement patterns.*
  11. *Proper movement and building strength on it.*
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**Recommended  
literature**

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<b>Subject</b>	<b>SPORT REKREACYJNY I WELLNESS W ŻYCIU I PROFILAKTYCE CHOROÓB CYWILIZACYJNYCH</b> <b>RECREATIONAL SPORT AND WELLNESS IN THE LIFE AND PREVENTION OF CIVILIZATION DISEASE</b>
<b>Unit of AWF</b>	<b>Department of Theory of Sport/Zakład Teorii Sportu</b>
<b>Teacher's name</b>	<b>Jan Konarski, PhD, Renata Śleboda PhD</b>
<b>ECTS points</b>	<b>5</b>
<b>Number of hours</b>	<b>25</b>
<b>Methods of estimation</b>	<i>Credit on the base of presentation and realization of own project, Personal, positive activity during meetings and exercises</i>
<b>Effects/results of education</b>	<i>Fit students out with knowledge about using recreational sport and different forms of wellness in normal life and prevention of civilization disease. Moreover, familiarize with methodology of preparation different kinds of classes according to aim and actual possibilities of training's participants. The meetings will be realized as lectures and practical exercise in different places and environments.</i>
<b>Topics of the classes</b>	<ol style="list-style-type: none"> <li>1. <i>Wellness characteristics of meaning and applications in life and civilization disease.</i></li> <li>2. <i>Role of recreational sports in present society</i></li> <li>3. <i>Program preparation to selected forms of recreational sports and wellness</i></li> <li>4. <i>Place of recreational sports and wellness in European and Worldwide health prevention programs</i></li> <li>5. <i>Methodological base and technics of yoga as whole lifetime system of health prevention</i></li> <li>6. <i>Body-mind system psycho-somatic refresh of contemporary human</i></li> <li>7. <i>Familiarize with reaction of own body in situation of stress and relaxation by educational kinesiology integration dance</i></li> <li>8. <i>Application of different movements forms of integration in the group.</i></li> <li>9. <i>Designing of parkour and selecting of exercise depending on kind and aims of exercise participants.</i></li> <li>10. <i>Using of untypical equipment during preparation and realization of recreational sports and kind of groups.</i></li> <li>11. <i>Modification and adaptation popular kinds of recreational sports to needs and abilities of participants, and environment</i></li> </ol>

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*of exercise.*

12. *Preparation and realization of selected forms of recreational sports and wellness*
13. *Integration dance*
14. *RINGO – game for people in every age and fitness*
15. *Activation people in different age and fitness level with special aspects of older people*
16. *Wellness in different moment of life – from childhood to old age*  
*Workshop and brainstorm as proposition to find best solution during organization of events for different groups of participants – from kids to seniors.*

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**Recommended literature**

- Lipoński W (2003) World Sports Encyclopedia. MBI Publishing Company LLC, USA.*
- Balyi I., Hamilton A. (2004) Long-Term Athlete Development: Trainability in Childhood and Adolescence. Windows of Opportunity. Optimal Trainability. Victoria: National Coaching Institute British Columbia & Advanced Training and Performance Ltd.*
- Bompa T. O. , Haff B. (2009) Periodization: theory and methodology of training. 5<sup>th</sup> ed. Human Kinetics.*
- Malina, RM, Bourchard, C, and Bar-Or, O. (2004) Growth, maturation, and physical activity. Champaign, IL: Human Kinetics.*
- Sharkey, B. & Gaskill, S. (2006). Sport physiology for coaches. Champaign, IL: Human Kinetics*
- Wilmore JH., Costill DL. (1994) Physiology of sport and exercise. Champaign, IL: Human Kinetics.*
- Benson H., Stuart E. (1993) The wellness book. The comprehensive guide to maintaining health and treating stress-related illness. Fireside Book, Pub. Simon & Schuster*

