

ZARZĄDZENIE NR 43

Rektora Zachodniopomorskiego Uniwersytetu Technologicznego w Szczecinie
z dnia 23 sierpnia 2016 r.

**zmieniające zarządzenie nr 30 Rektora ZUT z dnia 25 września 2014 r.
w sprawie opisu efektów kształcenia w tłumaczeniu na język angielski
dla poszczególnych kierunków studiów prowadzonych w ZUT**

Na podstawie art. 66 ust. 2 w związku z art. 167 ust. 1 ustawy z dnia 27 lipca 2005 r. Prawo o szkolnictwie wyższym (tekst jedn. Dz. U. z 2012 r., poz. 572, z późn. zm.) oraz § 13 ust. 2 rozporządzenia Ministra Nauki Szkolnictwa Wyższego z dnia 14 września 2011 r. w sprawie dokumentacji przebiegu studiów (Dz.U. nr 201, poz. 1188, z późn. zm.), w oparciu o uchwałę nr 53 Senatu ZUT z dnia 25 maja 2015 r. w sprawie określenia opisu efektów kształcenia dla kierunku studiów mikrobiologia stosowana pierwszego stopnia prowadzonego na Wydziale Nauk o Żywności i Rybactwa ZUT, oraz o uchwałę nr 76 Senatu ZUT z dnia 27 października 2014 r. w sprawie określenia opisu efektów kształcenia dla kierunku studiów mikrobiologia stosowana drugiego stopnia prowadzonego na Wydziale Nauk o Żywności i Rybactwa ZUT, zarządza się, co następuje:

§ 1.

W zarządzeniu nr 30 Rektora ZUT z dnia 25 września 2014 r. w sprawie opisu efektów kształcenia w tłumaczeniu na język angielski dla poszczególnych kierunków studiów prowadzonych w ZUT, w załączniku nr 8 – Wydział Nauk o Żywności i Rybactwa – dodaje się opisy efektów kształcenia dla kierunku mikrobiologia stosowana I stopnia i II stopnia, w obszarze kształcenia w zakresie nauk rolniczych, leśnych i weterynaryjnych, w brzmieniu jak stanowią odpowiednio załączniki nr 1–2 do niniejszego zarządzenia.

§ 2.

Zarządzenie wchodzi z dniem podpisania.

Rektor



prof. dr hab. inż. Włodzimierz Kiernożycki

Programme of study: applied microbiology¹

Educational cycle: first cycle studies

Educational profile: general academic

Educational areas: within the scope of agricultural, forestry and veterinary sciences

Name of qualification/title obtained: inżynier

Code	Learning outcomes for <i>applied microbiology</i>
	Knowledge
MS_1A_W01	Has basic knowledge within the scope of chemistry, mathematics, statistics, physics and related sciences.
MS_1A_W02	Has basic knowledge within the scope of economics, law, enterprise management as well as protection of intellectual property and patent law.
MS_1A_W03	Has basic knowledge within the scope of ecology and environmental protection, the role and biological variety in biosphere and processes occurring in it. Knows the necessary tools, methods and techniques for environment shaping.
MS_1A_W04	Has basic knowledge on the subject of nomenclature, basic definitions and structure of food components as well as mutual relations and transformations resulting from interactions between them.
MS_1A_W05	Has knowledge concerning physical, chemical and biological factors (microorganisms, fungi, parasites and pests) occurring in food, modern methods of detecting them, their influence on the quality and health safety of food.
MS_1A_W06	Has knowledge of a foreign language on B2 level.
MS_1A_W07	Has basic knowledge on the subject of microorganisms and the processes occurring with their participation in various branches of industry and agriculture.
MS_1A_W08	Has basic knowledge concerning plant, animal and human pathogens as well as methods of their identification.
MS_1A_W09	Knows the directions and mechanisms of evolution as well as understands the processes conditioning them on the molecular level. Has knowledge on the subject of basic techniques of molecular biology and genetic engineering as well as possibilities of using modified organisms in agriculture and food industry.
MS_1A_W10	Has basic knowledge concerning biotechnological equipment and techniques as well as their use in conducting bioprocesses.
MS_1A_W11	Has the necessary knowledge within the scope of structure and functioning of cells and organs, the physiology of digestion and transformations of nutritional elements as well as their influence on consumer safety.
MS_1A_W12	Has knowledge concerning organisation, equipment and methods of work and safety in research and diagnostic laboratories, in particular microbiological laboratories.
MS_1A_W13	Has knowledge on the subject of analytic methods and their use in assessment of food and environment quality.
MS_1A_W14	Has the necessary knowledge within the scope of fundamental technologies of products of plant and animal origin.
MS_1A_U01	Has the ability to find, understand, analyse and develop as well as use the necessary information from various sources in Polish and a foreign language. Is able to interpret it as well as to draw conclusions, formulate and justify opinions.

