1.	**Field of study**	**Mathematics**
2.	Faculty	Faculty of Science and Technology
3.	Academic year of entry	2023/2024 (winter term)
4.	Level of qualifications/degree	second-cycle studies
5.	Degree profile	general academic
6.	Mode of study	full-time

7.	**General information about the module**
Module name	**Environmental Chemistry**
Module code	W4-MT-S2-23-ChŚ
Number of the ECTS credits	3
Language of instruction	Polish
Purpose and description of the content of education	Moduł Chemia środowiska ma za zadanie zapoznanie studenta z problemami obecności związków chemicznych w środowisku, jak i procesami chemicznymi zachodzącymi w różnych komponentach środowiska, tj. wodzie, glebie i atmosferze. Student poznaje sposoby ochrony środowiska naturalnego przed zanieczyszczeniami, degradację zanieczyszczeń zgodnie z zasadami zrównoważonego rozwoju, jak również metody zagospodarowania odpadów oraz powszechnie stosowane metody utylizacji. Potrafi dokonać klasyfikacji tworzyw sztucznych w zależności od ich właściwości i zastosowania.
List of modules that must be completed before starting this module (if necessary)	not applicable

8. Learning outcomes of the module

Code	Description	Learning outcomes of the programme	Level of competenc (scale 1-5)
ChŚ_01	Dysponuje pogłębioną wiedzą w zakresie chemii środowiska, zna rodzaje zanieczyszczeń powietrza, wody i gleby. Zna ich źródła oraz wpływ na stan środowiska naturalnego.	KN_Ch_W01	4
ChŚ_02	Wymienia działania jakie powinny być wprowadzane w celu ograniczania zanieczyszczeń w środowisku.	KN_Ch_U01 KN_Ch_W02	4 3
ChŚ_03	Potrafi dokonać klasyfikacji tworzyw sztucznych w zależności od ich właściwości i zastosowania.	KN_Ch_U01 KN_Ch_W01 KN_Ch_W02	4 3 3
ChŚ_04	Zna chemiczne i instrumentalne metody stosowane w analizie zanieczyszczeń środowiska, w tym budowę i zasadę działania aparatury pomiarowej i sprzętu chemicznego.	KN_Ch_W03 KN_Ch_W04	3 3
ChŚ_05	Posiada pogłębioną wiedzę dotyczącą nowoczesnych technik pomiarowych stosowanych w analizie zanieczyszczeń środowiska.	KN_Ch_W03	3
ChŚ_06	Potrafi zaplanować i zorganizować prace badawcze zgodnie z zasadami bezpieczeństwa i dobrej praktyki laboratoryjnej oraz realizować je samodzielnie lub zespołowo.	KN_Ch_U05 KN_Ch_U06	3 3

ChŚ_07	Wykazuje umiejętność łączenia wiedzy z różnych gałęzi chemii i nauk pokrewnych oraz potrafi wytłumaczyć określone problemy z dziedziny ochrony środowiska.	KN_Ch_U01 KN_Ch_U05 KN_Ch_U07	4 3 3
ChŚ_08	Samodzielnie poznaje wybrane zagadnienia i określa kierunki dalszego kształcenia oraz rozumie konieczność stosowania interdyscyplinarnego podejścia opartego na krytycznym wnioskowaniu przy rozwiązywaniu problemów badawczych.	KN_Ch_K01 KN_Ch_K02 KN_Ch_U07	3 3 3

9. Methods of conducting classes

Code	Category	Name (description)
b02	Problem-solving methods	Lecture-discussion *transmission of content involving interaction with the lecture audience; discussion of lecture-related issues is one of its elements or constitutes its follow-up*
b04	Problem-solving methods	Activating method – discussion / debate *an exchange of views supported by substantive arguments leading to a clash of different views, a compromise or the identification of common positions; it proceeds according to previously agreed-upon rules regarding the time, manner and turn-taking as well as the principles of civil discourse; a discussion is not a competition but aims at finding the best solutions or presenting different points of view; its varieties include brainstorming, Oxford-style debate, panel discussion, decision tree, conference discussion; a debate is an orderly dispute between supporters and opponents of a viewpoint, usually specialists in the field or pre-selected representatives of a group dealing with a common problem*
e01	Practical methods	Laboratory exercise / experiment *[also conducted as fieldwork] a method of practical application of knowledge; implemented in three stages: the recognition of a problem induced by the task content, the formulation of the problem and the attempt to solve it accompanied by the assessment of the effects; the goal is to acquire skills, abilities and habits, and to consolidate the acquired knowledge so that it becomes operational; the laboratory method assumes greater independence of learners than carrying out an experiment*

10. Forms of teaching

Code	Name	Number of hours	Assessment of the learning outcomes of the module	Learning outcomes of the module	Methods of conducting classes
ChŚ_fs_01	workshop	30	course work	ChŚ_01, ChŚ_02, ChŚ_03, ChŚ_04, ChŚ_05, ChŚ_06, ChŚ_07, ChŚ_08	b02, b04, e01

11. The student's work, apart from participation in classes, includes in particular:

Code	Category	Name (description)	Is it part of the BUNA?
a02	Preparation for classes	Literature reading / analysis of source materials *reading the literature indicated in the syllabus; reviewing, organizing, analyzing and selecting source materials to be used in class*	Yes
a04	Preparation for classes	Consulting materials complementary to those indicated in the syllabus *agreeing on materials complementary to those indicated in the syllabus, supporting the implementation of tasks resulting from or necessary for class participation*	Yes
b01	Consulting the curriculum and the organization of classes	Getting acquainted with the syllabus content *reading through the syllabus and getting acquainted with its content*	No

b02	Consulting the curriculum and the organization of classes	Verification / adjustment / discussion of syllabus provisions *consulting the content of the syllabus, possibly in the presence of the year tutor or members of the class group, and, if necessary, reassessing the provisions concerning special conditions for class participation, e.g., space and time requirements, technical and other requirements, including conditions for participation in classes outside the walls of the university, classes organized in blocks, organized online, etc.*	Yes
b03	Consulting the curriculum and the organization of classes	Consulting the schedule *getting acquainted with the class schedule, possibly in the presence of the year tutor, in order to optimize participation in classes, including those supplementary to the core subjects listed in the pursued study programme*	Yes

Information on the details of the module implementation in a given academic year can be found in the syllabus available in the USOS system: https://usosweb.us.edu.pl.