<b>Subject</b>	<b>OBIEKTYWNA OCENA FIZJOTERAPEUTYCZNA Z WYKORZYSTYWANIEM SYSTEMÓW OBRAZUJĄCYCH RUCH, SYSTEMU ZEBRIS, SYSTEMY DELOS</b> <b>OBJECTIVE PHYSIOTHERAPEUTIC ASSESSMENT USING MOTION CAPTURE, ZEBRIS SYSTEM, DELOS SYSTEM AND E.T.C.</b>
<b>Unit of AWF</b>	<b>Department of Musculoskeletal Rehabilitation/Katedra Rehabiliacji Narządu Ruchu</b>
<b>Teacher's name</b>	<b>Daniel Choszczewski, MSc PT</b>
<b>ECTS points</b>	<b>5</b>
<b>Number of hours</b>	<b>25</b>
<b>Methods of estimation</b>	<i>- participation in laboratory demonstrations - final written test</i>
<b>Effects/results of education</b>	<i>The result of education will be the ability to use the device for objective functional analysis of the human body and the ability to use results to diagnose defects of posture and dysfunctions</i>
<b>Topics of the classes</b>	<i>The following devices will be presented: 1. Tri-plane traffic analysis using Vicon Nexus and BTS Smart-D 2. Analysis of body posture parameters for postural and scoliosis defects using the MORA 4G device 3. Analysis of arching of the foot using the CQ-ST pod 4. Analysis of postural stability on stable substrate using CQ-Stab 5. Analysis of postural stability on unstable substrate using Delos 6. Analysis and posture of the body using Zebris FDM-T treadmill</i>
<b>Recommended literature</b>	<i>- Whittle's Gait Analysis; David Levine, PhD, PT, Jim Richards, BEng, MSc, PhD and Michael W. Whittle, BSc, MSc, MB, BS, PhD - Gait Analysis, Normal and Pathological Function; Jacquelin Perry.</i>

<b>Subject</b>	<b>REHABILITACJA NEUROLOGICZNA</b> <b>NEUROLOGICAL REHABILITATION</b>
<b>Unit of AWF</b>	<b>Department of Musculoskeletal Rehabilitation/ Katedra Rehabilitacji Narządu Ruchu</b>
<b>Teacher's name</b>	<b>Magdalena Goliwąż, PhD Lech Furmaniuk, PhD</b>
<b>ECTS points</b>	<b>5</b>
<b>Number of hours</b>	<b>25</b>
<b>Methods of estimation</b>	<i>Active participation in the classes</i>
<b>Effects/results of education</b>	<p><i>After completing this course, the student:</i></p> <ul style="list-style-type: none"> <li>- <i>Has the ability to carry out a structural and functional assessment of patient after stroke</i></li> <li>- <i>Understands the differences between patients with acute and chronic stroke</i></li> <li>- <i>Knows the techniques applied in increased muscle tension</i></li> <li>- <i>Knows therapeutic strategies in patients after stroke</i></li> </ul>
<b>Topics of the classes</b>	<ol style="list-style-type: none"> <li><i>1. Basic assessment of neurological patient (after stroke, cranio-cerebral trauma)</i></li> <li><i>2. The test used for functional assessment: Up and Go, Berg Balance Scale, Fugel-Meyer Test, Stroke Rehabilitation Assessment of Movement</i></li> <li><i>3. Techniques to reduce muscle tension</i></li> <li><i>4. Differences in management of acute and chronic phase after stroke and cranio-cerebral trauma</i></li> <li><i>5. Practical training with the patient on the mat</i></li> </ol>
<b>Recommended literature</b>	<ol style="list-style-type: none"> <li><i>1. Rain S., Meadows L., Lynch-Ellerington M.: Bobath Concept Theory and Clinical Practice I Neurological Rehabilitation. Wiley-Blackwell; 2009</i></li> <li><i>2. Bobath B.: Adult Hemiplegia: Evolution and Treatment, 3rd end. Butterworth-Heinemann; Oxfort 1990</i></li> </ol>

