

DEPARTMENT: DIETETICS

the list of subjects for ERASMUS+ incoming students



LIST OF SUBJECTS FOR WINTER OR SUMMER SEMESTER 2017/2018

No.	SUBJECT	TEACHER	ECTS	Form of passing
1.	Food Processing - Przetwórstwo żywności	Erwin Wąsowicz, Prof.	4	Pass/Exam
2.	Food Chemistry - Chemia żywności	Erwin Wąsowicz, Prof.	4	Pass/Exam
3.	General and Nutritional Biochemistry - Biochemia ogólna i żywności	Tomasz Podgórski, PhD	4	Exam
4.	Sports Nutrition - Żywnienie w sporcie	Joanna Karolkiewicz, , PhD associate professor Ewa Śliwicka, PhD.	4	Pass
5.	General Physiology - Fizjologia ogólna	Jakub Kryściak, PhD	4	Exam
6.	Human Anatomy - Anatomia człowieka	Marta Matusiak, MA	4	Pass
7.	Theory of Sport Teoria sportu	Jan Konarski, PhD Janowski Jarosław, PhD	4	Pass
8.	Genetics and Molecular Biology (Genetyka i biologia molekularna)	Wojciech Jarosz, PhD	4	Pass

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	PRZETWÓRSTWO ŻYWNOSCI FOOD PROCESSING
Unit of AWF	Unit of Sports Medicine and Traumatology (Zakład Medycyny Sportu i Traumatologii)
Teacher's name	Erwin Wąsowicz, Prof.
ECTS points	4
Number of hours	15
Methods of estimation	Pass/Exam
Effects/results of education	<p><i>The aim of course is to introduce students to a wide range of processing techniques that are used in food processing. The course shows how knowledge of the properties of food is used to control processing conditions to achieve the aims of making attractive, safe and nutritious products and extending the shelf life of foods.</i></p>
Topics of the classes	<ul style="list-style-type: none"> - Raw material preparation - Size reduction - Mixing and forming - Separation and concentration of food components - Heat processing – theory, sources of heat and methods of application to food - Blanching - Pasteurization - Heat sterilization - Evaporation and distillation - Extrusion - Dehydration - Smoking - Baking and roasting - Frying - Chilling and modified atmosphere - Freezing - Food biotechnology - Irradiation

**Recommended
literature**

Fellows P.J., (2009) Food Processing Technology Principles and practice, CRC Press, Boca Raton
Potter N.N Hotchkiss J.H. (1998). Food Science, Fifth Edition Springer.

Subject	CHEMIA ŻYWNOŚCI FOOD CHEMISTRY
Unit of AWF	Unit of Sports Medicine and Traumatology (Zakład Medycyny Sportu i Traumatologii)
Teacher's name	Erwin Wąsowicz, Prof
ECTS points	4
Number of hours	15
Methods of estimation	Pass/Exam
Effects/results of education	<i>The physical and chemical properties of the important constituents of foods will be discussed in detail. The topics of lectures include the complex reactions between food ingredients during processing, storage and handling of food. The effect of reactions on sensory characteristics and nutritional properties of food will be presented.</i>
Topics of the classes	<p>1. <i>Water</i> Water molecule, liquid water and ice, water activity as an indicator.</p> <p>2. <i>Lipids</i> Fatty acids, acyloglycerols phosphor- and glycolipids, lipoproteins, changes in acyl lipids in food, unsaponifiable constituents, peroxidation of unsaturated acyl lipids.</p> <p>3. <i>Carbohydrates – monosaccharides</i> oligosaccharides, polysaccharides, sensory properties, caramelization, Maillard reactions, resistant starch, modified starches</p> <p>4. <i>Amino acids, peptides, protein – reaction of amino acids at higher temperatures and enzymatic reaction relevant for food processing</i></p> <p>5. <i>Aroma compounds - individual aroma compounds, aroma analysis, interactions with other food constituents, natural and synthetic flavourings.</i></p>
Recommended literature	<ol style="list-style-type: none"> 1. <i>Belitz H.D., Grosch W., Schieberle P. (2009) Food Chemistry. Springer-Verlag Berlin</i> 2. <i>Damodaran S., Parkin K.L. Fennema R.O. (2008) Fennema's Food Chemistry. CRC Press, Boca Raton.</i>

