



AKADEMIA WYCHOWANIA FIZYCZNEGO
IM. EUGENIUSZA PIASECKIEGO W POZNANIU

DEPARTMENT: PHYSICAL EDUCATION

DEPARTMENT: SPORT

the list of subjects for ERASMUS+ incoming students



DEPARTMENT OF PHYSICAL EDUCATION, SPORT
LIST OF SUBJECTS FOR WINTER SEMESTER 2023/2024

No.	SUBJECT	HOURS/ ECTS	FORM OF PASSING
01-WF-1-ER-01	Theory and Methodology of Sports (Teoria i Metodyka Treningu Sportowego)	20/5	Pass
01-WF-1-ER-02	Didactics of Teaching and Learning Physical Education (Dydaktyka Wychowania Fizycznego)	20/5	Pass
01-WF-1-ER-03	Multicultural Games in Practice (Gry Różnych Kultur - Zajęcia Praktyczne)	20/5	Pass
01-WF-1-ER-04	Olympic Studies in Physical and Sport Education, (Olimpizm w Wychowaniu Fizycznym i Sporcie)	20/5	Pass
01-WF-1-ER-05	Recreational Sport and Wellness in the Life and Prevention of Civilization Diseases (Sport Rekreacyjny i Wellness w Życiu oraz Profilaktyce Chorób Cywilizacyjnych)	20/5	Pass
01-WF-1-ER-06	Motor Control (Sterowanie Ruchem)	20/5	Pass
01-WF-1-ER-07	Didactics of Sport (Dydaktyka Sportu)	15/4	Pass
01-WF-1-ER-08	Exercise Physiology (Fizjologia Wysiłkowa)	15/4	Exam
01-WF-1-ER-09	Pedagogy (Pedagogika)	15/4	Pass
01-WF-1-ER-10	General Physiology (Fizjologia Ogólna)	15/4	Exam
01-WF-1-ER-13	English (Język Angielski)	15/4	Pass
01-WF-1-ER-14	Volleyball (Piłka Siatkowa)	15/4	Pass
01-WF-1-ER-15	Handball (Piłka Ręczna)	15/4	Pass
01-WF-1-ER-16	Team games (Zabawy i Gry Drużynowe)	20/5	Pass

01-WF-1-ER-17	First Aid (Pierwsza Pomoc Przedmedyczna)	15/4	Pass
01-WF-1-ER-19	Climbing (Wspinaczka)	15/4	Pass
01-WF-1-ER-20	Kids and Youth Sport (an introduction to the bio-banding concept based on the individualization of biological development and optimization of the training proces) Sport Dzieci i Młodzieży (wprowadzenie do koncepcji bio-banding w oparciu o indywidualizację rozwoju biologicznego i optymalizację procesu treningowego)	15/4	Work
01-T-1-ER-12	Dance Therapy Elements - introduction (Elementy Terapii Tańcem - wprowadzenie)	15/4	Pass
01-T-1-ER-03	Improvisation (Improwizacja)	15/4	Pass
01-T-1-ER-01	Contemporary Dance (Taniec Współczesny)	15/4	Pass
01-T-1-ER-11	Art Therapy Workshop (Elementy Arteterapii)	15/4	Pass
01-T-1-ER-13	Yoga (Joga)	15/4	Pass
01-WF-1-ER-11	Digital Technologies in Physical Activity (Cyfrowe Technologie w Aktywności Fizycznej)	15/4	Pass
01-WF-1-ER-12	Digital Technologies in Diagnostics And Biomonitoring in Sport (Cyfrowe Technologie w Diagnostyce i Biomonitoringu w Sporcie)	15/4	Pass
01-WF-1-ER-35	The Fundamentals of Olympic Weightlifting (Podstawy Podnoszenia Ciężarów)	20/5	Pass

LIST OF SUBJECTS FOR SUMMER SEMESTER 2023/2024

No.	SUBJECT	HOURS/ ECTS	FORM OF PASSING
01-WF-1-ER-01	Theory and Methodology of Sports (Teoria i Metodyka Treningu Sportowego)	20/5	Pass
01-WF-1-ER-02	Didactics of Teaching and Learning Physical Education (Dydaktyka Wychowania Fizycznego)	20/5	Pass
01-WF-1-ER-22	Teaching Physical Games and Activities (Zabawy i Gry Ruchowe)	20/5	Pass
01-WF-1-ER-05	Recreational Sport and Wellness in the Life and Prevention of Civilization Diseases (Sport Rekreacyjny i Wellness w Życiu oraz Profilaktyce Chorób Cywilizacyjnych)	20/5	Pass
01-WF-1-ER-06	Motor Control (Sterowanie Ruchem)	20/5	Pass
01-WF-1-ER-23	The Personality Disorders and Interpersonal Relations (Zaburzenia Osobowości a Relacje Interpersonalne)	20/5	Pass
01-WF-1-ER-08	Exercise Physiology (Fizjologia Wysiłkowa)	15/4	Exam
01-WF-1-ER-25	Enviromental Physiology (Fizjologia Środowiskowa)	15/4	Exam
01-WF-1-ER-26	Health Education (Wychowanie Zdrowotne)	15/4	Exam
01-WF-1-ER-27	Sports Nutrition (Żywnienie w Sporcie)	15/4	Exam
01-WF-1-ER-28	Biomechanics (Biomechanika)	15/4	Exam
01-WF-1--ER-13	English (Język angielski)	15/4	Pass
01-WF-1-ER-29	Swimming and Water Lifesaving (Pływanie i Ratownictwo Wodne)	15/4	Pass
01-WF-1-ER-30	Basketball (Koszykówka)	15/4	Pass

01-WF-1-ER-31	Field Hockey (Hokej na Trawie)	15/4	Pass
01-WF-1-ER-32	Tennis (Tenis)	15/4	Pass
01-WF-1-ER-34	Climbing (Wspinaczka)	15/4	Pass
01-WF-1-ER-20	Kids and Youth Sport (an introduction to the bio-banding concept based on the individualization of biological development and optimization of the training proces) Sport Dzieci i Młodzieży (wprowadzenie do koncepcji bio-banding w oparciu o indywidualizację rozwoju biologicznego i optymalizację procesu treningowego)	15/4	Work
01-WF-1-ER-21	Methodology of Teaching Basic Swimming for Children with Elements of Halliwick Method (Metodyka Nauczania Pływania Podstawowego z Elementami Terapii Wodnej Halliwick)	15/4	Pass
01-T-1-ER-12	Dance Therapy Elements - introduction (Elementy Terapii Tańcem - wprowadzenie)	15/4	Pass
01-T-1-ER-03	Improvisation (Improwizacja)	15/4	Pass
01-T-1-ER-01	Contemporary Dance (Taniec Współczesny)	15/4	Pass
01-T-1-ER-11	Art Therapy Workshop (Elementy Arteterapii)	15/4	Pass
01-T-1-ER-13	Yoga (Joga)	15/4	Pass
01-WF-1-ER-11	Digital Technologies in Physical Activity (Cyfrowe Technologie w Aktywności Fizycznej)	15/4	Pass
01-WF-1-ER-12	Digital Technologies in Diagnostics And Biomonitoring in Sport (Cyfrowe Technologie w Diagnostyce i Biomonitoringu w Sporcie)	15/4	Pass
01-WF-1-ER-35	The Fundamentals of Olympic Weightlifting (Podstawy Podnoszenia Ciężarów)	20/5	Pass
01-WF-1-ER-36	Cognition & Exercise (Ćwicz i Myśl)	15/4	Pass

01-WF-1-ER-37	Gymnastics for the Elderly (Gimnastyka Senioralna)	15/4	Pass
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***Students participate in costs of those classes, ski clothing required.**

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.

Subject	TEORIA I METODYKA TRENINGU SPORTOWEGO
	THEORY AND METHODOLOGY OF SPORTS (SPORTS SCIENCE)
Unit of AWF	Department of the Theory of Sport / Zakład Teorii Sportu
Teacher's name	Jan M. Konarski, Ass. Prof., Jarosław Janowski PhD Krzysztof Karpowicz PhD
ECTS points	5
Number of hours	20
Methods of estimation	<i>Credit on the base of short resuming test, presentation of own project about chosen subject and personal, positive activity during meetings and exercises.</i>
Effects/results of education	<i>Student has an organized knowledge of the planning and implementation of sports training. He knows and understands basic methodological skills related to teaching and improving various types of training. He is able to prepare and execute a part or all of the training process independently in the context of the staged and major goals of the athlete's development.</i>
Topics of the classes	<ol style="list-style-type: none"> 1. Training – meaning, definitions, principles. 2. Long term athlete development – development of physical abilities and skills in training process taking into consideration needs of sport's ontogenesis. 3. Theory and methodology of preparation basic condition (endurance, strength, speed, coordination). 4. Issues concerning technical and tactical preparation of athletes. 5. System of training's control and assessment. 6. Designing and realization of training to chosen sport's disciplines. 7. Periodization of training. 8. Elements of sport coaching. 9. Using advanced technology to training and competition monitoring. 10. Prevention of injuries and overtraining. 11. Psycho-biological regeneration / recovery methods.

**Recommended
literature**

1. 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.
 2. Bompa T. O. , Haff B. (2009) *Periodization: theory and methodology of training*. 5th ed. Human Kinetics.
 3. Eston R., Reilly T. (2009) *Kinanthropometry and exercise physiology laboratory manual*. Routledge. Taylor and Francis Group.
 4. Foran B. (2001) *High-performance sports conditioning. Modern training for ultimate athletic development*. Humn Kinetics.
 5. Malina, RM, Bourchard, C, and Bar-Or, O. (2004) *Growth, maturation, and physical activity*. Champaign, IL: Human Kinetics.
 6. Martens R. (2004) *Successful coaching. America's best-selling coach's guide*. Human Kinetics.
 7. Sharkey, B. & Gaskill, S. (2006). *Sport physiology for coaches*. Champaign, IL: Human Kinetics.
 8. Wilmore JH., Costill DL. (1994) *Physiology of sport and exercise*. ChampaignIL: Human Kinetics.
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Subject	DYDAKTYKA WYCHOWANIA FIZYCZNEGO
	DIDACTICS OF TEACHING AND LEARNING PHYSICAL EDUCATION
Unit of AWF	Department of Didactics of Physical Activity/ Zakład Dydaktyki Aktywności Fizycznej
Teacher's name	Michał Bronikowski, Ass. Prof. (Head of Department)
ECTS points	5
Number of hours	20-hour lecture course and 10-hour of practical skills workshops
Methods of estimation	<i>Requirements for this course are: class participation and a single lesson plan. The final assessment is done through preparation of a PE lesson plan and a written test.</i>
Effects/results of education	<i>Subject deals with theoretical frameworks (models of teaching) and practical approaches (methods, teaching styles, organization of the teaching and learning process) to main issues in physical education concerning both the process and the interaction between the PE teacher and pupils in school and out-of-school environment. It prepares students to working as teachers of physical education at all levels of education using extensively media for didactic purpose (didactic films and examples of workshop skills in practice). Students also learn about the differences in teaching physical education in various European countries and a teaching career pathways.</i>
Topics of the classes	<ol style="list-style-type: none"> 1. Sport pedagogy and didactics 2. Methodology of teaching physical education – what is it? 3. Physical education teaching – “state of art” 4. Health-related physical education 5. Direct or indirect teaching? 6. Teaching values in physical education - Are we facing a crisis of education (and values)? 7. Can Olympic Education be among the pacemakers? 8. A modern PE teacher (and difference to a Youth Sport Coach) 9. What makes the difference between teaching physical education and coaching sport? 10. A physical education lesson vs. a sport lesson 11. A review of teaching models in physical education 12. Developing teaching schemes, units and a single PE lesson 13. Teaching methods and styles 14. Safety or fun physical education? 15. Recommendations for teaching physical education 16-24 Practice in physical education