<b>Subject</b>	<b>AKTYWNOŚĆ FIZYCZNA OSÓB NIEPEŁNOSPRAWNYCH</b> <b>ADAPTED PHYSICAL ACTIVITY OF DISABLED</b>
<b>Unit of AWF</b>	<b>Department of Adapted Physical Activity/ Katedra Adaptowanej Aktywności Fizycznej</b>
<b>Teacher's name</b>	<b>Maciej Wilski. PhD, MSc PT</b>
<b>ECTS points</b>	<b>3</b>
<b>Number of hours</b>	<b>15</b>
<b>Methods of estimation</b>	<i>Students' presentation</i>
<b>Effects/results of education</b>	<p><i>After completing this course, the student:</i></p> <ul style="list-style-type: none"> <li>- develops the competences necessary to work with disabled athletes</li> <li>- develops teaching, training, and coaching skills, needed for a well-balanced approach in educational and sports environment</li> <li>- develops knowledge of Paralympic sports and adaptive activities.</li> </ul>
<b>Topics of the classes</b>	<p><i>A. Foundational topics in APA (Adapted Physical Activity), history, purposes, aims, goals, and objectives of sports for disabled persons, disability based sport organizations, disability sport terminology.</i></p> <p><i>B. Winter and summer Paralympic sports, team sports for disabled persons. Practical training:</i></p> <ul style="list-style-type: none"> <li>- Goalball</li> <li>- Wheelchair Rugby</li> <li>- Boccia</li> </ul> <p><i>C. Active rehabilitation – history, purposes, aims, goals, organizations and practical training.</i></p> <p><i>D. Social and psychological advantages of sports of the disabled</i></p>
<b>Recommended literature</b>	<p><i>Sherill C.: Adapted physical activity, recreation and sport. The McGraw-Hill Companies, 1998</i></p> <p><i>Winnick, J., &amp; Porretta, D. (Eds.). (2016). Adapted Physical Education and Sport, 6E. Human Kinetics.</i></p>



<b>Subject</b>	<b>ANATOMIA CZŁOWIEKA</b> <b>HUMAN ANATOMY</b>
<b>Unit of AWF</b>	<b>Department of Anatomy/ Zakład Anatomii</b>
<b>Teacher's name</b>	<b>Piotr Bartkowiak, PhD</b>
<b>ECTS points</b>	<b>3</b>
<b>Number of hours</b>	<b>15</b>
<b>Methods of estimation</b>	PP presentations, phantoms, lectures
<b>Effects/results of education</b>	<p><i>Students can find and show muscles and joints, describe their functions and structures.</i></p> <p><i>The aim of the course is to acquaint students with the basic structure and function of the human body.</i></p> <p><i>On the following lectures construction of the various parts of the human body, including muscles and their function will be presented to the students.</i></p>
<b>Topics of the classes</b>	<p><i>An introduction to structure of bones, joints, skeletal striated muscles, naming of movements.</i></p> <p><i>Structure and function of upper limb (structure of bones, joints, muscles acting on the joints).</i></p> <p><i>Structure and function of lower extremity (structure of bones, joints, muscles acting on the joints).</i></p> <p><i>Structure and function of spine (structure of bones, joints, muscles acting on the joints).</i></p> <p><i>Structure and function of chest (structure of bones, joints, muscles acting on the joints). The mechanics of breathing.</i></p> <p><i>Structure and function of head (structure of bones, joints, muscles acting on the joints).</i></p>
<b>Recommended literature</b>	<p><i>Basic anatomy and physiology. HGQ Rowett, 1999</i></p> <p><i>An introductory guide to anatomy and physiology. Louise Tucker, 2011</i></p>

<b>Subject</b>	<b>GENETYKA I BIOLOGIA MOLEKULARNA</b> <b>GENETICS AND MOLECULAR BIOLOGY</b>
<b>Unit of AWF</b>	<b>Department of Biology and Environmental Protection / Zakład Biologii i Ochrony Środowiska</b>
<b>Teacher's name</b>	<b>Wojciech Jarosz, PhD</b>
<b>ECTS points</b>	<b>3</b>
<b>Number of hours</b>	<b>15</b>
<b>Methods of estimation</b>	<i>Exam format: The test with some multiple choice and matching.</i>
<b>Effects/results of education</b>	<p><i>The subject is an introduction to the principles of genetics, including topics from classical Mendelian concepts to the contemporary molecular biology of the gene.</i></p> <p><i>Prerequisites: knowledge of basic human biology</i></p> <p><i>Upon successful completion of this course, students should be able to demonstrate the following competencies:</i></p> <ol style="list-style-type: none"> <li><i>1) an ability to use the vocabulary that embodies the knowledge of genetics</i></li> <li><i>2) knowledge about the molecular and inheritance mechanisms discussed during classes</i></li> <li><i>3) good discernment in basic molecular biology methods knowing their application</i></li> </ol>
<b>Topics of the classes</b>	<ol style="list-style-type: none"> <li><i>1. Fundamentals of genetics: DNA and RNA, genes and genomes. Different methods of DNA isolation. Gel electrophoresis of DNA. Laboratory work: DNA isolation of students' DNA.</i></li> <li><i>2. Polymerase chain reaction method and its types. Laboratory work: amplification of selected region of DNA. Gel electrophoresis of PCR products.</i></li> <li><i>3. Restriction enzymes. Methods used for mutation detection: PCR-RFLP (restriction fragments length polymorphism) and SSCP (single stranded conformation polymorphism). Genetic engineering: clones and cloning; GMOs. Laboratory work: DNA cleavage with restriction enzyme. Gel electrophoresis of restriction fragments.</i></li> <li><i>4. DNA sequencing methods. Bases of bioinformatics. Laboratory work: practical use of online databases and tools in NCBI (National Centre for Biotechnology Information): GenBank, BLAST, OMIM, PubMed.</i></li> </ol>