Subject	BIOCHEMIA OGÓLNA I ŻYWNOŚCI GENERAL AND NUTRITIONAL BIOCHEMISTRY
Unit of AWF	Unit of Biochemistry (Zakład Biochemii)
Teacher's name	Tomasz Podgórski, PhD
ECTS points	4
Number of hours	15
Methods of estimation	Exam

Effects/results of education

*To familiarize the students knowledge of the biochemical aspects of the structure and function of cells.
Mastering the students knowledge on essential metabolic processes in the human body.
Teach the students a thorough look at the biochemical effects provided dietary nutrients, particularly with regard to the specific person, the nature of work and the possible interactions of nutrition.
Acquaint the student with nutritional elements, particularly with sports supplements, which may affect on physical performance of athletes.*

Topics of the classes

*An introduction to the subject. Essential minerals in human body. Food sources of essential minerals. The pH scale and the pH values of biological fluids. Determination of some essential minerals in human blood. 3 hours
Amino acids, proteins. Metabolism of amino acids in rest and during the exercise. Determination of albumin, total protein, ammonia concentrations in the blood. 3 hours
Carbohydrates. Aerobic metabolism of glucose. The role of glycogen. The structure and food sources of carbohydrates. The taste of some of simple sugars and polysaccharides. 2 hours
Anaerobic pathways to resynthesize ATP. The role of lactic acid/lactate in athlete's organism. Some eliminations methods of lactate after exercise. Determination of lactate concentration in the blood. 2 hours
Lipids. Structure, types, food sources, influence on human health. Metabolism of lipids and cholesterol. Determination of total cholesterol concentrations in the blood. 2 hours
Biochemical aspects of sports supplements.*

Demonstration of the most popular supplements in the market. 2 hours

Summary of General and Nutritional Biochemistry. A written test. 1 hour

Literature

Mathews CK, van Holde KE, Ahern KG. Biochemistry. Addison Wesley Longman, Inc. 2000.

Maughan RJ, Gleeson M. The Biochemical Basis of Sports Performance. Oxford University Press. 2010.

MacLaren D. Nutrition and Sport. Elsevier. 2007.

Hargreaves M. Exercise Metabolism. Human Kinetics. 1995.

Other biochemistry textbooks and web pages about biochemistry, nutrition, sports exercise and athletes' supplementation.

Subject	ŻYWIENIE W SPORCIE SPORTS NUTRITION
Unit of AWF	Unit of Hygiene (Zakład Higieny)
Teacher's name	Joanna Karolkiewicz, , PhD, associate professor Ewa Śliwicka, PhD.
ECTS points	4
Number of hours	15
Methods of estimation	Pass
Effects/results of education	<p>This course equips students with the comprehensive knowledge and skills which are essential in order to achieve sports nutritional and athletic performance goals:</p> <ol style="list-style-type: none"> 1. Understanding and applying the basic fundamentals of nutrition and sports nutrition. 2. Identification and usage sound nutrition recommendations for macronutrient intakes among various athletes. 3. Recognizing and implementation science based nutrition strategies to help athletes with their training and performance. 4. Understanding of scope of practice and when to refer out to other experts.
Topics of the classes	<ol style="list-style-type: none"> 1. <i>Energy balance and body composition in sports and exercise.</i> 2. <i>Nutritional needs of endurance athletes</i> 3. <i>Nutritional needs of strength/power athletes</i> 4. <i>Hydration & fluid replacement for athletes</i> 5. <i>An overview of sports supplements.</i>
Recommended literature	<ol style="list-style-type: none"> 1. <i>Jeukendrup A., Gleeson M. Sport Nutrition an introduction to Energy production and performance. 2nd. Ed. Human Kinetics, Inc., 2010.</i> 2. <i>Burke L. Practical Sports Nutrition. Human Kinetics, Inc., 2007.</i> 3. <i>Manore, M., Meyer, N., and Thompson, J. Sport Nutrition for Health and Performance, 2 nd edition, Human Kinetics, Inc., 2009.</i> 4. <i>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>