**Recommended
literature**

1. Bronikowski M. (2014). *Where is Physical and Health Education heading in Poland*. In: Chin MK and Edginton R. (eds.) *Physical Education and Health. Global Perspective and Best Practice*. Sagemore Publishing, pp. 369-383.
2. Bronikowski M. (2017). *Physical activity and Health*. In: Knisel E. at el. (eds.) *Health promotion at schools. Pedagogical aspects and practical implications*. De Gruyter Open, pp. 33-45.
3. Bronikowski M., Bronikowska M., Kantanista A. (2012). *Teaching games from the cultural, social and sporting perspective*. AWF Poznań.
4. Bronikowski M. (2010). *Physical education teaching and learning*. AWF Poznań.
5. Bronikowski M., Bronikowska M., Kantanista A., Ciekot M., Laudańska-Krzemińska I., Szwed Sz. (2009). *Health-related intensity profiles of Physical Education classes at different phases of the teaching/learning process*. *Biomedical Human Kinetics*, 1, 86-91.
6. Bronikowski M., González-Gross M, Kleiner K., Knisel K., Martinková I., Stache A., Kantanista A., Cañada Lòpez D., Konlechner A., (2008). *Physical activity, obesity and health programs in selected European countries*. *Studies in Physical Culture and Tourism*, 15,(1):9-18.
7. Bronikowski, M., Biniakiewicz, B., Mroczkowska, M., Grześkowiak, E. (2006). *Conflictive behaviours during physical education classes in Poland*, *Wychowanie Fizyczne i Sport*, 50,(4):255-259.
8. Capel S. (2005). *Learning to teach physical education in the Secondary School. A companion to School Experience*. RoutledgeFalmer. London.
9. Hellison D. (1985). *Goals and strategies for teaching physical education*. *Human Kinetics*, II.
10. Hellison D. (2003). *Teaching responsibility through physical activity*. *Human Kinetics*, II.
11. Mohnsen B.S. (2008). *Teaching middle school physical education*. *Human Kinetics*, II.
12. Mosston M., Ashworth S. (1994). *Teaching physical education*. MacMillan College, New York.
13. Naul R. (2008). *Olympic Education*. Meyer and Meyer Sport Publishers, UK.
14. Penney D., Chandler T. (2000). *Physical Education: What future (s)?*, *Sport, Education and Society*, 5,(1):71-87.
15. Rovegno, I. (1994). *Teaching within a curricular zone of safety: school culture and the situated nature of student teachers' pedagogical content knowledge*, *Research Quarterly for Exercise and Sport*, 65(3):269-279.

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16. Salvara, M.I., Jess, M., Abbott, A., Bognar, J. (2006). *A preliminary study to investigate influence of different teaching styles on pupils' goal orientations in physical education*, *European Physical Education Review*, 12,(1):51-74.
 17. Schmidt, R.A. (1988). *Motor control and learning: A behavioral emphasis*, USA, Human Kinetics Publishers.
 18. Shields D.L., Bredemeier B.J.L. (1995). *Character development and physical activity*. Human Kinetics. USA.
 19. Siedentop D. (1989). *Developing teaching skills in Physical Education*. 3rd Edition, Mayfield Pub.Co, California.
Siedentop D. (1998). *What is sport education and how does it work*. *Journal of Physical Education, Recreation and Dance*, 69, (4):18-20.

Subject	MULTICULTURAL GAMES IN PRACTICE
	GRY RÓŻNYCH KULTUR - ZAJĘCIA PRAKTYCZNE
Unit of AWF	Department of Recreation/ Zakład Metodyki Rekreacji
Teacher's name	Małgorzata Bronikowska, Ass. Prof.
ECTS points	5
Number of hours	20
Methods of estimation	<i>Theoretical test of Ethnology of Sport (after 15 hours) and practical passing (after 10 hours training)</i>
Effects/results of education	<p><i>After the course students should know:</i></p> <ol style="list-style-type: none"> <i>1. Definition of Ethnology of Sport; TSG</i> <i>2. Classification of TSG and main Play theorists (academics)</i> <i>3. The main aims of TSG with main organizations (on local and international levels)</i> <i>4. Local/national/international Events based on TSG</i> <i>5. They own cultural heritage in the context of TSG</i> <i>6. The multicultural and divers context of TSG</i> <i>7. How to use and provide TSG in PE classes and other physical activities programmes.</i>
Topics of the classes	<ol style="list-style-type: none"> <i>1. Introduction to Ethnology of Sport (2 H)</i> <i>2. TSG as a play phenomenon (2 H)</i> <i>3. TSG as a heritage of Physical Culture (examples) (2 H)</i> <i>4. Institutions and programmes undertaking TSG in different contexts (2 H)</i> <i>5. PP Presentations of selected TSG in students' regions (6 H)</i> <i>6. Theoretical test passing (1H)</i> <i>7. Work shop with selected Polish games (5 H)</i> <i>8. TSG proposal from students' regions (prepared by students) (5H).</i>
Recommended literature	<ol style="list-style-type: none"> <i>1. Lipoński, World Sport Encyclopedia, Atena, Poznań, 2004.</i> <i>2. Bronikowska M., Recall Games of the Past-Sports for Today, TAFISA 2015.</i> <i>Blanchard K., The Anthropology of Sport, Bergin and Garvey, Westport, Connecticut – London 1995.</i> <i>Gomme A.B., The Traditional Games of England, Scotland and Ireland, vol.1, vol.2, David Nutt, London 1894.</i>

Subject	OLIMPIZM Z EDUKACJĄ OLIMPIJSKĄ
	OLYMPISM AND OLYMPIC EDUCATION
Unit of AWF	Department of Recreation/ Zakład Metodyki Rekreacji
Teacher's name	Małgorzata Bronikowska, Ass. Prof.
ECTS points	5
Number of hours	20
Methods of estimation	<i>Theoretical test of Olympizm (after 15 hours) and passing (after 10 hours of practice training)</i>
Effects/results of education	<p><i>After the course students should know:</i></p> <ol style="list-style-type: none"> <i>1. Definition of Olympizm and Olympic Education</i> <i>2. Recognition of Olympiad and Olympic Games</i> <i>3. History and roots of Olympics (from ancient to the current time)</i> <i>4. Inception of neo-Olympizm and Olympic Movement</i> <i>5. What is International Olympic Committee (IOC)</i> <i>6. How National Olympic Committees (NOCs) works?</i> <i>7. How to use and provide Olympic Education in PE classes and sports clubs.</i>
Topics of the classes	<ol style="list-style-type: none"> <i>1. Introduction to Olympizm and Olympic Education (2H)</i> <i>2. What is Olympiad and what we mean by Olympic Games?(2H)</i> <i>3. Olympics during ancient time.(2H)</i> <i>4. Revival attempts of Olympics in modern time (2H)</i> <i>5. History/evolution and structure of International Olympic Committee (IOC) (1H)</i> <i>6. History/evolution and structure of National Olympic Committees (NOCs) (2 H)</i> <i>7. Theoretical test (1H)</i> <i>8. Olympic Education in PE classes and sports clubs – workshops (13).</i>
Recommended literature	<ol style="list-style-type: none"> <i>1. Naul R., Olympic Education, London and New York : Routledge Taylor & Francis Group, 2010.</i> <i>2. Naul R., Binder D., Rychtecký A., Culpan I. (ed.), Olympic Education. An International Review. Part 3, London and New York : Routledge Taylor & Francis Group, 2017.</i> <i>3. Miller D., History of IOC and Olympic Games from Athens to Beijing - 1894-2008. Wydawnictwo REBIS, Poznań 2008.</i> <i>4. Olympic Review (czasopismo anglojęzyczne, dostępne w czytelní biblioteki AWF).</i> <i>5. www.ioc.com (poszczególne zakładki potrzebne do opracowania tematyki, j. ang./j.fr.)</i>

Subject	SPORT REKREACYJNY I WELLNESS W ŻYCIU ORAZ PROFILAKTYCE CHORÓB CYWILIZACYJNYCH
	RECREATIONAL SPORT AND WELLNESS IN THE LIFE AND PREVENTION OF CIVILIZATION DISEASE
Unit of AWF	Department of the Theory of Sport / Zakład Teorii Sportu
Teacher's name	Jan M. Konarski, Ass. Prof.
ECTS points	5
Number of hours	20
Methods of estimation	<i>Credit on the base of presentation and realization of own project, Personal, positive activity during meetings and exercises</i>
Effects/results of education	<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>
Topics of the classes	<ol style="list-style-type: none"> 1. Wellness characteristics of meaning and applications in life and civilization disease 2. Role of recreational sports in present society 3. Program preparation to selected forms of recreational sports and wellness 4. Place of recreational sports and wellness in European and Worldwide health prevention programs 5. Methodological base and technics of yoga as whole lifetime system of health prevention 6. Body-mind system psycho-somatic refresh of contemporary human 7. Familiarize with reaction of own body in situation of stress and relaxation by educational kinesiology integration dance 8. Application of different movements forms of integration in the group 9. Designing of parkour and selecting of exercise depending on kind and aims of exercise participants 10. Using of untypical equipment during preparation and realization of recreational sports and kind of groups 11. Modification and adaptation popular kinds of recreational sports to needs and abilities of participants, and environment 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

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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. 5th 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

Subject	STEROWANIE RUCHEM
	MOTOR CONTROL
Unit of AWF	Zakład Neurobiologii / Department of Neurobiology
Teacher's name	Jan Celichowski, Prof. Piotr Krutki, Prof. Włodzimierz Mrówczyński, Ass. Prof.
ECTS points	5
Number of hours	20
Methods of estimation	- <i>participation in laboratory demonstrations</i> - <i>final written test</i>
Effects/results of education	<p><i>At the end of this course, the candidate will be able to:</i></p> <ol style="list-style-type: none"> <i>1. Describe the basic structural components of the nervous system.</i> <i>2. Understand and describe basic mechanisms behind neuronal excitability, conduction, synaptic transmission, nerve coding.</i> <i>3. Understand and describe mechanisms of muscle contraction and control of movements.</i> <i>4. Describe role of basic experimental studies on the nervous system in physiotherapy.</i>
Topics of the classes	<p><i>This course is designed for students of: physiotherapy and physical education .</i></p> <p><i>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 and sport science will be described.</i></p> <p><i>During the course students will:</i></p> <ul style="list-style-type: none"> <i>- analyze the microscopic structure and location of the different types of neurons</i> <i>- 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</i> <i>- observe the microscopic structure of the stained slices of muscle tissue and motor units fibers</i> <i>- observe computer recordings of the action potentials, and the postsynaptic potentials from the spinal cord neurons</i> <i>- demonstrate (on a computer recordings) the motor unit contractions</i> <i>- record electromyographic activity of limb muscles</i>

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- 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
 - motor programming
 - location and role of telencephalic nuclei
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- *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 decruitment 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. *J.A. Zoladz. Muscle and exercise physiology. Academic Press, 2019. ISBN 978-0-12-814593-7*
2. *Kandel Eric, Schwartz James, Jessell Thomas (eds.) Principles of Neural Science ISBN-10: 0071390111 | ISBN-13: 978-0071390118*
3. *Pfaff Donald W. (ed.) Neuroscience in the 21st century. From Basic to clinical. ISBN 978-1-4614-1998-3*
4. *Bear MF, Connors BW, Paradiso MA. Neuroscience, exploring the brain. ISBN-10: 0781760038 | ISBN-13: 978-0781760034*
5. *Felten David L. and Shetty Anil N. Netter's Atlas of Neuroscience, 2nd Edition with STUDENT CONSULT. ISBN-10: 1416054189 | ISBN-13: 978-1416054184*

Subject	DIDACTICS OF SPORT
	DYDAKTYKA SPORTU
Unit of AWF	Department of Didactics of Physical Activity/ Zakład Dydaktyki Aktywności Fizycznej
Teacher's name	Michał Bronikowski, Ass. Prof
ECTS	4
Number of hours	15
Methods of estimation	<i>Requirements for this course are: class participation and a single training session plan. The final assessment is done through an exam paper.</i>
Effects/results of education	<i>The course is preparing students of sport major for challenges of modern training process. Subject deals with theoretical frameworks (models of trainings) and practical approaches (methods, training styles, organization of the didactics of training process) to main problems concerning both the process and the interaction between a Sport coach and his/her athletes on a team or in individual. It also discusses problems of young sports pupils in education setting and the role of parenting and support. It prepares students to working as school sport coaches at any levels of education and youth sport clubs. In the classes students also use various media for didactic purposes (didactic films and examples of workshop skills in training practice). Students also learn about the differences in basics of training systems in Poland in terms of didactic approaches (indirect and direct training approach).</i>
Topics of the classes	<ol style="list-style-type: none"> 1. What is teaching/learning/training process? (2 hours) 2. Didactics of in youth sport training (2 hours) 3. Basic organizational aspects of the training process (2 hours) 4. Youth coach and young athlete interaction process in and out of the training (2 hours) 5. Controlling young athletes development (education, sport, life) (2 hours) 6. Looking for talented youth (2 hours) 7. Planning a single training session – rules, scenarios, safety. (2 hours) 8. Individualization of needs in the training process of children and youth (1 hour).
Recommended literature	<p>Bronikowski M., Kantanista A., Glapa A. (2014). Wychowanie Fizyczne – praca z uczniem zdolnym. ORE, Warszawa.</p> <p>Bronikowski M. Bronikowska M., Kantanista A. (2012). Teaching games from the cultural, social and sporting perspective. AWF Poznań.</p>

Bronikowska M., Laurent JF. (2015). *Recall: Games of the Past – Sports for Today*. TAFISA www.recallgames.com

Hellison D. (2003). *Teaching responsibility through physical activity*. Human Kinetics, IL.