**Recommended  
literature**

1. *Genomes, 2nd edition. Terence A Brown. Oxford: Wiley-Liss (free online access).*
  2. *Genetics and Molecular Biology. 2nd edition. Robert Schleif. The Johns Hopkins University Press Baltimore and London (free online access).*
  3. *BIOS Instant Notes in Genetics. Hugh Fletcher, Ivor Hickey. Routledge.*
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<b>Subject</b>	<b>STEROWANIE RUCHEM</b>
	<b>MOTOR CONTROL</b>
<b>Unit of AWF</b>	<b>Department Of Neurobiology/Zakład Neurobiologii</b>
<b>Teacher's name</b>	<b>Jan Celichowski, Prof., Piotr Krutki, Prof.</b>
<b>ECTS points</b>	<b>3</b>
<b>Number of hours</b>	
<b>Methods of estimation</b>	<ul style="list-style-type: none"> <li>- participation in laboratory demonstrations</li> <li>- final written test</li> </ul>
<b>Effects/results of education</b>	<p>At the end of this course, the candidate will be able to:</p> <ol style="list-style-type: none"> <li>1. Describe the basic structural components of the nervous system.</li> <li>2. Understand and describe basic mechanisms behind neuronal excitability, conduction, synaptic transmission, nerve coding.</li> <li>3. Understand and describe mechanisms of muscle contraction and control of movements.</li> <li>4. Describe role of basic experimental studies on the nervous system in physiotherapy.</li> </ol>
<b>Topics of the classes</b>	<p><i>This course is designed for physiotherapy students. Basic knowledge of biology is required.</i></p> <p><i>The program covers structure and functions of neurons and glia, cell communication, structure and functions of the central nervous system, neuro-muscular transmission, neurological basis of movement, motor units. Morphological and electrophysiological methods of nervous system studies will be presented, and their contribution to physiotherapy will be described.</i></p> <p><i>During the course students will:</i></p> <ul style="list-style-type: none"> <li>- analyze the microscopic structure and location of the different types of neurons</li> <li>- examine the microscopic and macroscopic structure of slice preparations from different regions of the central nervous system and determine the localization and role of the major nerve centers</li> <li>- observe the microscopic structure of the stained slices of muscle tissue and motor units fibers</li> <li>- observe computer models of the action potentials, and the postsynaptic potentials from the spinal cord neurons</li> <li>- demonstrate (on a computer model) the motor unit contractions</li> </ul>

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- record electromyographic activity of limb muscles
  - observe the physiological tremor in skeletal muscles
  - determine the force-frequency curve of the motor units

*Practical classes will be held at the electrophysiological and morphological laboratories, where students will be able to observe modern methods of studies on the nervous system.*

