SZKOŁA GŁÓWNA GOSPODARSTWA WIEJSKIEGO

Alcoholic beverages and human being

Educational subject description sheet

Basic information

Field of study Food Science - Technology and Nutrition	**Didactic cycle** 2023/24
Speciality -	**Subject code** NoZTNS_D.110.04045.23
Organizational unit Faculty of Food Technology	**Lecture languages** english
Study level first cycle (bachelor's degree)	**Mandatory** Elective subjects
Study form full-time studies	**Block** Major subjects
Education profile General academic	**Disciplines** Food technology and nutrition

Coordinator	Piotr Koczoń
Teacher	Piotr Koczoń

Period	**Examination**	**Number of ECTS points**
Semester 5	Pass with grade **Activities and hours** Lecture: 30 Auditorium exercises: 15	3

Goals

Code	Goal
C1	The aim of the course is to provide students with the knowledge properties of ethanol (main component of alcoholic beverages) and various aspects i.e. physical, chemical and biological properties of alcoholic beverages.The history of alcoholic beverages and their evolutions

Entry requirements

Principles of organic and inorganic chemistry.

Subject's learning outcomes

Code	Outcomes in terms of	Effects	Examination methods
Knowledge – Student knows and understands:			
W1	chemical and physical properties of ethanol, including conversions ethanol contained in alcoholic beverages undergoes in body (administration, metabolism, elimination) and ethanol-organs interactions in human bod.	TN_K1_W01, TN_K1_W02, TN_K1_W09	Written credit
W2	the production of alcoholic beverages, monitoring of ethanol content in the body, healthy and economical results of drinking alcoholic beverages	TN_K1_W01, TN_K1_W02, TN_K1_W09	Written credit
Skills – Student can:			
U1	critically analyze the information obtained during the course	TN_K1_U01, TN_K1_U02	Report, Presentation
U2	make an in-depth review of the scientific literature related to the use of ethanol in human being	TN_K1_U01, TN_K1_U02, TN_K1_U06	Report, Presentation
Social competences – Student is ready to:			
K1	recognize the role that ethanol plays in human being and is ready to broaden the knowledge on this subject	TN_K1_K02, TN_K1_K04	Report, Presentation

Study content

No.	Course content	Subject's learning outcomes	Activities
1.	Ethanol physic-chemical properties. Type and mechanism of chemical reactions of ethanol. Economic, social and individual reasons for alcoholic beverages consumption. Ethanol various industrial applications. Different than drinking use of commercial vodka. Market of alcoholic beverages in Poland, Europe and the Word including amounts of yearly consumption. Beers and wines production. Distillation process. Vodka’s production. Ethanol distribution, metabolism and elimination from organism and its influence on different organs and systems, such as central and peripheral nervous system (e.g. neurotransmitters), gastrointestinal system (stomach, liver, pancreas, small intestine and colon),endocrine, immune and reproductive system.Short and long term effects of ethanol on organs. Ethanol and cancer risk. The next day effect -hangover. Alcoholism, its social adverse effects, treatment and cures for these disease. Beneficial effects of alcoholic beverages (ethanol) consumption on human body. In vivo models for monitoring effects of ethanol on different organs.Chemical analysis of alcoholic beverages due to ethanol content and other components of alcoholic beverages. Breathalyzers.	W1, W2, U1, U2, K1	Lecture, Auditorium exercises

Course advanced

Activities	Methods of conducting classes
Lecture	Problem lecture
Auditorium exercises	Discussion

Activities	Examination method	Percentage
Lecture	Written credit	70%
Lecture	Presentation	20%
Auditorium exercises	Report	10%

Activities	Credit conditions
Lecture	Written test – 90% homework - 10%
Auditorium exercises	Zaliczenie pisemne – 90% prace domowe 10%

Literature

Obligatory

1. Svatopluk Henke, Pavel Kadlec, Zdenek Bubnik. (2010) Physico-chemical properties of ethanol – Compilation of existing data. J. Food Eng. 99, 497–504.
2. S. Seidl, U. Jensen, A. Alt. (2000) The calculation of blood ethanol concentrations in males and females. Int. J. Legal Med. 114 :71–77.
3. Daya I. Perkins, James R. Trudell, Daniel K. Crawford, Ronald L. Alkana, Daryl L. Davies. (2010) Molecular targets and mechanisms for ethanol action in glycine receptors. Pharmacology & Therapeutics 127, 53–65.

Optional

1. M. Palma, C.G. Barroso, (2002) Application of FT-IR spectroscopy to the characterization and classification of wines, brandies and other distilled drinks. Talanta, 58, 265–271.
2. Klas Linderborg, Mikko Salaspuro, Satu Väkeväinen (2011) A single sip of a strong alcoholic beverage causes exposure to carcinogenic concentrations of acetaldehyde in the oral cavity Food and Chemical Toxicology 49, 2103–2106.
3. José Carlos Baffa Júnior, Regina Célia Santos Mendonça, Joesse Maria de Assis Teixeira Kluge Pereira, José Antonio Marques Pereira, Nilda de Fátima Ferreira Soares (2011) Ethyl-carbamate determination by gas chromatography–mass spectrometry at different stages of production of a traditional Brazilian spirit. Food Chemistry 129, 1383–1387.
4. Dirk W. Lachenmeier (2007) Rapid quality control of spirit drinks and beer using multivariate data analysis of Fourier transform infrared spectra Food Chemistry 101, 825–832.
5. Flavio D. Fuchsa, Lloyd E. (2007) Chamblessb Is the cardioprotective effect of alcohol real? Alcohol 41, 399-402...

Calculation of ECTS points

Activity form	Activity hours*
Lecture	30
Auditorium exercises	15
Preparing a report	20

Preparation for the exam	25
Student workload	**Hours** 90
Number of ECTS points	**ECTS** 3

* hour means 45 minutes

Effects

Code	Content
TN_K1_K02	The graduate is ready to complete professional duties in a socially responsible manner, enterprising, ethical, compatible with the public interest and also with the respect for professional tradition, and for the right to intellectual property protection
TN_K1_K04	The graduate is ready to responsible performing of professional roles, in it: compliance with the professional ethics and exploring knowledge related to the profession
TN_K1_U01	The graduate can conduct experiments and solve practical issues in the field of basic sciences, and then implement them in activities carried out under directional issues in the field of food processing and human nutrition
TN_K1_U02	The graduate can assess the composition, energy and nutritional value of food products, determine their impact on the growth, development, functioning and health of the body, assess the diet, and nutritional status, and use the obtained results to rationalize the nutrition of individuals and different population groups
TN_K1_U06	The graduate can obtain, analyze and synthesize the obtained information and draw conclusions taking into account various conditions related to the aspects of human nutrition, food production, including regional production, food evaluation, consumer protection, intellectual property protection, legal, technological, economic, social, and sociological, cultural, ecological and ethical aspects of food production and consumption as well as quality and safety assurance in the food chain and human nutrition
TN_K1_W01	The graduate knows and understands theoretical issues in the field of biological, chemical, mathematical, and related sciences, which are the basis for the description of phenomena occurring in food and the human being body, used for its description
TN_K1_W02	The graduate knows and understands processes and phenomena occurring in the human being body in the nutrition process and the influence of food ingredients on the human being body and functions, importance and influence of food ingredients and energy value on the development and functioning of the human being body and their importance in ensuring public health
TN_K1_W09	The graduate knows and understands factors determining the quality and health safety of food with a different degree of processing, health hazards related to food, and methods of reducing the risk associated with these hazards