

Ecosystem Dynamics and their Effect on Greenhouse Gases (I002472)

Course size *(nominal values; actual values may depend on programme)*

Credits 3.0 **Study time 90 h** **Contact hrs** 30.0h

Course offerings in academic year 2022-2023

A (semester 2) English Gent

Lecturers in academic year 2022-2023

Zechmeister-Boltenstern, Sophie	WIEN03	lecturer-in-charge
Diaz-Pines, Eugenio	WIEN03	co-lecturer
Hood-Nowotny, Rebecca	WIEN03	co-lecturer

Offered in the following programmes in 2022-2023

	crdts	offering
International Master of Science in Soils and Global Change (main subject Soil Biogeochemistry and Global Change)	3	A

Teaching languages

English

Keywords

Position of the course

Contents

The cycles of carbon, nitrogen, oxygen and water represent an important component of the global climatic system. On the one hand the atmospheric part of these cycles covers greenhouse gases, e.g. CO₂, CH₄ and N₂O, which affect the climate of the earth over their concentration. On the other hand the concentration of these gases is steered by biological, chemical and physical processes at the earth's surface, which depend on the prevailing climate conditions and on the land use. Organized like a workshop this course offers news and views by internationally renown experts on the impacts of land-use and land-management on climate change and feedback effects through terrestrial ecosystems

Initial competences

no previous knowledge expected

Final competences

Understanding of formation and decomposition processes of the gases carbon dioxide, methane, nitrous oxide, nitric oxide, ammonia, and hydrocarbons in forests, arable fields, grasslands and wetlands. Insights into the dynamics of these ecosystems and their effect on the greenhouse gas balance.

Conditions for credit contract

This course unit cannot be taken via a credit contract

Conditions for exam contract

This course unit cannot be taken via an exam contract

Teaching methods

Lecture

Extra information on the teaching methods

Examinations will be conducted directly after the lectures

Learning materials and price

Slides will be disposed as pdf files during the lecture

References

- Binkley D., Menyailo O. (2005) Tree Species Effects on Soils: Implications for Global Change. Nato Science Series. Springer Verlag Berlin.
- Chapin III F. S., Matson P.A., Mooney H.A. (2002) Principles of Terrestrial Ecosystem Ecology. Springer Verlag, Berlin. <http://www.boku.ac.at/ebooks.html>
- Dessler A.E., Parson E.A. (2006) The Science and Politics of Global Climate Change. A Guide to the Debate. Cambridge University Press, Cambridge.
- Haider K. (1996) Biochemie des Bodens. Ferdinand Enke Verlag, Stuttgart, 174 pp.
- Houghton J. (2004) Global Warming . Cambridge University Press, Cambridge.
- Houghton J. T., Y. Ding, D.J. Griggs, M. Noguer, P. J. van der Linden and D. Xiaosu (Eds.) (2001) Climate Change: The Scientific Basis. Cambridge University Press, UK. pp 944.
- Climate Change 2007 - The Physical Science Basis
Working Group I Contribution to the Fourth Assessment Report of the IPCC
Intergovernmental Panel on Climate Change, ISBN-13:9780521705967
<http://www.ipcc.ch/>
- Kromp-Kolb H., Formayer H. (2005) Schwarzbuch Klimawandel. Wie viel Zeit bleibt uns noch? Ecwin Verlag, Salzburg.
- Münchener Rück (2005) Wetterkatastrophen und Klimawandel. Sind wir noch zu retten? Pöschel Verlag München.
- Steffen W., Sanderson A., Tyson P.S., Jäger J., Matson P.A., Moore III B., Oldfield F., Richardson K., Schellnhuber H.J., Turner II B.L., Wasson R.J. (2003) Global Change and The Earth System. Springer Verlag, Berlin.
- Watson Robert T., Ian R. Noble, Bert Bolin, N. H. Ravindranath, David J. Verardo and David J. Dokken (Eds.) (2000) Land Use, Land-Use Change, and Forestry. Special Report of the Intergovernmental Panel on Climate Change. Cambridge University Press, UK. pp 375.

Course content-related study coaching

Assessment moments

end-of-term assessment

Examination methods in case of periodic assessment during the first examination period

Written examination

Examination methods in case of periodic assessment during the second examination period

Written examination

Examination methods in case of permanent assessment

Possibilities of retake in case of permanent assessment

examination during the second examination period is possible

Calculation of the examination mark