1. *A nerve cell. Electrophysiology of neurons.*
    - nerve cell structure, with main focus on the cell membrane
    - nerve cells types: classification on the basis of structure and function
    - cell excitability and excitation
    - action potential and nerve conductance
    - glial cells; structure of myelin sheath
    - synapses: types and structure
    - mechanisms of synaptic transmission
    - synaptic delay and neurotransmitters
    - postsynaptic excitatory and inhibitory potentials
    - spatial and temporal summation
    - presynaptic inhibition and facilitation
    - electrical synapses
    - convergence and divergence
    - neuronal code
  2. *Morphological and electrophysiological methods of experimental studies on the nervous system.*
    - enzymatic and fluorescent markers for determining the connections within the nervous system
    - microscopic analysis of marker injection place and identification of labeled cells in the brain stem
    - extracellular and intracellular recordings of nerve cell action potentials and postsynaptic potentials
    - electrophysiological studies on motoneuron properties
    - patch-clamp, and voltage-clamp
  3. *Morphology and function of the central nervous system.*
    - the spinal cord structure and functions
    - autonomic centers within the spinal cord
    - major ascending (sensory) and descending (motor) tracts of the spinal cord
    - the brain stem structure and functions
    - cranial nerves, their motor, sensory and autonomic nuclei
    - reticular formation of the brain stem
    - the cerebellum - macro and microscopic structure
    - cerebellar inputs and outputs (control of movement and posture)
    - motor disorders in cerebellar disorders
    - the thalamus: general structure and function
    - microscopic structure of the cerebral cortex
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- *motor programming*
  - *location and role of telencephalic nuclei*
  - *associative cortical areas and higher brain functions*
  - 4. *Muscle fibers and motor units.*
    - *muscle fiber morphology, ultrastructure and diversity*
    - *molecular mechanisms of muscle contraction*
    - *types of muscle contraction*
    - *motoneurons and the neuromuscular junction*
    - *types of muscle fibers*
    - *the motor plate*
    - *definition of a motor unit*
    - *characteristics of different types of motor units*
    - *the fatigue test*
    - *recruitment and derecruitment of motor units*
    - *rate coding during muscle contractions*
    - *characteristics of human motor units*
    - *principles of electromyography*
    - *normal and pathological EMG recording*
    - *physiological tremor*
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**Recommended  
literature**

1. *Kandel Eric, Schwartz James, Jessell Thomas (eds.) Principles of Neural Science ISBN-10: 0071390111 | ISBN-13: 978-0071390118*
2. *Pfaff Donald W. (ed.) Neuroscience in the 21<sup>st</sup> century. From Basic to clinical. ISBN 978-1-4614-1998-3*
3. *Bear MF, Connors BW, Paradiso MA. Neuroscience, exploring the brain. ISBN-10: 0781760038 | ISBN-13: 978-0781760034*
4. *Felten David L. and Shetty Anil N. Netter's Atlas of Neuroscience, 2nd Edition with STUDENT CONSULT. ISBN-10: 1416054189 | ISBN-13: 978-1416054184*

<b>Subject</b>	<b>HISTOLOGIA</b> <b>HISTOLOGY</b>
<b>Unit of AWF</b>	<b>Department of Biology and Environmental Protection/ Zakład Biologii i Ochrony Środowiska</b>
<b>Teacher's name</b>	<b>Hanna Mizgajska-Wiktor, Prof.</b>
<b>ECTS points</b>	<b>3</b>
<b>Number of hours</b>	<b>15</b>
<b>Methods of estimation</b>	Exam format: The test with some multiple choice, and matching.
<b>Effects/results of education</b>	<p><i>At the end of the course student will be able to:</i></p> <p><i>Cognitive:</i></p> <ol style="list-style-type: none"> <li><i>1. Describe the microscopic structure of human tissues –their morphological differentiation in relation to the function and location</i></li> <li><i>2. Describe the possibility of regeneration of individual tissues</i></li> <li><i>3. Describe the role of different types of tissues in structural and functional integrity of human body</i></li> </ol>
<b>Topics of the classes</b>	<ol style="list-style-type: none"> <li><i>1. Introduction and cell – microscopy.</i></li> <li><i>2. The structure, functions and regeneration of different types of epithelial tissues. Types of intercellular connections.</i></li> <li><i>3. The structure, functions and regeneration of different types of connective tissues, specific structure and role of adipose tissue.</i></li> <li><i>4. The structure, functions and regeneration of different types of cartilaginous tissues and bone tissues; the role of perichondrium and periosteum.</i></li> <li><i>5. Blood and lymph: characteristic of plasma and morphological elements: number and structure of erythrocytes – the role of hemoglobin in transport of oxygen, number and structure and functions of leucocytes (lymphocytes, monocytes and granulocytes), immunological role of lymphocytes, number structure and functions thrombocytes. The role of blood and lymph.</i></li> <li><i>6. The structure, functions and regeneration smooth, striated muscle, myocardial fibre</i></li> <li><i>7. The structure, functions and regeneration of nerves tissue in different part of nervous system; reflexes – conditioned and unconditioned, bisynaptic reflex arc.</i></li> </ol> <p><i>This course is designed for physiotherapy students who should have a basic knowledge about the tissues of human body. The program covers</i></p>