¹ uchwała nr 53 Senatu ZUT z dnia 25 maja 2015 r. w sprawie określenia opisu efektów kształcenia dla kierunku studiów mikrobiologia stosowana pierwszego stopnia prowadzonego na Wydziale Nauk o Żywności i Rybactwa ZUT

MS_1A_U02	Uses correct biological, chemical and physical terminology; is able to select the appropriate analytic procedures and methods.
MS_1A_U03	Is able to recognise basic structures of living organisms, their location as well as understands the dependencies between their structure and activities, explains deviations from proper functioning of an organism.
MS_1A_U04	Has basic ability of assessing the quality of raw materials, technical products and materials as well as selecting the appropriate equipment, biotechnical techniques and conducting bioprocesses.
MS_1A_U05	Is able to differentiate organisms that are pathogenic and beneficial for production, food quality, human and animal health, the environment condition and the natural resources.
MS_1A_U06	Uses basic research techniques and tools appropriate for Applied Microbiology and related fields and has the ability to conduct observations and evaluate process phenomena.
MS_1A_U07	Has the ability to organise work in a laboratory as well as conduct analyses. Knows basic principles of research method validation. Is able to conduct statistical analyses of the obtained results.
MS_1A_U08	Is able to select the methods and conduct analyses of environmental and biological samples.
MS_1A_U09	Is able to evaluate the technological usefulness of plant and animal raw materials, propose the methods of processing them as well as select the analytic methods necessary for quality evaluation of manufactured products.
MS_1A_U10	Has the ability to conduct the basic economic analysis of a technological process and introduce a suitable production safety management system.
MS_1A_K01	Understands the need of life-long learning and the necessity to improve professional competences. Determines the directions of his/her own development and education.
MS_1A_K02	Is aware of the importance to comply with the principles of professional ethics and respect for the diversity of sexes, beliefs and cultures.
MS_1A_K03	Is aware of the responsibility for the safety of work of his/her own and others. Is able to behave in emergency.
MS_1A_K04	Is able to think and act in an enterprising manner individually and in a team.
MS_1A_K05	Is aware of the social role of a university graduate and, in particular, understands the need to popularise the knowledge gained.

Programme of study: applied microbiology²

Educational cycle: second cycle studies

Educational profile: general academic

Educational areas: within the scope of agricultural, forestry and veterinary sciences

Name of qualification/title obtained: magister inżynier

Code	Learning outcomes for <i>applied microbiology</i>
	Knowledge
MS_2A_W01	Has extended knowledge within the scope of statistical methods, information and bioinformation technologies used in natural sciences.
MS_2A_W02	Has knowledge within the scope of dependencies between physiology of living organisms and genotype as well as the scope of immunology and immunoprophylaxis in animal breeding.
MS_2A_W03	A student has extended knowledge on the subject of microorganisms, their specificity, variety and role in agricultural and related sciences.
MS_2A_W04	A student has extended knowledge concerning microbiological and biological phenomena occurring in pedosphere, hydrosphere and biosphere.
MS_2A_W05	Has thorough knowledge concerning microorganisms (viruses, bacteria and fungi) and parasites as well as diagnostic methods used for detecting them.
MS_2A_W06	Has knowledge of specialist vocabulary in a foreign language on B2+ level in a given field.
MS_2A_W07	Has knowledge concerning biotechnology of antibiotics and drug resistance.
MS_2A_W08	Has extended knowledge on the subject of influence of microorganisms on quality and health safety of food as well as biotechnology of food industry, including processing with participation of microorganisms.
MS_2A_W09	Has knowledge within the scope of cell cultures and their use.
MS_2A_W10	Has knowledge within the scope of obtaining and using the main types of biopolymers, mechanisms of biodegradation and biorefinery.
MS_2A_W11	Has extended knowledge concerning the system of management and standardisation. Has extended knowledge within the scope of law protecting intellectual property and labour law.
MS_2A_W12	Has extended knowledge of harmful compounds in the environment, contamination processes and methods of determining them.
MS_2A_W13	Has extended knowledge of the processes occurring in the environment and the dependencies among the organisms functioning in it as well as the possibilities of using them.
MS_2A_U01	Has the ability to use the necessary information from various sources in Polish and a foreign language. Is able to interpret it as well as to draw conclusions, formulate and justify opinions.
MS_2A_U02	Is able to develop documentation concerning the accomplishment of an analytic task and to prepare a text containing the description of the results of such a task as well as to present them verbally (presentation) in Polish and a foreign language.

² uchwałę nr 76 Senatu ZUT z dnia 27 października 2014 r. w sprawie określenia opisu efektów kształcenia dla kierunku studiów mikrobiologia stosowana drugiego stopnia prowadzonego na Wydziale Nauk o Żywności i Rybactwa ZUT

MS_2A_U03	I able to select proper analytic procedures and methods. Is able to use in practice basic and specialist research techniques and tools appropriate for Applied Microbiology and related sciences.
MS_2A_U04	Is able to differentiate organisms that are pathogenic and beneficial for a human being and animals as well as determine their role in the environment.
MS_2A_U05	Has the ability to introduce systems of management and standardisation. Is able to use in practice the knowledge within the scope of law protecting intellectual property and labour law. Is able to conduct statistical analyses used in agricultural sciences.
MS_2A_U06	Has the ability of working with genetic material and cell cultures as well as using imaging techniques.
MS_2A_U07	Is able to use knowledge concerning the dependency of the immunological condition of animals and human beings in relation to their well-being.
MS_2A_K01	Understands the need of life-long learning and the necessity to improve professional competences. Determines the directions of his/her own development and education (third cycle studies, post-graduate studies, courses).
MS_2A_K02	Is aware of the importance to comply with the principles of professional ethics and respect for the diversity of sexes, beliefs and cultures.
MS_2A_K03	Is aware of the responsibility for the safety of work of his/her own and others. Is able to behave in emergency.
MS_2A_K04	Is able to think and act in an enterprising manner individually and in a team.