Selected courses in English in the academic year 2010/2011

KUL institute/department:	Institute of Environmental Protection/ Biochemistry and Environmental Chemistry
Course title:	**Oxygenology**
Lecturer (name, surname):	Zofia Stępniewska
Title/position:	Prof.dr hab.
ECTS credits:	4
Course duration (1st , 2nd or both semesters):	both semesters
Number of hours per week:	Two hours
Course type:	lecture
Level:	monograph
Course description:	1. Definition and role of oxygenology 2. Appearance of oxygen in the environment (paleoxygenology) 3. Oxygen discovery 4. Oxygen - its forms and properties 5. Reactive oxygen forms 6. Oxygen circle and balance - oxygen production and uptake (sinks and sources, ecosystems producing oxygen-wetlands) - global oxygen balance 7. Atmospheric oxygenology (oxygen distribution in the atmosphere, ozone concentration, formation and decomposition) - oxygen distribution and circulation within atmosphere - ozone in the atmosphere (formation and decomposition) - effect ozone on organisms (microbes,plants, animals, men) 8. Soil oxygenology - oxygen demand-microbial, mezofaunal and root respiration, transport (mass and diffusion in depth and diurnal and seasonal dinamics, effect on soil properties and processes (redox resistance and transformation) - oxygenology of landfiells (phases of landfills biochemical processes, methanogenesis and methanotrophy) - oxygenology of earth crust (mines, ventilation, oxygen and methane

	distribution in mines) 9. Aquatic oxygenology - oxygenology of oceans (stratification, temperature and oxygen production, demand and distribution, oxygen transport, saturation of ice with oxygen - marine oxygenology (stratification, oxygen production and absorption, saturation, profile in depth and seasonal dynamics) - lymnooxygenology (stratification, oxygen demand and production, oxygen distribution with depth and seasonal dynamics) 10. Biooxygenology - Microbial oxygenology (aerobes, microaerophiles, facultative anaerobes, obligatory anaerobes), respiration, response to oxygen deficienty and surplus - Phytooxygenology (plants as oxygen source and sinks, respiration, response to oxygen deficiency and surplus) - Zooxygenology (soil mezofauna, aquatic mezofauna, fish, mamals) - Human oxygenology: oxygen demand, oxygen transport through the blood circulation system, anoxic zones within organisms, response to oxygen deficiency and hiperoxygen concentration, optimum oxygen. 11. A look head
Required reading list:	Oxygen, the molecule that made the world. Nick Lane. Oxford University Press 2002. Anoxia and oxidative stress: lipid peroxidation, antioxidant status and mitochondrial functions in plants. Olga Blokhina, Ac.Diss. Helsinki 2000. Soil aeration and its role for plants.Glinski J.,Stepniewski W. CRC Press 1985. Biogeochemistry, An analysis of global change.W.H. Schlesinger. Academic Press San Diego, London, Boston, New York, Tokyo,Toronto 1997. Druga twarz tlenu. G.Rartosz. PWN 1995. Soil microbiology and Biochemistry E.A.

	Paul,F.E.Clark.Academic Press. 1996. Biochemistry and Molecular Biology W.H.Elliot, D.C.Elliot, Oxford University Press 2002.
Prerequisites:	not
Assessment method:	Oral exam
Contact person for further information (name, surname, e-mail, phone):	Zofia Stępniewska; stepz@kul.lublin.pl; 0048-81-445 46 19