Huizinga H. (1955) *Homo Ludens: A study of the play element in culture*. Boston: The Beacon Press.

Physical Education for Lifelong fitness: The Physical Best teachers' guide (1999) Human Kinetics, IL.

Lavin J&Levin J (2008) *Creative approaches to teaching physical education. Helping children achieve their true potential*. Routledge, London/New York., p.12]

Mohnsen B.S. (2008). *Teaching middle school physical education*. Human Kinetics, IL.

Mosston M., Ashworth S. (1994). *Teaching physical education*. MacMillan College, New York.

Piaget J. (1962) *Play, Dreams and Imitation in childhood*. D. Cattegno and F.M. Hodgson, trans. New York, W.W.Northon&Company, Inc.

Shields D.L., Bredemeier B.J.L. (1995). *Character development and physical activity*. Human Kinetics. USA.

Silva MJ, Figueiredo AJ., Elferink-Gemser MT., Malina RM. (2016). *Youth Sports. Participation, trainability and readiness*. Combria Univeristy Press.

Subject	FIZIOLOGIA WYSIŁKOWA
	EXERCISE PHYSIOLOGY
Unit of AWF	Department of Athletics, Strength and Conditioning/ Zakład Lekkiej Atletyki i Przygotowania Motorycznego
Teacher's name	Barbara Pospieszna, PhD
ECTS	4
Number of hours	15
Methods of estimation	<i>active participation in classes, exam</i>
Effects/results of education	<p><i>Students will learn:</i></p> <ul style="list-style-type: none"> <i>- how human body functions under different exercise stimulation</i> <i>- what underlies the efficient training strategy</i> <i>- about the health benefits of exercise</i> <i>- how to estimate physical tolerance and physical capacity at different age and physical level</i>
Topics of the classes	<ol style="list-style-type: none"> <i>1. Main systems functioning under exercise conditions:</i> <ul style="list-style-type: none"> <i>- blood and acid-base balance</i> <i>- cardiovascular system</i> <i>- respiratory system</i> <i>2. The health benefits of exercise, exercise prescription</i> <i>3. Direct and indirect methods of estimating physical tolerance and physical capacity (aerobic, anaerobic)</i>
Recommended literature	<p><i>Bouchard C., Blair S.N., Haskell W.: Physical Activity and Health. Human kinetics 2012.</i></p> <p><i>Hargreaves M., Spriet L. Exercise Metabolism. Human kinetics 2006.</i></p> <p><i>Hoffman J. Physiological Aspects of Sport Training and Performance. Human kinetics 2014.</i></p> <p><i>Kenney W.L., Wilmore J., Costill D. 6E.: Physiology of Sport and Exercise. Human kinetics 2015.</i></p> <p><i>Richardson S., Andersen M., Morris T. Overtraining Athletes. Human kinetics 2008.</i></p> <p><i>Taylor A., Johnson M. Physiology of Exercise and Healthy Aging. Human kinetics 2008.</i></p>

Subject	PEDAGOGIKA
	PEDAGOGY
Unit of AWF	Department of Pedagogy / Zakład Pedagogiki
Teacher's name	Beata Nowak, PhD
ECTS points	4
Number of hours	15
Methods of estimation	<i>discussions, referencing students experience, working in a team</i>
Effects/results of education	<p><i>Knowledge - Student knows and characterizes the basic concept of teaching.</i></p> <p><i>Skills - Uses the acquired theoretical knowledge, analyses, interprets and proposes solutions to educational situations.</i></p> <p><i>Social competences - Accepts and is convinced of the sense of values and the need to take action in the social and environment teaching can offer.</i></p>
Topics of the classes	<ol style="list-style-type: none"> <i>1. Systems of education (Polish, selected countries).</i> <i>2. Research methods, techniques and tools used in pedagogical science.</i> <i>3. Physical education in comprehensive education and the functions of contemporary Polish, selected countries families .</i> <i>4. Moral education methods.</i> <i>5. Principles of education and educational methods and their practical utilization during the physical education lesson .</i> <i>6. Teaching styles and school-related and educational difficulties and failures</i> <i>7. Personality and competences of physical education teachers.</i>
Recommended literature	<i>Nowak B. (ed.) 2012, Selected elements of pedagogy for foreign students, Wyd. AWF Poznań.</i>

Subject	FIZJOLOGIA OGÓLNA
	GENERAL PHYSIOLOGY
Unit of AWF	Department of Athletics, Strength and Conditioning/ Zakład Lekkiej Atletyki i Przygotowania Motorycznego
Teacher's name	Barbara Pospieszna, PhD
ECTS points	4
Number of hours	15
Basic information about the subject	<p><i>Students will learn the basis of human physiology. Theoretical part is supported with practical aspects of physiology e.g. blood groups, HR, SV, BP measurement, pulmonary function tests etc.</i></p> <p><i>Students are encouraged to train their analytical approach to learning and working in groups.</i></p>
Topics of the classes	<ol style="list-style-type: none"> 1. <i>Blood</i> <ol style="list-style-type: none"> a. <i>Blood constituents (plasma, cells)</i> b. <i>Hemoglobin</i> c. <i>Blood functions</i> d. <i>Blood groups</i> 2. <i>Cardiovascular system</i> <ol style="list-style-type: none"> a. <i>Heart</i> b. <i>Vascular system</i> c. <i>Electrical conduction system of the heart</i> d. <i>Heart and blood flow control</i> e. <i>Main parameters: HR, SV, BP, CO</i> 3. <i>Respiratory system</i> <ol style="list-style-type: none"> a. <i>Stages of pulmonary ventilation</i> b. <i>Breathing regulation</i> c. <i>Vital Capacity, pulmonary volumes</i> d. <i>Minute lung ventilation (V_E), breathing frequency</i> e. <i>Pulmonary function tests</i> 4. <i>Muscles</i> <ol style="list-style-type: none"> a. <i>Structure of skeletal muscle</i> b. <i>Sarcomere</i> c. <i>Motor unit and muscle fibers types</i> d. <i>Neuromuscular junction</i> a. <i>Sliding filament theory</i>

Literature

Human Physiology 13th International Edition. Stuart Fox. 2012
Human Anatomy and Physiology. Katja Hoehn, Elaine N. Marieb. 2014
Human Physiology. Lauralee Sherwood. 2008.

Subject	JĘZYK ANGIELSKI
	ENGLISH
Unit of AWF	Foreign Language Center of AWF/ Zespół Nauczania Języków Obcych
Teacher's name	Eliza Malec, MA
ECTS	4
Number of hours	15
Methods of estimation	<ul style="list-style-type: none"> - <i>written: end of term test - vocabulary + open questions related to the topics discussed during the classes</i> - <i>oral: PowerPoint presentation - topic: 'A significant person/people - who inspires you?'</i>
Effects/results of education	<ul style="list-style-type: none"> - <i>development of communicative skills</i> - <i>vocabulary extension</i>
Topics of the classes	<ol style="list-style-type: none"> 1. <i>Today's bare necessities - things you cannot imagine your life without;</i> 2. <i>Bad habits & addictions – discussion of “innocent” bad habits & serious addictions – causes & results; caffeine – good or bad?</i> 3. <i>How to be a good guide? What are personal and professional qualities needed for this job? What are the guide's responsibilities?</i> 4. <i>What makes a sport champion? – factors which condition careers of the greatest athletes;</i> 5. <i>How to prepare for and run negotiations successfully - useful tips; role play.</i>
Recommended literature	<ol style="list-style-type: none"> 1. <i>Douglas, N., Reading Explorer 3, Heinle</i> 2. <i>MacAndrew, R, and Martinez, R., Instant Discussions, Thomson/Heinle</i> 3. <i>MacAndrew, R, and Martinez, R., Taboos and Issues, Thomson/Heinle</i> 4. <i>Gammidge, M., Speaking Extra, Cambridge UP</i> 5. <i>Internet articles & data</i>

Subject	PIŁKA SIATKOWA
	VOLLEYBALL
Unit of AWF	Unit of Theory and Methodology of Team Sport Games/ Zakład Teorii i Metodyki Zespołowych Gier Sportowych
Teacher's name	Małgorzata Anioł , PhD
ECTS	4
Number of hours	15
Methods of estimation	<i>Pass practical classes Participating in the course actively.</i>
Effects/results of education	<i>The aim of the subject is to educate students in methodology of movement teaching in volleyball. Student being able to use knowledge in practice.</i>
Topics of the classes	<ol style="list-style-type: none"> 1. Methodology and systematic of exercises in teaching ways of moving on the court and volleyball stance. 2. Methodology and systematic of exercises in teaching overhand passes in a high stance. Teaching forearm passes in a high stance. 3. Improving overhand and forearm passes in a high stance. 4. Methodology and systematic of exercises in teaching overhand serve. 5. Methodology and systematic of exercises in teaching a spike. 5. Methodology and systematic of exercises in teaching a blocks. 6. Organization of tournaments in "small games". 7. Test of practical skills.
Recommended literature	Provided by a teacher.