Subject	FIZJOLOGIA OGÓLNA GENERAL PHYSIOLOGY
Unit of AWF	Unit of Physiology (Zakład Fizjologii)
Teacher's name	Jakub Kryściak, PhD
ECTS points	4
Number of hours	15
Methods of estimation	Exam
Effects/results of education	<p><i>Students will learn the basics of human physiology. The theoretical part is supported with practical aspects of physiology e.g. blood groups, HR, SV, BP measurement, pulmonary function tests etc. 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>

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- b. *Sarcomere*
 - c. *Motor unit and muscle fibers types*
 - d. *Neuromuscular junction*
- Sliding filament theory.*
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**Recommended
literature**

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

Subject	ANATOMIA CZŁOWIEKA HUMAN ANATOMY
Unit of AWF	Unit of Anatomy (Katedra Anatomii)
Teacher's name	Marta Matusiak, MA
ECTS points	4
Number of hours	15
Methods of estimation	Pass
Effects/results of education	<p><i>Students can find and show selected organs, describe their structure and function.</i></p> <p><i>The aim of the course is to acquaint students with the basic structure and function of internal systems, especially the digestive system.</i></p> <p><i>On the following lectures construction of selected internal systems of the human body, including structures of organs will be presented to the students.</i></p>
Topics of the classes	<p><i>Structure and function of the circulatory system. Structure of heart muscles, veins and arteries, blood composition. Structure and function of the immune system.</i></p> <p><i>Structure and function of the respiratory system, structure of bronchi, lungs, mechanics of breathing.</i></p> <p><i>Structure and function of the digestive system. Structure and function of stomach, liver, intestines, pancreas, the mechanism of digestive enzymes.</i></p> <p><i>Structure and function of the endocrine system, hormonal regulation of the digestive system.</i></p>
Recommended literature	<p><i>Basic anatomy and physiology. HGQ Rowett, 1999</i></p> <p><i>An introductory guide to anatomy and physiology. Louise Tucker, 2011</i></p>

Subject	TEORIA SPORTU THEORY OF SPORT
Unit of AWF	Unit of the Theory of Sport (Zakład Teorii Sportu)
Teacher's name	Jan Konarski, PhD, Jarosław Janowski, PhD
ECTS points	4
Number of hours	15
Methods of estimation	Credit on the base of short resuming test, presentation of own project about chosen subject and personal, positive activity during meetings and exercises
Effects/results of education	<i>The aim of the course is to acquaint students with the mechanisms of measures required for effective human behavior and human teams in a high-performance athletes training and competition. Through lectures and practical exercises intended to prepare and implement a student to understand the similarities and differences in training in different groups of sports: use of measuring equipment in the process training: use of methods and techniques to improve the effectiveness of training: understanding the process of teaching and learning of sports skills: design and implementation of teaching techniques and tactics of sport: find the relationship between technology and loads of sport.</i>
Topics of the classes	<i>Factors determining physical performance and skills in sport. Growth, maturation and fitness. Energy systems in sport and exercise. Strength, speed, coordination and endurance training: characteristic, development, principles, methods of training, methods of control, periodization. Technique and tactics. Training loads. Periodization in sport. Planning in sport. Assessment and data analysis in sport. Chosen elements of nutrition and supplements of diet in sport. General problems of doping in sport – could we do it in other way?!</i>
Recommended literature	Andrzejewski M., Konarski J., Pluta B., (2014) Changes in the activity profiles of soccer players over three-match training micro cycle. International Journal of Performance Analysis in Sport, 14 (3), 814-828. Bompa T. O. , Haff B. (2009) Periodyztation: theory and methodology of training. 5th ed. Human Kinetics. Foran B. (2001) High-performance sports conditioning. Modern training for ultimate athletic development. Champaign, IL: Human Kinetics Ki Janseen P., (2001), Lactate Threshold Training. Human Kinetics Konarski J., Krzykała M., Podgórski T., Pawlak M., Strzelczyk R., Malina R.M. (2012) Variations in Functional and Morphological Characteristics of Elite Polish Field Hockey Players in a Complete

Macrocycle. *International Journal of Sports Science & Coaching*, 7 (3), 527-540.

