UNIWERSYTET IM. ADAMA MICKIEWICZA W POZNANIU

Anthropocene and ecosystems

Educational subject description sheet

Basic information

Study programme Geohazards and Climate Change **Speciality** - **Organizational unit** Faculty of Geographical and Geological Sciences **Study level** Second-cycle programme **Study form** Full-time **Education profile** General academic	**Didactic cycle** 2024/25 **Subject code** 07GCCS.21P.02854.24 **Lecture languages** English **Course type** Obligatory **Block** Basic subjects

Subject coordinator	Mariusz Lamentowicz
Lecturer	Mariusz Lamentowicz, Monika Karpińska-Kołaczek, Katarzyna Marcisz, Piotr Kołaczek

Period	**Activities and hours**	**Number of ECTS points**
Semester 1	• Lecture: 15, Exam • Laboratories: 15, Graded credit	4

Goals

Code	Goal
C1	Revealing and discussing conflicts between nature conservation and nature exploitation in the Anthropocene.
C2	Discussing the impact of humans on ecosystems and biomes.
C3	Providing novel knowledge on the anthropogenic biosphere and ecosystems.
C4	Delivering basic knowledge about ecological restoration and reintroduction.
C5	Defining the Anthropocene.

Entry requirements

Basic knowledge of the fundamentals of Ecology.

Subject learning outcomes

Code	Outcomes in terms of	Learning outcomes	Examination methods
Knowledge – Student:			
W1	understands the impact of humans on ecosystems in the Anthropocene in the different time scales in the context of the ecological and climatic crisis;	GCC_K2_W01, GCC_K2_W02, GCC_K2_W03	Written exam, Written colloquium
W2	comprehends of the solutions: ecological restoration approaches in the environment transformed by anthropogenic impact.	GCC_K2_W07, GCC_K2_W08, GCC_K2_W09	Written exam, Written colloquium
Skills – Student:			
U1	evaluates and discusses the problem of the negative impact of humans on nature in the Anthropocene as well as finding appropriate methods of ecosystem restoration.	GCC_K2_U01, GCC_K2_U02, GCC_K2_U06, GCC_K2_U08	Written exam, Written colloquium
Social competences – Student:			
K1	is prepared to engage in science communication, teaching and popularisation about the Anthropocene and ecological crisis.	GCC_K2_K01, GCC_K2_K02, GCC_K2_K03	Written exam, Written colloquium

Study content

No.	Course content	Subject learning outcomes	Activities
1.	Fundamentals of Ecology (Ecosystems, Communities, Landscape).	W1	Lecture, Laboratories
2.	Anthropocene in the context of past global changes, discussions about beginning of the Anthropocene.	W2	Lecture, Laboratories
3.	Disturbances – Pollution, Drainage, Exploitation of natural resources.	W2, U1, K1	Lecture, Laboratories
4.	Global warming in the Anthropocene.	W1, W2	Lecture, Laboratories
5.	Nature protection – active and passive nature conservation.	W2, U1, K1	Lecture, Laboratories
6.	Anthrogenic biosphere: novel ecosystems and anthromes.	W2, U1, K1	Lecture, Laboratories
7.	Ecological restoration - perspectives for the future.	W2, U1, K1	Lecture, Laboratories

Additional information

Activities	Teaching and learning methods and activities
Lecture	Lecture with a multimedia presentation of selected issues, Conversation lecture, Discussion
Laboratories	Conversation lecture, Discussion, Case study

Activities	Credit conditions
Lecture	Active engagement in the discussion (20% of the final grade) and written exam (80% of the final grade). Grading scale: 1. very good (5.0) - from 90% of points, 2. good plus (4.5) - from 80% of points, 3. good (4.0) - from 70% of points, 4. sufficient plus (3.5) - from 60% of points, 5. satisfactory (3.0) - from 50% of points, 6. unsatisfactory (2.0) - below 50% of points.
Laboratories	Presence at laboratories and active engagement in the discussion (20% of the final grade) and written colloqium (80% of the final grade). Grading scale: 1. very good (5.0) - from 90% of points, 2. good plus (4.5) - from 80% of points, 3. good (4.0) - from 70% of points, 4. sufficient plus (3.5) - from 60% of points, 5. satisfactory (3.0) - from 50% of points, 6. unsatisfactory (2.0) - below 50% of points.