Subject	PIŁKA RĘCZNA
	HANDBALL
Unit of AWF	Unit of Theory and Methodology of Team Sport Games/ Zakład Teorii i Metodyki Zespołowych Gier Sportowych
Teacher's name	Michał Pietrzak, PhD
ECTS	4
Number of hours	15
Methods of estimation	<i>Pass practical classes Participating in the course actively.</i>
Effects/results of education	<i>The aim of the subject is to educate students in methodology of movement teaching in handball. Student being able to use knowledge in practice..</i>
Topics of the classes	<ol style="list-style-type: none"> 1. <i>Methodology and systematic of exercises in teaching catches and passes.</i> 2. <i>Methodology and systematic of exercises in teaching dribbling.</i> 3. <i>Methodology and systematic of exercises in teaching throws in goal.</i> 4. <i>Methodology and systematic of exercises in teaching body feint.</i> 5. <i>Methodology and systematic of exercises in teaching ways of moving in defence.</i> 6. <i>Methodology and systematic of exercises in teaching ways of moving in attack.</i> 7. <i>Goalkeeper in handball.</i> 8. <i>Test of practical skills.</i>
Recommended literature	Provided by a teacher

Subject	ZABAWY I GRY DRUŻYNOWE
	TEAM GAMES
Unit of AWF	Department of Physical Education and Lifelong Sports/ Zakład Wychowania Fizycznego i Sportów Całego Życia
Teacher's name	Adam Kantanista, PhD, Ass. Professor
ECTS	5
Number of hours	20
Methods of estimation	<i>Active participation in the practical course. Preparation and conducting team games related to specific team sports.</i>
Effects/results of education	<p><i>After the course student:</i></p> <ul style="list-style-type: none"> - knows how to conduct team games in children and adolescents - is able to choose and conduct team games which prepare for specific team sports - has skills necessary for organizing, planning, and realization of physical education and sports training using team games
Topics of the classes	<ol style="list-style-type: none"> 1. Team games that prepare for playing basketball (in physical education and sport context). 2. Team games that prepare for playing handball (in physical education and sport context). 3. Team games that prepare for playing football (in physical education and sport context). 4. Team games that prepare for playing volleyball (in physical education and sport context). 5. Team games that prepare for playing other team sports (in physical education and sport context).
Recommended literature	<ol style="list-style-type: none"> 1. Bronikowski M. Bronikowska M., Kantanista A. (2012). Teaching games from the cultural, social and sporting perspective. AWF Poznań. 2. LeFevre, D. N. (2012). Best new games. Human Kinetics. 3. Horowitz, G. L. (2009). International games: Building skills through multicultural play. Human Kinetics.

Subject	PIERWSZA POMOC PRZEDMEDYCZNA
	FIRST AID
Unit of AWF	Faculty of Sport Sciences in Gorzów Wlkp. / Zamiejskowy Wydział Kultury Fizycznej w Gorzowie Wlkp.
Teacher's name	Piotr Grochowski, PhD
ECTS	4
Number of hours	15
Methods of estimation	<i>Practical exam</i>
Effects/results of education	<i>Teaching how to administer first aid and how to act in an emergency.</i>
Topics of the classes	<ol style="list-style-type: none"> 1. <i>Definition of first aid. Legal considerations.</i> 2. <i>Basic principles and stages of first aid.</i> 3. <i>First aid kit.</i> 4. <i>Life threatening emergencies. Ensuring safety.</i> 5. <i>Assessment of a casualty's condition. Life function check.</i> 6. <i>An unconscious person. The recovery position.</i> 7. <i>Getting help.</i> 8. <i>Basic life support (BLS).</i> 9. <i>Automated External Defibrillation (AED).</i> 10. <i>Medical emergencies: fainting, convulsions, heart attack, concussions, choking, etc.</i> 11. <i>Amputation and crushes.</i> 12. <i>Serious wounds and bleeding treatment.</i> 13. <i>Burns treatment.</i> 14. <i>Broken bones, head and backbone injuries treatment.</i> 15. <i>Evacuation.</i>
Literature	<p>GRADE handbook. Available at: http://www.guidelinedevelopment.org/handbook/. Updated October 2013 [accessed 06.03.15]. Nolan J, Soar J, Eikeland H. The chain of survival. Resuscitation 2006;71:ss. 270 https://erc.edu/courses</p>

Subject	WSPINACZKA SPORTOWA
	CLIMBING
Unit of AWF	Department of Physical Education and Lifelong Sports / Zakład Wychowania Fizycznego i Sportów Całego Życia
Teacher's name	Jacek Tarnas, PhD
ECTS points	4
Number of hours	15
Methods of estimation	<i>Pass</i>
Effects/results of education	<p><i>Acquisition of basic knowledge and skills necessary for self-climbing on artificial walls.</i></p> <p><i>Acquiring the ability to adapt climbing elements to work with children and youth in school conditions (ladders). Teaching organization and maintaining safety while conducting classes.</i></p>
Topics of the classes	<ol style="list-style-type: none"> <i>1. Safety rules while climbing the gym (ladders). Climbing movement technique - relations between the body position and the work of arms and legs (body position in the frontal and lateral position). Learning to protect.</i> <i>2. Planning task climbing routes in school conditions (ladders).</i> <i>3. Learning how to use the basic climbing equipment and the rules of a top rope climbing.</i> <i>4. Safety rules when climbing on an artificial wall. Learning belay during buldering. Learning basic climbing movements - using grips and steps.</i> <i>5. Exam - climbing the route with a specified degree of difficulty.</i>
Recommended literature	<p><i>White J. "The Indoor Climbing Manual", Bloomsbury Publishing 2014.</i></p> <p><i>Jim Stiehl J, B. Ramsey T.B. "Climbing Walls: A Complete Guide" Human Kinetics, 2005</i></p>

Subject	SPORT DZIECI I MŁODZIEŻY – WPROWADZENIE DO KONCEPCJI BIO-BANDING W OPARCIU O INDYWIDUALIZACJĘ ROZWOJU BIOLOGICZNEGO I OPTYMALIZACJĘ PROCESU TRENINGOWEGO. KIDS AND YOUTH SPORT – AN INTRODUCTION TO THE BIO-BANDING CONCEPT BASED ON THE INDIVIDUALIZATION OF BIOLOGICAL DEVELOPMENT AND OPTIMIZATION OF THE TRAINING PROCESS.
Unit of AWF	Department of the Theory of Sport / Zakład Teorii Sportu
Teacher's name	Jan M. Konarski, Ass. Prof., Mateusz Skrzypczak, MSc, PhD
ECTS points	4
Number of hours	15
Methods of estimation	<i>Activity during meetings, Project</i>
Effects/results of education	<i>Increase knowledge about growth and maturation of kids and youth in the context of psycho-physical-biological needs and taking into consideration specific demands of early, late and on-time developing athletes as well as using individual diversity during sport training preparation. Bio-banding concept as tools to optimize training (PE lessons) / competitive process to minimize risk of injuries and optimize development of youth in perspective for adult life.</i>
Topics of the classes	<ol style="list-style-type: none"> <i>Growth and maturation as milestones in human life</i> <i>Functional development</i> <i>Role of physical activity for youth and kids from recreation and fun to professional level</i> <i>Periodization of training and supporting general and special development on the next stage of adolescence in the context of long term athlete development</i> <i>Bio-banding and other tools to design training (PE's lessons) process and specific, individual loads</i> <i>Control and assessment of aims realization as information about appropriate decisions' making and direction of development.</i> <i>Practical solutions.</i>
Recommended literature	<ol style="list-style-type: none"> <i>Malina, RM, Bouchard, C, and Bar-Or, O. (2004) Growth, maturation, and physical activity. Champaign, IL: Human Kinetics.</i>

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2. Bompa T., Carrerra M. (2015) *Conditioning young athletes*. Champaign, IL: Human Kinetics.
 3. Sharkey, B. and Gaskill, S. (2006). *Sport physiology for coaches*. Champaign, IL: Human Kinetics
 4. Bompa T. O. , Haff B. (2009) *Periodization: theory and methodology of training*. 5th ed. Human Kinetics.
 5. Balyi I., Way R., Higgs C. (2013) *Long-term athlete development*. Champaign, IL: Human Kinetics.
 6. Faigenbaum A.V., Westcott W. (2009) *Youth strength training*. Champaign, IL: Human Kinetics.
 7. Malina, R. M., Cumming, S. P., Rogol, A. D., Coelho-e-Silva, M. J., Figueiredo, A. J., Konarski, J. M., & Kozieł, S. M. (2019). Bio-banding in youth sports: background, concept, and application. *Sports Medicine*, 49(11), 1671-1685.
 8. Cumming, S. P., Lloyd, R. S., Oliver, J. L., Eisenmann, J. C., & Malina, R. M. (2017). Bio-banding in sport: applications to competition, talent identification, and strength and conditioning of youth athletes. *Strength & Conditioning Journal*, 39(2), 34-47.
 9. Cumming, S. P., Brown, D. J., Mitchell, S., Bunce, J., Hunt, D., Hedges, C., ... & Malina, R. M. (2018). Premier League academy soccer players' experiences of competing in a tournament bio-banded for biological maturation. *Journal of sports sciences*, 36(7), 757-765.
 10. Konarski, J. M., Konarska, A., Strzelczyk, R., Skrzypczak, M., & Malina, R. M. (2019). Internal and External Loads During Hockey 5's Competitions Among U16 Players. *Journal of strength and conditioning research*.
 11. Konarski, J., Krzykała, M., Skrzypczak, M., Nowakowska, M., Coelho-e-Silva, M., Cumming, S., & Malina, R. (2020). Characteristics of select and non-select U15 male soccer players. *Biology of Sport*, 38(4), 535-544.
 12. Figueiredo, A. J., Gonçalves, C. E., Coelho e Silva, M. J., & Malina, R. M. (2009). Characteristics of youth soccer players who drop out, persist or move up. *Journal of sports sciences*, 27(9), 883-891.

Subject	ELEMENTY TERAPII TAŃCEM - WPROWADZENIE
	DANCE THERAPY ELEMENTS - INTRODUCTION
Unit of AWF	Zakład Tańca / Department of Dance
Teacher's name	Paulina Wycichowska, MA, Justyna Torłop-Bajew, MA
ECTS points	4
Number of hours	15
Methods of estimation	<i>The knowledge is presented in a form of workshop of practical experiments involving individual and group work.</i>
Effects/results of education	<i>Dance Therapy Elements subject is designed to provide a student with basic experience of various techniques of dance therapy. The aim of the subject is to prepare a student for creative and collaborative work through experience of dance therapy elements in workshop.</i>
Topics of the classes	<p><i>Main topics of study:</i></p> <ul style="list-style-type: none"> - <i>Introduction to dance therapy: concept of "dance".</i> - <i>Potential effects of dance therapy.</i> - <i>The healing and developmental assets of dance therapy.</i> - <i>Introduction to dance therapy LMA – Laban Movement Analysis System.</i> - <i>Introduction to dance therapy - important influences: Irmgard Bartenieff, Mary Chace, Anna Halprin.</i> <p><i>Exercises:</i></p> <ul style="list-style-type: none"> - <i>Laban - Bartenieff Movement Fundamentals.</i> - <i>Exploring body, shape, space and dynamics movement structures.-</i> - <i>Mirroring and synchronised movement.</i> - <i>Reflection on the processes.</i>
Recommended literature	<p><i>Bartenieff Irmgard, Body Movement – Coping With Environment, Routledge 1980.</i></p> <p><i>Dance Movement Therapy: Theory and Practice, edited by Helen Payne, Routledge 1992.</i></p>

Subject	IMPROWIZACJA TAŃCA Z ELEMENTAMI IMPROWIZACJI W KONTAKCIE Z PARTNEREM
	DANCE IMPROVISATION WITH ELEMENTS OF CONTACT IMPROVISATION
Unit of AWF	Zakład Tańca / Department of Dance
Teacher's name	Paulina Wycichowska, Agnieszka Doberska, Paweł Malicki
ECTS points	4
Number of hours	15
Methods of estimation	<p>1. Assessment of the performance of tasks and dance sequences prepared by students.</p> <p>2. Assessment of the level of understanding of knowledge.</p> <p>3. Assessment of the level of acquisition of knowledge and skills.</p>
Effects/results of education	<p>1. Student identifies, performs and creates various movement elements.</p> <p>2. Student builds movement sequences based on improvisation and contact improvisation methods.</p> <p>3. Student understands the body as an instrument of expression using the techniques of improvisation and contact improvisation with particular emphasis on the sensation of the human body in motion and its creative potential.</p> <p>4. Student knows and uses embodied techniques in conjunction with contemporary dance techniques as well as other dance techniques and styles.</p> <p>5. Student understands dance improvisation as a way to create meanings and artistic expressions using improvisation techniques.</p>
Topics of the classes	<p>1. Practical tasks developing the non-verbal language of the body's expression and learning the techniques of improvisation and contact improvisation.</p> <p>2. Analytical tasks regarding contemporary dance techniques and other motion techniques that enable to understand the dynamic and correct body posture while performing various movement qualities in improvisation and contact improvisation</p> <p>3. Tasks focused on the research developing the ability to search for new opportunities and qualities of the movement.</p> <p>4. Improvisation tasks that enable to discover new possibilities and movement solution enriching skills such as: dialogue with your own body, critical thinking, observation of oneself and others in terms of</p>

movement motility, differences and similarities in the process of creating movement improvisations.