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*structure, function, location and regeneration of: epithelium, connective tissue (specific, cartilage and bone), blood and lymph, muscle tissue, nervous tissue.*

*During individual work with microscope in lab students will analyze the structure of all human tissues including: flat, cylindrical, cuboid and transient epithelium, fibrous tissue, areolar tissue, hyaline cartilage, elastic cartilage, fibrocartilage, spongy bone, compact bone, blood cells: leucocytes and erythrocytes, smooth fibre, striated muscle fibre, myocardial fibre, different shape of neurons.*

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**Recommended literature**

- 1. Netter's Essential Histology, 2nd ed. Ovalle WK and Nahirney PC. Saunders, Elsevier.*
  - 2. Inderbir Singh's Textbook of Human Histology With Colour Atlas and Practical Guide. Neelam Vasudeva , Sabita Mishra. Jaypee B.M.P. New Delhi.*
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<b>Subject</b>	<b>TANIEC NA WÓZKACH</b>
	<b>WHEELCHAIR DANCE</b>
<b>Unit of AWF</b>	<b>Departament of Gymnastics and Dance/ Katedra Tańca i Gimnastyki</b>
<b>Teacher's name</b>	<b>Przemysław Kwarta, PhD</b>
<b>ECTS points</b>	<b>3</b>
<b>Number of hours</b>	<b>15</b>
<b>Methods of estimation</b>	<ol style="list-style-type: none"> <li>1. <i>Performing rhythmic exercises</i></li> <li>2. <i>Performing choreographies with the rhythm, technique and character of the wheelchair dance in tandem with the student dancing in a standing position</i></li> <li>3. <i>Performing choreographies with the rhythm, technique and character of the student dancing in standing position in tandem with the student dancing on a wheelchair.</i></li> <li>4. <i>Performing choreographies with the rhythm, technique and character of the wheelchair dance in tandem with the student dance accompanied by a student dancing on a wheelchair.</i></li> </ol>
<b>Effects/results of education</b>	<ol style="list-style-type: none"> <li>1. <i>After the course the student will be able to move rhythmically on the wheelchair according to the meter and the phrases of the music.</i></li> <li>2. <i>After the course the student will be able to dance in a wheelchair with a partner of selected folk and ballroom dancing.</i></li> <li>3. <i>After the course the student will be able to dance in a standing position with a wheelchair partner selected folk and ballroom dancing.</i></li> <li>4. <i>After the course the student will be able to dance in a wheelchair with a wheelchair partner selected folk and ballroom dancing.</i></li> </ol>
<b>Topics of the classes</b>	<ol style="list-style-type: none"> <li>1. <i>Rhythmic exercises</i></li> <li>2. <i>Teaching selected folk dances (combi dance, duo dance)</i></li> <li>3. <i>Teaching selected social dances (combi dance, duo dance)</i></li> <li>4. <i>Teaching modern movement forms (duo dance)</i></li> </ol>

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**Literature**

1. Rogers A. (12 November 2001). "Wheelchair Dancing". *ExploreDance.com*. Retrieved 6 November 2011.
2. Goldberg K. (21 June 2011). "Wheelchair Dancing Is On A Roll". *KPBS*. Retrieved 6 November 2011.
3. Buck C. (29 January 2008). "UD to offer nation's first wheelchair dance course". *UDaily*. University of Delaware. Retrieved 30 October 2011.
4. Boswell B. 1989. *Dance as creative expression for disabled*. *Palaestra*, 6(5), s. 28-34
5. De Hullu O. 2002. *Wheelchair dancing in Netherlands*. Amsterdam
6. Karkou V., Sanderson P. 2001. *Dance movement therapy in the UK: a field emergning from dance education*. *European Physical Education Review* [1356-336x(200106)7;2] Volume 7(2); 137-155:017299. Londyn