Malina, RM, Bourchard, C, and Bar-Or, O. (2004) Growth, maturation, and physical activity. Champaign, IL: Human Kinetics.

Podgórski T., Kryściak J., Konarski J., Domaszewska K., Durkalec-Michalski K., Strzelczyk R., Pawlak M. (2015) Iron metabolism in field hockey players during an annual training cycle. *Journal of Human Kinetics*. 47, 127-135

Sharkey, B. & Gaskill, S. (2006). *Sport physiology for coaches*. Champaign, IL: Human Kinetics

Strzelczyk R., Janowski J., Unierzyski P., Karpowicz K., Konarski J., (2004). Monitoring of training load during year- round circle. W: The 10th ICHPER-SD Europe Congress & the TSSA 8th International Sports Science Congress, 17-20 November 2004, Antalya, Turkey

Weltman A. (1995) The blood lactate response to exercise. *Human Kinetics*

Wilmore JH., Costill DL. (1994) *Physiology of sport and exercise*. Champaign, IL: Human Kinetics.netics

Subject	GENETYKA I BIOLOGIA MOLEKULARNA GENETICS AND MOLECULAR BIOLOGY
Unit of AWF	Department of Biology and Environmental Protection / Zakład Biologii i Ochrony Środowiska
Teacher's name	Wojciech Jarosz, PhD
ECTS points	4
Number of hours	15
Methods of estimation	<i>Exam format: The test with some multiple choice and matching.</i>
Effects/results of education	<p><i>The subject is an introduction to the principles of genetics, including topics from classical Mendelian concepts to the contemporary molecular biology of the gene.</i></p> <p><i>Prerequisites: knowledge of basic human biology</i></p> <p><i>Upon successful completion of this course, students should be able to demonstrate the following competencies:</i></p> <ol style="list-style-type: none"> <i>1) an ability to use the vocabulary that embodies the knowledge of genetics</i> <i>2) knowledge about the molecular and inheritance mechanisms discussed during classes</i> <i>3) good discernment in basic molecular biology methods knowing their application</i>
Topics of the classes	<ol style="list-style-type: none"> <i>1. Fundamentals of genetics: DNA and RNA, genes and genomes. Different methods of DNA isolation. Gel electrophoresis of DNA. Laboratory work: DNA isolation of students' DNA.</i> <i>2. Polymerase chain reaction method and its types. Laboratory work: amplification of selected region of DNA. Gel electrophoresis of PCR products.</i> <i>3. Restriction enzymes. Methods used for mutation detection: PCR-RFLP (restriction fragments length polymorphism) and SSCP (single stranded conformation polymorphism). Genetic engineering: clones and cloning; GMOs. Laboratory work: DNA cleavage with restriction enzyme. Gel electrophoresis of restriction fragments.</i> <i>4. DNA sequencing methods. Bases of bioinformatics. Laboratory work: practical use of online databases and tools in NCBI (National Centre for Biotechnology Information): GenBank, BLAST, OMIM, PubMed.</i> <i>5. Principles of heredity, inheritance patterns. The genotype-phenotype relations – expression of parental traits</i>

**Recommended
literature**

1. *Genomes, 2nd edition.* Terence A Brown. Oxford: Wiley-Liss (free online access).
 2. *Genetics and Molecular Biology. 2nd edition.* Robert Schleif. The Johns Hopkins University Press Baltimore and London (free online access).
 3. *BIOS Instant Notes in Genetics.* Hugh Fletcher, Ivor Hickey. Routledge.
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