Literature

E. N. Franklin, Dynamic Alignment Through Imagery, Human Kinetics Europe, 1996

E. Lucille, D. Perkins, Modern Dance in Physical Education

Lynne Anne Blom, L. Tarin Chaplin, The Moment Of Movement: Dance Improvisation, University of Pittsburgh Pre, 1988

Daniel Nagrin, Dance and the Specific Image: Improvisation, University of Pittsburgh Pre, 2014

B. Haselbach, Improvisation, Dance, Movement, Magnamusic-Baton, 1981

Cheryl Pallant, Contact Improvisation: An Introduction to a Vitalizing Dance Form, McFarland, 2006

Cynthia J. Novack, Sharing the Dance: Contact Improvisation and American Culture, Univ of Wisconsin Press, 1990

Subject	TANIEC WSPÓŁCZESNY
	CONTEMPORARY DANCE
Unit of AWF	Zakład Tańca / Department of Dance
Teacher's name	Agnieszka Doberska, Paweł Malicki, Paulina Wycichowska
ECTS points	4
Number of hours	15
Methods of estimation	<i>1. Current assessment of student's activity during the class.</i> <i>2. Assessment of knowledge of the given dance material and the rules for its implementation.</i> <i>3. Assessment of practical skills acquired during the class.</i>
Effects/results of education	<i>1. Student knows the technique of contemporary dance forms.</i> <i>2. Student knows how to improve motility of the body and how to efficiently use motional capabilities of the body in reference to kinesiology and functional anatomy.</i> <i>3. Student wields the body as an instrument of the movement that is a dynamic form of expression in time and space. He performs a direct and complete statement using movement vocabulary.</i> <i>4. Student demonstrates basic knowledge in the range of concepts such as: embodied knowledge, increased consciousness, deepened concentration, energy, intensity, clarity and organic constitution of the movement.</i> <i>5. Student is fluent in recognizing, reproducing and remembering movement material.</i>
Topics of the classes	<i>1. Body conditioning: warming up, strengthening, stretching and shaping the muscles, increasing the range of movement in the joints of the body.</i> <i>2. Awareness of the space in the body and three dimensional body movement in reference to space, awareness of the rotation in the joints.</i> <i>3. Stability in the body through tension/extension/release playful field.</i> <i>4. Practicing concepts such as: awareness of the weight of the pelvis and other parts of the body, off balance, spiral movement of the body, movement's circular trajectory of the body.</i> <i>5. Oppositions in the movement of the body and body parts, multidirectional movement of the body, arch and curve as a part of circular trajectory of the movement.</i>

Literature

Franklin Eric N. "Conditioning for dance / Training for peak performance in all dance forms" Human Kinetics, 2004
Franklin Eric N. "Dynamic alignment through imagery" Kined, 2014
Barba Eugenio, Savarese Nicola, "A Dictionary of Theatre Anthropology: The Secret Art of the Performer" Taylor & Francis Ltd., 2005

Subject	ELEMENTY ARTETERAPII
	ART THERAPY WORKSHOP
Unit of AWF	Zakład Tańca / Department of Dance
Teacher's name	Paulina Wychowska, MA
ECTS points	4
Number of hours	15
Methods of estimation	<i>The knowledge is presented in a form of workshops: practical experiments involving individual and group work.</i>
Effects/results of education	<i>Art Therapy Workshop is designed to provide a student with basic experience of various techniques of art therapy. The aim of the subject is to prepare a student for creative and collaborative work through experience of music and visual arts.</i>
Topics of the classes	<p><i>Main topics of study:</i></p> <ul style="list-style-type: none"> - <i>Introduction to art therapy: art as a means of maintaining wellbeing.</i> - <i>Concept of creativity, its measurement and development.</i> - <i>Strategies of stress management.</i> - <i>Introduction to creative writing.</i> - <i>Introduction to music therapy.</i> - <i>Introduction to drawing, painting & collage therapy.</i> - <i>Introduction to photography therapy.</i> <p><i>Exercises:</i></p> <ul style="list-style-type: none"> - <i>Reflection on concepts: "Art" and "Artist".</i> - <i>Training creativity: associations, metaphore, convergent and divergent thinking, lateral thinking.</i> - <i>Creating works involving music, drawing, painting, collage and photography.</i> - <i>Reflection on the works.</i>
Recommended literature	<p><i>Rubin Judith A., Introduction to Art Therapy: Sources and Resources, Routledge 2010.</i></p> <p><i>Malchiodi Cathy A., Handbook of Art Therapy, Guilford Press 2003.</i></p>

Subject	JOGA
	THE BREATH IN CONNECTION WITH PERFORMED ASANAS
Unit of AWF	Zakład Tańca / Department of Dance
Teacher's name	Andrzej Adamczak
ECTS points	4
Number of hours	15
Methods of estimation	<ol style="list-style-type: none"> <i>1. Introduction to yoga,</i> <i>2. Concentration on the breath in connection with performed asanas.</i> <i>3. How to use muscles in yoga positions.</i>
Effects/results of education	<ol style="list-style-type: none"> <i>1. Student knows the basics of yoga's asana.</i> <i>2. Student knows how to use the breath when correctly performing asanas.</i> <i>3. Student can perform strengthening and stretching exercises.</i>
Topics of the classes	<ol style="list-style-type: none"> <i>1. Teaching selected asanas.</i> <i>2. Using the breath correctly.</i> <i>3. Teaching the exact exercise of individual asanas.</i>
Recommended literature	

Subject	CYFROWE TECHNOLOGIE W AKTYWNOŚCI FIZYCZNEJ
	DIGITAL TECHNOLOGIES IN PHYSICAL ACTIVITY
Unit of AWF	Department of Digital Technologies in Physical Activity/ Zakład Cyfrowych Technologii w Aktywności Fizycznej
Teacher's name	Magdalena Cyma-Wejchenig, PhD
ECTS points	4
Number of hours	15
Methods of estimation	<i>Practical test PowerPoint presentation.</i>
Effects/results of education	<ul style="list-style-type: none"> - <i>Student has knowledge about modern wireless technologies used in physical activity and sports.</i> - <i>The student has the knowledge and is able to use specific mobile applications, VR / AR equipment, and exergames in the training cycle in various environments.</i> - <i>The student has the knowledge of how to work with a coach remotely, using video conferencing, messaging, and other tools.</i> - <i>The student has the knowledge of how to use apps and wearable devices to monitor food and water intake as well as how digital tools can be used to analyze movement patterns and improve technique in various activities.</i> - <i>Student can interpret results and make conclusions based on gathered variables from a variety of training sessions.</i> - <i>Student is capable to project training sessions with using modern technology.</i>
Topics of the classes	<ul style="list-style-type: none"> - <i>Wearable fitness trackers: how they work, what data they collect, and how to use that data to improve physical activity.</i> - <i>Mobile apps for fitness and exercise: how to find and use apps for tracking workouts, setting goals, and staying motivated.</i> - <i>Gamification of fitness, Virtual reality and augmented reality for fitness: how to use games and game-like elements to make physical activity more engaging and fun 'how to use VR/AR headsets to simulate workouts, explore new environments, and enhance motivation.</i> - <i>Online coaching and training: how to work with a coach remotely, using video conferencing, messaging, and other tools.</i> - <i>Digital tools for tracking nutrition and hydration: how to use apps and wearable devices to monitor food and water intake, and how that can impact physical performance.</i> - <i>Biomechanics and motion capture: how digital tools can be used to analyze movement patterns and improve technique in various</i>

activities, from running to weightlifting.

Using data to personalize training and recovery: how to collect and analyze data about physical activity, sleep, and other factors to tailor training and recovery plans to individual needs.

**Recommended
literature**

Provided by a teacher.

Subject	ZABAWY I GRY RUCHOWE
	TEACHING PHYSICAL GAMES AND ACTIVITIES
Unit of AWF	Department of Didactics of Physical Activity/ Zakład Dydaktyki Aktywności Fizycznej
Teacher's name	Michał Bronikowski, Ass. Prof.
ECTS points	5
Number of hours	20 hours of practical workshop skills in a sport gym (or playground) environment
Methods of estimation	<i>Participation In the practical part of the course including developing (being a leader in a class) of own teaching skills in a educational settings, a single lesson worksheet</i>
Effects/results of education	<i>Subject introduces students to teaching simple movement plays and activities for younger children and youth. Students practice leadership skills in various settings (classroom indoor and outdoor environment) learning about differences and methodological approaches to teaching activities, plays and simple team games designed for educational purposes. Practical classes in the sport gym give Erasmus students a chance to exchange the most popular childish activities from various cultures.</i>
Topics of the classes	<ol style="list-style-type: none"> 1. Introduction to the subject and basic activities for integration so called "ice-breakers") 2. Play, game or activity? Which is which? 3-12 Range of games and activities (students and teachers practice) – games on motor skills, games on sport skills, games of various cultures, games for various age groups. 13-18. Use of plays and games for special educational ideas (teaching cooperation, team building, emphasizing moral and cultural virtues) – preparing a lesson plan for plays and games with school-aged children. 19. Safety or fun in playing games? 20-24. Recommendations for teaching games and activities to youth. 25. Test
Recommended literature	<ol style="list-style-type: none"> 1. Bronikowski M. Bronikowska M., Kantanista A. (2012). Teaching games from the cultural, social and sporting perspective. AWF Poznań. 2. Bronikowska M., Laurent JF. (2015). Recall: Games of the Past – Sports for Today. Tafisa www.recallgames.com

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3. Bronikowski M. (2010). *Physical education teaching and learning*. AWF Poznań.
 4. Capel S. (2005). *Learning to teach physical education in the Secondary School. A companion to School Experience*. RoutledgeFalmer. London.
 5. Cheska A.T, (1978) *The study of play from five anthropological perspectives*. In: M.A.Salter (Ed.) *Play – anthropological perspectives*. Leisure Press, West Point, NY, p.17-35.
 6. Hellison D. (1985). *Goals and strategies for teaching physical education*. Human Kinetics, Il.
 7. Hellison D. (2003). *Teaching responsibility through physical activity*. Human Kinetics, Il.
 8. Huzinga H. (1955) *Homo Ludens: A study of the play element in culture*. Boston: The Beacon Press.
 9. *Physical Education for Lifelong fitness: The Physical Best teachers' guide* (1999) Human Kinetics, Il.
 10. Lavin J&Levin J (2008) *Creative approaches to teaching physical education. Helping children achieve their true potential*. Routledge, London/New York., p.12]
 11. Mankowska M., Bronikowska M. (2009). *Providing a multicultural context in modern physical education teaching*. *Journal of Qualitative Research in Sport Studies*, 3, 1,147-160.
 12. Mohnsen B.S. (2008). *Teaching middle school physical education*. Human Kinetics, Il.
 13. Mosston M., Ashworth S. (1994). *Teaching physical education*. MacMillan College, New York.
 14. Piaget J. (1962) *Play, Dreams and Imitation in childhood*. D. Cattegno and F.M. Hodgson, trans. New York, W.W.Northon&Company, Inc.
 15. Shields D.L., Bredemeier B.J.L. (1995). *Character development and physical activity*. Human Kinetics. USA.

