

Courses for Erasmus students – WINTER SEMESTER

Faculty of Food Sciences, University of Warmia and Mazury in Olsztyn

No.	Title of the course	Subject code	ECTS credits	Contact person	Contact person email
1	Basis of Human Nutrition	1703S1-PZCZ	6	Prof. dr hab. Katarzyna Przybyłowicz	katarzyna.przybylowicz@uwm.edu.pl
2	Biochemistry	1703S1-BIOCH	6	Prof. dr hab. Małgorzata Darewicz	darewicz@uwm.edu.pl
3	Development of New Technologies and Products	1719S2-TECHPW	2.5	Dr hab. inż. Justyna Żulewska	justyna.zulewska@uwm.edu.pl
4	Food Chemistry	1727S1-CHEM	3.5	Prof. dr hab. Elżbieta Gujska	elka@uwm.edu.pl
5	Food Technology – Dairy Technology	1727S1-TZTECHM	2.5	Dr hab. inż. Katarzyna Kiełczewska	kaka@uwm.edu.pl
6	Fruit and Vegetables Freezing and Processing	1703S1-ZAMR	6	Dr inż. Sylwester Czaplicki	sylwester.czaplicki@uwm.edu.pl
7	General Food Technology	1761S1-OTZ	5	Dr hab. Marek Adamczak, prof. UWM	marek.adamczak@uwm.edu.pl
8	Physics	1782S1-FIZ	6	Dr hab. Krzysztof Bryl, prof. UWM	krzysztof.bryl@uwm.edu.pl
9	Sensory Analysis	1719S1-ANSENh	3	Dr inż. Marta Czarnowska-Kujawska	marta.czarnowska@uwm.edu.pl

BASIS OF HUMAN NUTRITION

Contact person lectures:

Dr hab. Katarzyna Przybyłowicz, prof. UWM email: katarzyna.przybylowicz@uwm.edu.pl

Contact person classes:

Dr hab. Katarzyna Przybyłowicz, email: katarzyna.przybylowicz@uwm.edu.pl

Semester:

Winter

ECTS: 6

Course description:

Human body energy balance. Human energy demand. Sources of energy in food. Energy equivalents. Energy balance. Recommended energy intake.

Role of food components for human body. Human nutritional needs. Proteins, fats, carbohydrates, vitamins and mineral components – functions in the body. Sources of nutrients in food. Demand and recommended intake. Nutritive value of food.

Rational nutrition. Definition, general principles. Principles of proper nutrition. Menus - principles of their setting up and assessment.

Nutrition standards and principles of dietary prevention. Nutrition standards – types and application. Demand and recommended intake. Exemplary recommended food rations and their application. Classification of food products for nutritional purposes. Dietary recommendations in the prevention of civilization diseases.

Assessment of dietary habits. Definitions. Interrelations between diet and health. Principles of methods for assessing dietary habits and their characteristics.

Nutritional status assessment. Definitions. Principles of methods for assessing nutritional status and their characteristics.

Therapeutic diets. Classification of diets for the purposes of inpatient care and mass catering institutions. Characteristics of model therapeutic diets. Principles of product choice and practical implementation of dietotherapy.

BIOCHEMISTRY

Contact persons - lectures:

Prof. dr hab. Małgorzata Darewicz, e-mail: darewicz@uwm.edu.pl; Dr hab. Anna Iwaniak, prof. UWM, e-mail: ami@uwm.edu.pl, Prof. dr hab. Piotr Minkiewicz, e-mail: minkiew@uwm.edu.pl

Contact persons - classes:

dr hab. Anna Iwaniak, prof. UWM, e-mail: ami@uwm.edu.pl; dr inż. Justyna Borawska-Dziadkiewicz, e-mail: justyna.borawska@uwm.edu.pl; dr inż. Justyna Bucholska, e-mail: justyna.bucholska@uwm.edu.pl; mgr inż. Damir Mogut, e-mail: damir.mogut@uwm.edu.pl

Semester:

Winter

ECTS: 6

Course description:

Interdisciplinary character of biochemistry; biochemical functions of biologically important compounds like macro- and microelements, organic acids, amino acids, peptides, proteins, carbohydrates and lipids; basis of metabolism; application of enzymes in food industry; metabolism of carbohydrates, lipids and proteins.; integration of biochemical pathways.

Isolation of DNA from biological material; isolation of β -fructofuranosidase from baker's yeasts and determination of pH and temperature optima for isolated enzyme, analysis of specificity of β -fructofuranosidase based on chemical reactions; hydrolysis of milk casein by use of hydrochloric acid, trypsin, chymosin and ginger proteinase – comparison of action of enzymes in the context of products release; hydrolysis of fat by use of lipases; food proteins as the source of bioactive peptides – bioinformatic analysis.

DEVELOPMENT OF NEW TECHNOLOGIES AND PRODUCTS

Contact person lectures:

Dr hab. inż. Justyna Żulewska, email: justyna.zulewska@uwm.edu.pl

Contact person classes:

Dr hab. inż. Justyna Żulewska, email: justyna.zulewska@uwm.edu.pl

Semester:

Winter

ECTS: 2,5

Course description:

New food product categories. Basis of food product development. Food product development process. Factors contributing to success or failure of new product. Development of functional foods. Food law. Trends in food production. Emerging technologies in food processing. Food additives and labelling.