Literature

Obligatory

1. Zalasiewicz, J., Williams, M., Smith, A., Barry, T. L., Coe, A. L., Bown, P. R., Brenchley, P., Cantrill, D., Gale, A., Gibbard, P., Gregory, F. J., Hounslow, M. W., Kerr, A. C., Pearson, P., Knox, R., Powell, J., Waters, C., Marshall, J., Oates, M., Rawson, P., & Stone, P. 2008. Are we now living in the Anthropocene. GSA Today, 18(2), 4.
2. Oldfield, F., Barnosky, T., Dearing, J., Fischer-Kowalski, M., McNeill, J., Steffen, W., & Zalasiewicz, J. 2013. The Anthropocene Review: Its significance, implications and the rationale for a new transdisciplinary journal. The Anthropocene Review,
3. Waters, C. N., & Turner, S. D. 2022. Defining the onset of the Anthropocene. Science, 378(6621), 706–708.
4. Ellis, E. C. 2015. Ecology in an anthropogenic biosphere. Ecological Monographs, 85(3), 287–331.
5. Gibbard, P. L., Bauer, A. M., Edgeworth, M., Ruddiman, W. F., Gill, J. L., Merritts, D. J., Finney, S. C., Edwards, L. E., Walker, M. J. C., Maslin, M., & Ellis, E. C. 2021. A practical solution: the Anthropocene is a geological event, not a formal epoch. Episodes,
6. Andel, J.v., Aronson, J., 2006. Restoration Ecology The New Frontier. Blackwell.

Optional

1. Falk, D.A., Palmer, M.A., Zedler, J.B., 2006. Foundations of Restoration Ecology. Island Press.
2. Kardol, P., Wardle, D.A., 2010. How understanding aboveground–belowground linkages can assist restoration ecology. Trends in Ecology and Evolution 25, 670-679.

Calculation of ECTS points

Activities	Activity hours*
Lecture	15
Laboratories	15
Reading the indicated literature	40
Preparation for the exam	40

Student workload	Hours
	110

Number of ECTS points	ECTS 4

* academic hour = 45 minutes

Efekty uczenia się dla kierunku

Kod	Treść
GCC_K2_K01	The graduate is ready to implement and popularize actions serving the environmental protection
GCC_K2_K02	The graduate is ready to identify the influence of environmental processes onto the socio-economic processes, and also influence of anthropogenic activities onto the various components of the natural environment in various timescales
GCC_K2_K03	The graduate is ready to communicate, discuss and argue burning issues, hazards and problems associated with the climate, climate and environment changes for wider, non-scientific audience
GCC_K2_U01	The graduate can vary between natural and anthropogenic causes of climate change and associated environmental changes and geohazards
GCC_K2_U02	The graduate can critically assess future climate change scenarios and associated environmental changes and geohazards
GCC_K2_U06	The graduate can critically assess the sources of information on climate and environmental change and associated geohazards
GCC_K2_U08	The graduate can apply advanced laboratory methods and techniques used for environmental research
GCC_K2_W01	The graduate knows and understands thoroughly, the processes operating in the natural environment, their causes, mechanisms, consequences and associated geohazards
GCC_K2_W02	The graduate knows and understands thoroughly, climate functioning and mechanisms of atmospheric processes and the anthropogenic influence on the climate
GCC_K2_W03	The graduate knows and understands thoroughly, endogenic processes, anthropogenic influence on endogenic processes and following from them geohazards
GCC_K2_W07	The graduate knows and understands thoroughly complex socio-economic processes in the local, regional and global scale and their influence on the occurrence of extreme environmental events
GCC_K2_W08	The graduate knows and understands thoroughly, the influence of the climate change, extreme environmental events and geohazards on the socio-economic processes
GCC_K2_W09	The graduate knows and understands thoroughly, relationship between climate and environmental change and necessity of formulation of the adaptation strategies