Subject	ZABURZENIA OSOBOWOŚCI A RELACJE INTERPERSONALNE
	THE PERSONALITY DISORDERS AND INTERPERSONAL RELATIONS
Unit of AWF	Zakład Pedagogiki / Department of Pedagogy
Teacher's name	Robert Florkowski, PhD
ECTS	5
Number of hours	20
Methods of estimation	<i>Pass</i>
Effects/results of education	<p><i>The subject is mainly based on nosology of disturbed personalities used in clinical psychology, psychiatry and psychotherapy.</i></p> <p><i>The aim of this subject is to review the major personality disorders and consider the interpersonal impact. Every person does have an individual, to some extent unique, personality profile. There is a thin line between specific style of character and personality disorder. The disturbed personality leads to intra-personal and inter-personal difficulties. The term "toxic" relationships usually refers to difficulties caused by mentioned above dysfunctions. The first goals of this subject is to widen the insight, called some times - "self-science". The second goal is to build the basic understanding of the others and consider possible strategies of handling the people with dysfunctional personality. The self-protections is a crucial aspect of psychological exploration. The classes are interactive, thriving on group activity. The academic discussion is at the core of the subject.</i></p>
Topics of the classes	<ul style="list-style-type: none"> ● <i>The introduction of the concept of normal and abnormal personality.</i> ● <i>The review of cluster A personality disorders:</i> <ul style="list-style-type: none"> - <i>the paranoid personality disorder</i> - <i>the schizoid personality disorder</i> - <i>the schizotypal personality disorder.</i>

The review of each cluster includes familiarization with the constellation of features of specifically disturbed personality, intra-personal dynamics, inter-personal dynamics, inter alia cognitive, affective, behavioral and relational patterns, including styles of interpersonal communication.

- *The review of cluster B personality disorders:*

- *the antisocial personality disorder*
- *the borderline personality disorder*
- *the histrionic personality disorder*
- *the narcissistic personality disorder and hubris syndrome*

- *The review of cluster C personality disorders:*

- *the avoidant personality disorder*
- *the dependent personality disorder*
- *the obsessive-compulsive personality disorder*

- *Review of some of the disturbed personalities not included in the Diagnostic and Statistical Manual of Mental Disorders or placed in its appendix:*

- *the authoritarian personality*
- *the multiple personality*
- *the self-defeating (masochistic) personality*
- *the sadistic personality*
- *the depressive personality*
- *the negativistic (passive-aggressive) personality*

Recommended literature

1. *Diagnostic and Statistical Manual of Mental Disorders (DSM–5), (2013), American Psychiatric Association.*
2. *Millon T., (2004), Personality Disorders in Modern Life, 2nd Edition, Wiley.*

Subject	FIZJOLOGIA ŚRODOWISKOWA
	ENVIRONMENTAL PHYSIOLOGY
Unit of AWF	Department of Athletics, Strength and Conditioning/ Zakład Lekkiej Atletyki i Przygotowania Motorycznego
Teacher's name	Barbara Pospieszna, PhD
ECTS points	4
Number of hours	15
Methods of estimation	<i>active participation in classes, exam</i>
Effects/results of education	<p><i>Student will gain knowledge about:</i></p> <ul style="list-style-type: none"> - human functioning in different environmental conditions - ways of preparing for stay, work, and physical effort in various environmental conditions - ways of adapting to such conditions.
Topics of the classes	<ol style="list-style-type: none"> 1. <i>Physiology of heat</i> 2. <i>Physiology of cold</i> 3. <i>Physiology of aging</i> 4. <i>Physiology of altitude</i> 5. <i>Physiology of variable pressure</i> 6. <i>Physiology of travel</i>
Recommended literature	<ol style="list-style-type: none"> 1. <i>Cheung S.: Advanced Environmental Exercise Physiology. Human kinetics 2010.</i> 2. <i>Collier RJ. Collier JL.: Environmental Physiology of Livestock. John Wiley & Sons, Inc., 2012.</i> 3. <i>Gunga H-C. Human Physiology in Extreme Environments. Elsevier Inc., 2015.</i> 4. <i>Reilly T., Waterhouse J.: Sport Exercise and Environmental Physiology. Churchill Livingstone, Elsevier, 2004.</i> 5. <i>Tipton M.: Human Environmental Physiology. Routledge, Taylor & Francis Ltd., 2015</i>

Subject	EDUKACJA ZDROWOTNA
	HEALTH EDUCATION
Unit of AWF	Department of Physical Activity Sciences and Health Promotion/ Zakład Nauk o Aktywności Fizycznej i Promocji Zdrowia
Teacher's name	Ida Laudańska-Krzemińska, Ass. Professor
ECTS points	4
Number of hours	15
Methods of estimation	assessment
Basic information about the subject	<p><i>The course's objective includes following issues: ways of understanding and defining the health; holistic concept of health as an alternative to the biomedical model; models and methods of health education and its adoption in physical education classes (eg. experiential learning); basics of health didactics in context of physical educator's/ coach's work.</i></p>
Topics of the classes	<ol style="list-style-type: none"> 1. <i>Theoretical foundation and aspects of application of health promotion and health education (biopsychosocial model of health and sickness, setting theory, health promotion models, health education models)</i> 2. <i>Health education and physical education – associations and dependences, terminology, basic, concepts, models</i> 3. <i>Health behavior</i> <ol style="list-style-type: none"> a. <i>Concepts and definitions, models for changing (Health Belief Model, HAPA, Transtheoretical Model), application for school</i> b. <i>Characteristic of the main important behavior: physical activity, nutrition, smoking cigarettes, drinking alcohol, self-control</i> 4. <i>Interactive teaching and learning of attitude (relation) for body and health in physical education</i> <ol style="list-style-type: none"> a. <i>Active learning – principle and model, constructivism as theoretical basis</i> b. <i>Experiencing teaching – principle, Kolb' cycle</i> c. <i>Workshop as a methodical procedure in health and physical education</i> d. <i>Examples techniques and methods of active learning using in health and physical education – methods of</i>

integrate, diagnostic, planning, developing creative reflection, discussion, creative solving of problem

5. *Employment of interactive teaching in physical education teacher work– elaboration outline (draft) and conducting of the health education lesson with pupils in primary or secondary school*

Recommended literature

1. *Puza R.F. Health education. Ideas and activites. Human Kinetics. 2008*
2. *Page R.M, Page T.S. Promoting health and emotional well-being in your classroom. Jones and Barlett Learning 2015*
3. *Physical education and health education – common didactic goals and interdependencies. Eds. Bronikowski M., Krawański A., Osiński W. AWF Poznań, 2011*
4. *A guide for incorporating health & wellness into school improvement plans. CDC, 2016*
5. *MORSE L.L., ALLENSWORTH, F.D Placing Students at the Center: The Whole School, Whole Community, Whole Child Model. Journal of School Health, November2015, Vol.85,No.11p. 785*
6. *Laudańska-Krzemińska I. Health education as a challenge for physical education teachers - a Polish perspective. [W:] Fachdl.ktik "Bewegung und Sport" im Kontext (pod red.) Kleiner K. Purkersdorf: Verlag Brüder Holllinek, 2012, 237-247*
7. *Krawański A. Intellectual challenges of physical education Studies in Physical Culture and Tourism 2009 t. 16 nr 3 s. 281-290*
8. *Krawański A. Pedagogical challenges of physical education Studies in Physical Culture and Tourism 2009 t. 16 nr 4 s. 401-412*
9. *JOURNALS:*
 - a. *European Journal of Physical and Health Education*
 - b. *Education for Health: Change in Training & Practice*
 - c. *Health Education Research*
 - d. *Physical & Health Education Journal*
 - e. *Global Health Promotion*
 - f. *Health Promotion International*
10. *Health behavior and health education: theory, research, and practice / Karen Glanz, Barbara K. Rimer, Frances Marcus Lewis, editors ; foreword by Noreen M. Clark.*
11. *Health Promotion Planning. An Educational and Enviromental Approach/ LW Green, MW Kreuter*

Subject	ŻYWIENIE W SPORCIE
	SPORTS NUTRITION
Unit of AWF	Department of Food and Nutrition /Zakład Żywności i Żywienia
Teacher's name	Joanna Karolkiewicz, Ass. Professor Ewa Śliwicka, PhD
ECTS points	4
Number of hours	15
Methods of estimation	<i>Exam</i>
Basic information about the subject	<p><i>This course equips students with the comprehensive knowledge and skills which are essential in order to achieve sports nutritional and athletic performance goals:</i></p> <ol style="list-style-type: none"> <i>1. Understanding and applying the basic fundamentals of nutrition and sports nutrition.</i> <i>2. Identification and usage sound nutrition recommendations for macronutrient intakes among various athletes.</i> <i>3. Recognizing and implementation science based nutrition strategies to help athletes with their training and performance.</i> <p><i>Understanding of scope of practice and when to refer out to other experts.</i></p>
Topics of the classes	<ol style="list-style-type: none"> <i>1. Energy balance and body composition in sports and exercise.</i> <i>2. Nutritional needs of endurance athletes.</i> <i>3. Nutritional needs of strength/power athletes.</i> <i>4. Hydration & fluid replacement for athletes.</i> <i>5. An overview of sports supplements.</i>
Recommended literature	<ol style="list-style-type: none"> <i>1. Jeukendrup A., Gleeson M. Sport Nutrition an introduction to Energy production and performance. 2nd. Ed. Human Kinetics, Inc., 2010.</i> <i>2. Burke L. Practical Sports Nutrition. Human Kinetics, Inc., 2007.</i> <i>3. Manore, M., Meyer, N., and Thompson, J. Sport Nutrition for Health and Performance, 2nd edition, Human Kinetics, Inc., 2009.</i> <i>4. Thomas D.T., Erdman K.A., Burke L.M. American College of Sports Medicine Joint Position Statement. Nutrition and Athletic Performance. Med Sci Sports Exerc. 2016, 48(3): 543-568</i>

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5. Kerksick, C.M.; Wilborn, C.; Roberts, M.D.; Smith-Ryan, A.E.; Kleiner, S.M.; Jäger, R.; Collins, R.; Cooke, M.; Davis, J.N.; Galvan, E.; et al. ISSN exercise and sports nutrition review update: Research and recommendations. *J. Int. Soc. Sports Nutr.* 2018, 15, 38, doi:10.1186/s12970-018-0242-y.

Subject	BIOMECHANIKA
	BIOMECHANICS
Unit of AWF	Department of Biomechanics/ Zakład Biomechaniki
Teacher's name	Michał Murawa, PhD
ECTS points	4
Number of hours	15
Methods of estimation	<i>The evaluation consists of an theoretical exam and powerpoint presentation</i>
Effects/results of education	<p><i>After completing this course, the student:</i></p> <ul style="list-style-type: none"> <i>- has some basic knowledge about the biomechanical parameters of the human apparatus of movement</i> <i>- has basic knowledge about the biomechanical research methods for evaluation of the patients/athletes</i> <i>- has basic abilities to work on Biodex System to objectively evaluate and train human muscles</i> <i>- has basic abilities to work on AMTI balance platform during both rehabilitation or training programme</i> <i>- learns about the possibilities of using optoelectronic systems like BTS for the evaluation of the human movement</i>
Topics of the classes	<p><i>A. Introduction to the Biomechanics:</i></p> <p><i>A.1. Short history of the Biomechanics</i></p> <p><i>A.2. The analysis of the Biomechanics course syllabus</i></p> <p><i>A.3. The analysis of the necessary bibliography</i></p> <p><i>A.4. The rules of completing the course</i></p> <p><i>A.5. Introduction to the biomechanical laboratory</i></p> <p><i>B. Some of the biomechanical parameters of the human apparatus of movement:</i></p> <p><i>B.1. Human body structure as a reference system</i></p> <p><i>B.2. Determination of the planes, lines, reference points</i></p> <p><i>B.3. Mass parameters of the human body</i></p> <p><i>B.4. Determination of the individual segments centers of masses</i></p> <p><i>B.5. Methods of calculation of the center of gravity</i></p> <p><i>C. Theory of the muscle torques measurements in various conditions:</i></p> <p><i>C.1. Static conditions</i></p> <p><i>C.2. Dynamic conditions</i></p> <p><i>D. Muscle torques measurements – practice (laboratory):</i></p> <p><i>D.1. Muscle torques measurements using Biodex System 3 - practice</i></p> <p><i>E. Biomechanics of the human gait (laboratory):</i></p> <p><i>E.1. Kinematics and kinetics of the gait using BTS System and AMTI platforms - practice</i></p>