FOOD CHEMISTRY

Contact person lectures:

Prof. dr hab. Elżbieta Gujska, email: elka@uwm.edu.pl

Contact person classes:

Prof. dr hab. Elżbieta Gujska, email: elka@uwm.edu.pl

Semester:

Winter

ECTS: 3.5

Course description:

Description of properties and function of components in food: water, carbohydrates, proteins, lipids, colours, aroma compounds, vitamins and minerals. Chemical composition, structure, biochemistry and quality of important foods: fruit, vegetables, meat/fish, bread, milk. Properties and reactions of carbohydrates, lipids and proteins during storage and processing of food and how these influence the quality and properties of the food. Quality degrading processes in foods. Chemical preservatives, food preservation. Food additives and contaminants

FOOD TECHNOLOGY - DAIRY TECHNOLOGY

Contact person lectures:

Dr inż. Maria Baranowska, email: mbb@uwm.edu.pl

Dr hab. inż. Katarzyna Kielczewska, email: kaka@uwm.edu.pl

Dr hab. inż. Jarosław Kowalik, email: j.kowalik@uwm.edu.pl

Dr hab. inż. Michał Smoczyński, email: michal.smoczynski@uwm.edu.pl

Dr hab. Justyna Żulewska, email: jzulewska@uwm.edu.pl

Contact person classes:

Dr hab. inż. Katarzyna Kielczewska, email: kaka@uwm.edu.pl

Dr hab. inż. Michał Smoczyński, email: michal.smoczynski@uwm.edu.pl

Semester:

Winter

ECTS: 2,5

Course description:

Characteristics of composition, basic milk components and physico-chemical properties of milk. Technological processes in dairy production. Technology of drinking milk, fermented beverages, milk concentrates (condensed milk, milk powder). The fundamentals of butter, ripening cheese and quarg production. Studies theoretical (lectures) and practical production (classes).

FRUIT AND VEGETABLES FREEZING AND PROCESSING

Contact person lectures:

Dr inż. Sylwester Czaplicki, email: sylwester.czaplicki@uwm.edu.pl

Contact person classes:

Sylwester Czaplicki, Ph.D., Eng., email: sylwester.czaplicki@uwm.edu.pl

Semester:

Winter

ECTS: 6

Course description:

Characteristic of fruit and vegetables as a material in food industry. Work organization in fruit and vegetables processing plant. Raw material pretreatment. Purpose and methods of blanching fruits and vegetables. Fruit and vegetables with minimal processing. Freezing technology. Technology of purées and related products. Technology of juices and concentrates. Technology of jams and other high sweetened food. Changes in chemical composition during conventional, vacuum, lyophilization and infrared drying.

Development of basic technological recipes in fruit and vegetable processing. Influence of thermal treatment (blanching and cooking) and reaction on deactivation of enzymes and changes of color of fruits and vegetables during the preservation. Application of enzymes in fruit and vegetable processing on the example of pectolytic preparations in the juice industry. Evaluation of physicochemical properties of gelling and thickening preparations. Influence of thermal treatment on the physical and chemical properties of fruit and vegetable purées.

GENERAL FOOD TECHNOLOGY

Contact person lectures:

Dr hab. Marek Adamczak, prof. UWM, email: marek.adamczak@uwm.edu.pl

Contact person classes:

Dr hab. Marek Adamczak, prof. UWM, email: marek.adamczak@uwm.edu.pl

Semester:

Winter

ECTS: 5

Course description:

The main topic of the practical course is to teach students the basic information about processes used in food production. The most important is to learn the interaction between unit operation and unit processes influencing the food product quality. During the practical course the students will analyze the process of food products dehydration, application of distillation and rectification or use of selected enzymes in food production.

PHYSICS

Contact person lectures:

Dr hab. Krzysztof Bryl, prof. UWM, email: krzysztof.bryl@uwm.edu.pl

Contact person classes:

Mgr Maciej Pyrka, email: maciej.pyrka@uwm.edu.pl

Semester:

Winter

ECTS: 6

Course description:

1. Determination of transport number and mobility of ions in electrolytic conductors. 2. Ionizing radiation. Determination of linear and mass absorption coefficient of gamma rays for different materials. 3. Electrical activity of the heart. Electrocardiography. Determination of the heart's electrical vector. 4. Laminar and turbulent flow. Determination of limit value of Reynolds number. Measurement of fluid viscosity. 5. The sense of hearing. Measures of auditory threshold. 6. Physical principles of ultrasound in medicine. Ultrasonography. Determination of blood pressure. 7. Modelling the electrical properties of biological objects. Examination of serial RLC circuit. 8. The phenomenon of absorption and emission of light in analysis. Measurement of absorption spectra and the concentration of riboflavin in aqueous solutions using a spectrophotometer. Determination of concentrations of substances in solution using fluorescence. 9. Optical rotation of solutions. Measurement of the concentration of optically active substances by using a polarimeter. 10. Determination of changes of thermodynamic function of state. Determination of changes in the entropy of the system. Determination of enthalpy change in the process of dissolving salt.

SENSORY ANALYSIS

Contact person lectures:

Dr inż. Marta Czarnowska-Kujawska, email: marta.czarnowska@uwm.edu.pl

Contact person classes:

Dr inż. Marta Czarnowska-Kujawska, email: marta.czarnowska@uwm.edu.pl

Semester:

Winter

ECTS: 3

Course description:

The basis of sensory analysis and the used terminology. Work organization and the requirements for sensory laboratories. Methods of sensory sensitivity evaluation of evaluators. Classification and characterization of methods used in food products sensory evaluation. Acquisition of knowledge and skills of sensory evaluation of selected food products using various methods. The groups of factors determining the repeatability and reliability of the results obtained in the sensory evaluation.