**Recommended
literature**

- Craig L.R., Oatis C.A. (1995) Gait Analysis. Theory and Application.*
- Cram J.R., Kasman G.S., Holtz J. (1998) Introduction to Surface Electromyography. Aspen Publishers.*
- Hall S.J. (1999) Basic biomechanics. Mc Graw-Hill International Edition.*
- Inman V.T., Ralston H.J., Todd F. (1981) Human Walking. Williams and Wilkins, Baltimore/London.*
- Kapandji I.A. (1970) The Physiology of the Joints. Vol. I and II. E&S Livingstone. Edinburg&London.*
- Konrad P. (2007) ABC EMG.*
- Maquet P.G.J. (1976) Biomechanics of the Knee. Springer-Verlag. Berlin.*
- Medved V. (2001) Measurement of Human Locomotion. CRC Press.*
- Neumann D.A. (2002) Kinesiology of the Musculoskeletal System. Foundations for Physical Rehabilitation. Mosby. St Louis.*
- Oatis C.A. (2004) Kinesiology. The mechanics & pathomechanics of human movement. Lippincott Williams&Wilkins.*
- Perry J. (1992) Gait analysis. Normal and Pathological Function. SLACK Incorporated. NJ*
- Rash P.J., Burke R.K. (1978) Kinesiology and applied anatomy. The science of human movement. Lea & Fibiger. Philadelphia.*
- Whiting W.C., Zernicke R.F. (1998) Biomechanics of Musculoskeletal Injury. Human Kinetics.*
- Winter D. (1998) The Biomechanics and Motor Control of Human Gait: Normal, Elderly and Pathological. University of Waterloo.*
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Subject	PŁYWANIE I RATOWNICTWO WODNE
	SWIMMING AND WATER LIFESAVING
Unit of AWF	Department of Swimming and Water Lifesaving/ Zakład Pływania i Ratownictwa Wodnego
Teacher's name	Krystian Wochna, PhD
ECTS points	4
Number of hours	15
Methods of estimation	<i>Pass practical classes</i>
Effects/results of education	<ol style="list-style-type: none"> <i>1. The aim of the subject is to educate students in methodology of movement teaching in the water based on present scientific analysis.</i> <i>2. Describe Polish water lifesaving system and using special equipment.</i>
Topics of the classes	<p><i>1 class - lecture - water environmental features.</i></p> <p><i>8 classes - exercises - principles of stroke mechanics.</i></p> <p><i>4 classes – water rescue.</i></p> <p><i>2 classes – theory of training.</i></p> <p><i>2-9 front crawl, back crawl, breaststroke, dolphin – movement technique basics, improving individual distance swimming.</i></p> <p><i>10-13 water rescue – rescue action, training with equipment.</i></p> <p><i>14-15 the example of swimming teaching methodology and modern training trends.</i></p>
Recommended literature	<ol style="list-style-type: none"> <i>1. Pospieszna B., Wochna K., Jerszyński J., Gościńska K., Czapski J. (2016) Ergogenic effects of dietary nitrates in female swimmers. Trends in Sport Sciences, 23: 13-20.</i> <i>2. Jerszyński D., Antosiak-Cyrak K., Habiera M., Wochna K. Rostkowska E. (2013) Changes in selected parameters of swimming technique in the back crawl and the front crawl in young novice swimmers. Journal of Human Kinetics, 37: 161-171.</i> <i>3. Guzman R.J. (1998) Swimming Drills for Every Stroke. Human Kinetics American Publishers, Champaign.</i> <i>4. Colwin C.M. (1992), Swimming Into the 21st Century. Human Kinetics American Publishers, Champaign.</i>

Subject	KOSZYKÓWKA
	BASKETBALL
Unit of AWF	Unit of Theory and Methodology of Team Sport Games/ Zakład Teorii i Metodyki Zespołowych Gier Sportowych
Teacher's name	Małgorzata Karpowicz, PhD
ECTS points	4
Number of hours	15
Methods of estimation	Test of practical and theoretical skills.
Effects/results of education	<p><i>The objective of the course is to prepare students to independent running of physical education lessons in basketball in all types of schools.</i></p> <p><i>The aim of the course is also increasing the level of personal fitness in basketball, making it possible to demonstrate the technique of the game correctly.</i></p> <p><i>After the course students should know methodology and systematics of exercises in teaching basic techniques of the game and know the rules of the game.</i></p> <p><i>They also should be able to fill in the protocol of the game and referee a children basketball game during school classes.</i></p>
Topics of the classes	<p><i>Teaching catches and passes.</i></p> <p><i>Teaching to dribble.</i></p> <p><i>Teaching basic shots: position shot, layup shots (after pass and dribble), jump shot.</i></p> <p><i>Teaching pivots (turns) and fakes with or without the ball.</i></p> <p><i>Teaching individual defence: position, movements.</i></p> <p><i>Teaching defending: covering a dribbling player.</i></p> <p><i>Teaching offence and defence rebounding.</i></p> <p><i>Teaching organised fast break.</i></p> <p><i>Basketball rules and principles of refereeing and protocol of the game.</i></p>
Recommended literature	<i>Provided by a teacher.</i>

Subject	HOKEJ NA TRAWIE
	FIELD HOCKEY
Unit of AWF	Unit of Theory and Methodology of Team Sport Games/ Zakład Teorii i Metodyki Zespołowych Gier Sportowych
Teacher's name	Jacek Adrian, PhD, Rachwalski Krzysztof, MA
ECTS	4
Number of hours	15
Methods of estimation	<i>Pass practical classes Participating in the course actively.</i>
Effects/results of education	<i>The objective of the course is to prepare students to independent running of physical education lessons teaching field hockey in all types of schools. A student will also obtain qualifications to programme extra-curricular sports activities. The aim of the course is also increasing the level of personal fitness in field hockey, making it possible to demonstrate the technique of the game correctly.</i>
Topics of the classes	<ol style="list-style-type: none"> 1. The history of development of field hockey in Poland and in the world. General description of field hockey compared to other sport team games. Rules of the game. Tendencies of changes in game regulations. Concept analysis of forms of teaching movement. Theoretical knowledge of issues related to playing technique. An analysis of playing technique - elements, rational technical forms. A description of basic technical forms in hockey. 2. Basic Skills. The Grip, Warm-ups, 3. Moving with the ball: Ball carry. Open Stick Dribble, Indian Dribble, One-handed Dribble. 4. Moving the ball - Passing; The Push Pass, The Hit, The Slap, Sweep Pass, The Reverse Stick Push Pass, The Aerial Pass. 5. Receiving the ball. On the Forehand Stick, On the Reverse Stick. 6. Defending Skills: Closing Down and Channelling, Marking, Interception, Tackling, Jab Tackle, Block Tackle Open Stick, Block Tackle Reverse Stick. 7. Drags and Eliminations. 8. Goal Shooting and Goal Scoring 9. Goalkeeping – Equipment, Warm-up For Goalkeepers, Goalkeeping Skills and Techniques. 10. Attacking Principles. Width and Space in Attack, Support in Attack, Mobility in Attack. 11. Defending Principles. Zonal Marking, Man-for-man marking, Different system of Play. 12. Set Pieces. Penalty Corners – Technical Skills, Penalty Stroke

**Recommended
literature**

Provided by a teacher.

Subject	TENIS
	TENNIS
Unit of AWF	Section of Tennis /Zakład Tenisa
Teacher's name	Tomasz Garsztka, PhD
ECTS points	4
Number of hours	15
Methods of estimation	<i>multiple choice written test</i> <i>running a part of a tennis lesson for classmates</i> <i>running a tournament for classmates</i>
Effects/results of education	<i>Students will be able to:</i> <i>demonstate basic tennis skills</i> <i>introduce the scoring system and basic rules to beginner players</i> <i>organize a tennis lesson for beginner players</i> <i>conduct simple coordination exercises and fun games</i> <i>introduce the basic strokes to a group of beginners</i> <i>describe the methodology used in mini-tennis</i> <i>organize competition for beginner players</i>
Topics of the classes	<i>Learning basic tennis skills; from mini tennis to regular tennis.</i> <i>Introduction to teaching the game of tennis,</i> <i>how the children learn Coordination/Fun exercises.</i> <i>How to Introduce the Basic Strokes to a Group of Beginners.</i> <i>Description of methodology used in mini-tennis.</i> <i>Tournament formats for beginners.</i>
Recommended literature	<i>ITF coaches Manual. ITF London (provided by a teacher)</i>

Subject	WSPINACZKA SPORTOWA
	CLIMBING
Unit of AWF	Department of Various Sports and Camps Organisation / Zakład Sportów Różnych i Organizacji Obozów
Teacher's name	Jacek Tarnas, PhD
ECTS points	4
Number of hours	15
Methods of estimation	<i>Pass</i>
Effects/results of education	<p><i>Acquisition of basic knowledge and skills necessary for self-climbing on artificial walls.</i></p> <p><i>Acquiring the ability to adapt climbing elements to work with children and youth in school conditions (ladders). Teaching organization and maintaining safety while conducting classes.</i></p>
Topics of the classes	<ol style="list-style-type: none"> <i>1. Safety rules while climbing the gym (ladders). Climbing movement technique - relations between the body position and the work of arms and legs (body position in the frontal and lateral position). Learning to protect.</i> <i>2. Planning task climbing routes in school conditions (ladders).</i> <i>3. Learning how to use the basic climbing equipment and the rules of a top rope climbing.</i> <i>4. Safety rules when climbing on an artificial wall. Learning belay during buldering. Learning basic climbing movements - using grips and steps.</i> <i>5. Exam - climbing the route with a specified degree of difficulty.</i>
Recommended literature	<p><i>White J. "The Indoor Climbing Manual", Bloomsbury Publishing 2014.</i></p> <p><i>Jim Stiehl J, B. Ramsey T.B. "Climbing Walls: A Complete Guide" Human Kinetics, 2005</i></p>

Subject	METODYKA NAUCZANIA PŁYWANIA PODSTAWOWEGO Z ELEMENTAMI TERAPII WODNEJ HALLIWICK
	METHODOLOGY OF TEACHING BASIC SWIMMING FOR CHILDREN WITH ELEMENTS OF HALLIWICK METHOD
Unit of AWF	Laboratory of Swimming and Water Lifesaving / Pracownia Pływania i Ratownictwa Wodnego
Teacher's name	Krystian Wochna, PhD
ECTS	4
Number of hours	15
Methods of estimation	<i>Pass practical classes Prepare lesson plans</i>
Effects/results of education	<ol style="list-style-type: none"> 1. <i>The aim of the subject is to educate students in methodology of teaching basic swimming for children.</i> 2. <i>Staging the process of teaching swimming.</i> 3. <i>Describing of using the Halliwick method.</i>
Topics of the classes	<p><i>3 classes – lectures: Water environmental features Educational aspects of the swimming teaching process Assumptions of the Halliwick Method</i></p> <p><i>8 classes – exercises: Methods, forms and principles of teaching children swimming, practical use of a play form, stroke mechanics, The Halliwick Ten Point Programme, Plans preparation</i></p> <p><i>8 classes – exercises: Conducting classes by students according to their plans</i></p>
Recommended literature	<ol style="list-style-type: none"> 1. <i>Peden, A.E.; Franklin, R.C. Learning to Swim: An Exploration of Negative Prior Aquatic Experiences Among Children. Int. J. Environ. Res. Public Health 2020, 17:3557.</i> 2. <i>Jerszyński, D.; Antosiak-Cyrak, K.; Habiera, M.; Wochna, K.; Rostkowska, E. Changes in selected parameters of swimming technique in the back crawl and the front crawl in young novice swimmers. Journal of Human Kinetics 2013, 37:161-171.</i>

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3. Tripp, F.; Krakow, K. *Effects of an aquatic therapy approach (Halliwick-Therapy) on functional mobility in subacute stroke patients: a randomized controlled trial. Clin Rehabil* 2014, 28(5):432-9.

Subject	CYFROWE TECHNOLOGIE W AKTYWNOŚCI FIZYCZNEJ
	DIGITAL TECHNOLOGIES IN PHYSICAL ACTIVITY
Unit of AWF	Department of Digital Technologies in Physical Activity/ Zakład Cyfrowych Technologii w Aktywności Fizycznej
Teacher's name	Magdalena Cyma-Wejchenig, PhD
ECTS points	4
Number of hours	15
Methods of estimation	<i>Practical test PowerPoint presentation.</i>
Effects/results of education	<ul style="list-style-type: none"> - <i>Student has knowledge about modern wireless technologies used in physical activity and sports.</i> - <i>The student has the knowledge and is able to use specific mobile applications, VR / AR equipment, and exergames in the training cycle in various environments.</i> - <i>The student has the knowledge of how to work with a coach remotely, using video conferencing, messaging, and other tools.</i> - <i>The student has the knowledge of how to use apps and wearable devices to monitor food and water intake as well as how digital tools can be used to analyze movement patterns and improve technique in various activities.</i> - <i>Student can interpret results and make conclusions based on gathered variables from a variety of training sessions.</i> - <i>Student is capable to project training sessions with using modern technology.</i>
Topics of the classes	<ul style="list-style-type: none"> - <i>Wearable fitness trackers: how they work, what data they collect, and how to use that data to improve physical activity.</i> - <i>Mobile apps for fitness and exercise: how to find and use apps for tracking workouts, setting goals, and staying motivated.</i> - <i>Gamification of fitness, Virtual reality and augmented reality for fitness: how to use games and game-like elements to make physical activity more engaging and fun 'how to use VR/AR headsets to simulate workouts, explore new environments, and enhance motivation.</i> - <i>Online coaching and training: how to work with a coach remotely, using video conferencing, messaging, and other tools.</i> - <i>Digital tools for tracking nutrition and hydration: how to use apps and wearable devices to monitor food and water intake, and how that can impact physical performance.</i> - <i>Biomechanics and motion capture: how digital tools can be used to</i>

analyze movement patterns and improve technique in various activities, from running to weightlifting.

Using data to personalize training and recovery: how to collect and analyze data about physical activity, sleep, and other factors to tailor training and recovery plans to individual needs.

**Recommended
literature**

Provided by a teacher.

Subject	CYFROWE TECHNOLOGIE W DIAGNOSTYCE I BIOMONITORINGU W SPORCIE
	DIGITAL TECHNOLOGIES IN DIAGNOSTICS AND BIOMONITORING IN SPORT
Unit of AWF	Department of Digital Technologies in Physical Activity/ Zakład Cyfrowych Technologii w Aktywności Fizycznej
Teacher's name	Magdalena Cyma-Wejchenig, PhD
ECTS points	4
Number of hours	15
Methods of estimation	<i>PowerPoint presentation: Design your own training sessions for a professional athlete using modern technology.</i>
Effects/results of education	<ul style="list-style-type: none"> - <i>Student has knowledge about modern wireless technologies used in sports.</i> - <i>Student can apply specific diagnostic equipment during a yearly training cycle in a variety of environments.</i> - <i>Student has the ability to assess the usefulness of modern diagnostic equipment.</i> - <i>Student is capable to project a training sessions for professional athletes with using modern technology.</i> - <i>Student can interpret results and make conclusions based on gathered variables from a variety of competitions or training sessions.</i>
Topics of the classes	<ul style="list-style-type: none"> - <i>The use of modern technologies in various sports.</i> - <i>Biological and Physiological Monitoring: Effective measurements to monitor athletes.</i> - <i>Use of specific diagnostic equipment over a yearly training cycle in various sports environments.</i> - <i>Designing a training session for professional athletes. Data visualization and reporting.</i> - <i>Practical use of modern technologies in diagnostics, biomonitoring and training sessions.</i>
Recommended literature	<ul style="list-style-type: none"> - <i>Wearable Physical, Chemical and Biological Sensors, E. Morales-Narvaez, C. Dincer, Fundamentals, Materials and Applications, 2022.</i> - <i>1st Edition - February 22, 2022</i> - <i>Research Methods in Biomechanics, D. Gordon & E. Robertson et al. 2014</i> - <i>Diagnostics in Sports – A Guide for Modern Coaches, K. Kusy & J. Zielinski 2017</i>https://erc.edu/courses

Subject	PODSTAWY PODNOSZENIA CIĘŻARÓW
	THE FUNDAMENTALS OF OLYMPIC WEIGHTLIFTING
Unit of AWF	Department of Neurobiology/Zakład Neurobiologii
Teacher's name	Bartosz Malak, MA
ECTS points	5
Number of hours	20
Methods of estimation	<i>Practical exam of skill and knowledge about teaching snatch and clean and jerk.</i>
Effects/results of education	<ul style="list-style-type: none"> - <i>Knowledge: The student knows and characterizes snatch and clean and jerk techniques and methods to teach them.</i> - <i>Skills: The student can teach snatch and clean and jerk as well as perform it.</i> - <i>Competence: The student is ready to teach snatch and clean and jerk.</i>
Topics of the classes	<ul style="list-style-type: none"> - <i>General and specific warm up for weightlifting</i> - <i>Competition exercise: snatch</i> - <i>Auxiliary exercise for the snatch</i> - <i>Competition exercise: clean & jerk</i> - <i>Auxiliary exercise for the clean</i> - <i>Auxiliary exercise for the jerk</i> - <i>Main technical errors and how to correct them</i> - <i>Teaching and training the technique</i> - <i>Planning modern weightlifting learning program (put it all together)</i> - <i>Introduction to qualitative and quantitative biomechanical assessment (case study)</i>
Recommended literature	<p><i>Urso, Antonio. Weightlifting. Sport for all sports</i></p> <p><i>Buitrago, Manuel and Jianping, Ma. Chinese Weightlifting. Technical mastery and training.</i></p> <p><i>Ajan, Tamas and Baroga, Lazar. Weightlifting. Fitness for all sports.</i></p>

Subject	COGNICISE: ĆWICZ I MYŚL
	COGNICISE: COGNITION & EXERCISE
Unit of AWF	Department of Gymnastics/ Pracownia Gimnastyki
Teacher's name	Jan Adamczyk MA, Roman Celka PhD
ECTS points	4
Number of hours	15
Methods of estimation	<ol style="list-style-type: none"> 1. <i>Formative assessment:</i> <ol style="list-style-type: none"> a) <i>practical skills test,</i> b) <i>observation during classes, activity.</i> 2. <i>Summative assessment: summary of learning outcomes achieved</i> <ul style="list-style-type: none"> - <i>evaluation of students' abilities based on the results of the examination carried out in the form of a presentation.</i>
Effects/results of education	<ul style="list-style-type: none"> - <i>The graduate understands the nature and purpose of the exercises in the cognicise model.</i> - <i>The graduate is proficient in a wide range of exercises in the cognicise model</i> - <i>The graduate is able to design and implement exercises in the cognicise model according to the training group.</i>
Topics of the classes	<ul style="list-style-type: none"> - <i>Introduction to the nature and purpose of the cognicise model of exercises.</i> - <i>Working with musical accompaniment.</i> - <i>Applying dual-tasking in auditory-motor, visual-motor and verbal-motor forms.</i> - <i>Using of electronic equipment.</i> - <i>Demonstration of a wide range of cognicise exercises in both dual and multi-tasking models.</i> - <i>Self-presentation (by students) of prepared exercises.</i>
Recommended literature	<p>Gronek P., Adamczyk J., Celka R., Gronek J. <i>Cognicise – a new model of exercise. Trends in Sport Sciences. 2021;28(1), p5 6p.</i></p> <p>Suzuki T., et al. <i>Community-based intervention for prevention of dementia in Japan. Journal of Prevention Alzheimer Disease. 2015;2(1):71-76</i></p> <p>Shatil E. <i>Dose combined cognitive training and physical activity training enhance cognitive abilities more than either alone? A four-condition randomized controlled trial among healthy older adults. Frontiers in Aging Neuroscience. 2013;5:8</i></p> <p>Shimada H. <i>Cognicise and anti-aging of cognitive function. Scientific Meeting of Japanese Society of Anti-Aging Medicine. 2016;12:315-320</i></p>

Shimada H., Makizako H., Doi T., Park H., Tsutsumimoto K., Verghese J., Suzuki T. Effects of Combined Physical and Cognitive Exercises on Cognition and Mobility in Patients With Mild Cognitive Impairment: A Randomized Clinical Trial. J Am Med Dir Assoc. 2018;19(7):584–91.

Kozaki K. Exercise and prevention of dementia. Neurological Therapeutics. 2015;32:923-926

Subject	GYMNASTICS FOR THE ELDERLY
	GIMNASTYKA SENIORALNA
Unit of AWF	Department of Gymnastics/ Pracownia Gimnastyki
Teacher's name	Jan Adamczyk MA, Roman Celka PhD
ECTS points	4
Number of hours	15
Methods of estimation	<p>1. <i>Formative assessment:</i> a) <i>practical skills test,</i> b) <i>observation during classes, activity.</i></p> <p>2. <i>Summative assessment: summary of learning outcomes achieved</i> - <i>evaluation of students' abilities based on the results of the examination carried out in the form of a presentation.</i></p>
Effects/results of education	<ul style="list-style-type: none"> - <i>The graduate understands the nature and purpose of gymnastics for the elderly.</i> - <i>The graduate is proficient in a wide range of efficient and safe gymnastics exercises for the elderly.</i> - <i>The graduate is able to design and implement gymnastic exercises for the elderly.</i>
Topics of the classes	<ul style="list-style-type: none"> - <i>The importance of physical activity for older people. Introduction to the nature and purpose of gymnastics for the elderly.</i> - <i>Forming structured schemes, warm-up exercises, marching, stretching exercises, balance exercises, agility exercises and relaxation exercises.</i> - <i>Demonstration of a wide range of fundamental gymnastic exercises designed for the elderly – free shaping exercises on the gym mats.</i> - <i>Gymnastics shaping exercises with hand apparatus – balls.</i> - <i>Gymnastics shaping exercises with hand apparatus – gymnastic sticks.</i> - <i>Gymnastics shaping exercises with hand apparatus – dumb-bells.</i> - <i>Gymnastics shaping exercises with hand apparatus – towels.</i> - <i>Gymnastics shaping exercises on wall ladders</i> - <i>Rhythmic gymnastics for elderly with elements of Dalcroze eurhythmics (with musical accompaniment).</i> - <i>Self-presentation (by students) of prepared exercises.</i>

**Recommended
literature**

How much physical activity do older adults need? Centers for Disease Control and Prevention.

https://www.cdc.gov/physicalactivity/basics/older_adults/index.htm, access: 03.03.2023

Physical Activity Guidelines for Americans (2nd edition). U.S. Department of Health and Human Services, 2018.

[https://health.gov/sites/default/files/2019-](https://health.gov/sites/default/files/2019-09/Physical_Activity_Guidelines_2nd_edition.pdf#page=67)

[09/Physical_Activity_Guidelines_2nd_edition.pdf#page=67](https://health.gov/sites/default/files/2019-09/Physical_Activity_Guidelines_2nd_edition.pdf#page=67), access 12.02.2023

Riva L. Rahl. Physical Activity and Health Guidelines. Human Kinetics Publishers, 2010

Peggie L. Williamson. Exercise for Special Populations. Lippincott Williams and Wilkins, 2018

Albert W. Taylor. Physiology of Exercise and Healthy Aging. Human Kinetics Publishers, 2021

Halina Młokosiewicz. Gimnastyka. Monografie Skrypty Podręczniki AWF w Poznaniu. 1976 Poznań

Wiesław Osiński. Gerokinezyjologia – nauka i praktyka aktywności fizycznej w wieku starszym. Państwowy Zakład Wydawnictw Lekarskich, 2015 Warszawa.