

Study programme : <i>Forestry and Natural Resources Management</i>			
Subject: Soil degradation and climate changes			
Teachers: dr Snežana B. Belanović Simić , full. prof, dr Jelena Beloica associate professor, dr Vesna Nikolić Jokanović, assistant professor			
Subject status: elective course			
Credits: 5 ECTS			
Requirement: What courses & programmes must have been taken before this course? None			
Purpose of course: Understanding and mastering knowledge in the field of soil degradation processes that are the result of changes in the environment caused by human activities and which are superimposed on basic biogeochemical processes, potentially irreversible, comprehensive effects on current and future social, economic and ecological structures.			
Course outcome Students are able to define the causes, factors and connection of soil degradation processes that are the result of climate change. They are able to explain types and indicators of degradation and soil resistance; to define and describe the basic processes and components within certain classification systems, using modern information technologies; to carry out analyzes and selection of methods and models for adopting strategies for sustainable use and protection of land/soil resources.			
Contents of the course <i>Lectures:</i> Sustainable development; The 2030 Agenda for Sustainable Development with its 17 SDGs (<i>Sustainable Development Goals</i>) adopted at the UN Sustainable Development Summit. The distribution and speed of degradation of soil and land; Structures, processes, and soil degradation; Transforming our world: the 2030 Agenda for Sustainable Development; Chemical degradation; Physical degradation; Causes of soil degradation; Soil degradation indicators. The impact of climate change on soil; The dynamics of organic matter in the soil; Carbon bonding to mitigate climate change and combat land degradation; Possible consequences of the impact of climate change on the soil erosion process; Types of air pollutants; Long-range transboundary air pollution and international protocols; Acidification and conservation of nature; Heavy metals in the soil; Soil salinization; Application of mineral and organic fertilizers. Forms of soil degradation in R of Serbia. Desertification. Soil quality and soil security, Soil quality indicators, Soil quality assessment, Processes, factors and causes of soil resistance; Soil resistance indicators. Monitoring, measurement, and evaluation of the status and trends of soil degradation (current databases at European and global level). The Land Ethic. <i>Practical:</i> Practical lectures focus on analyses of soil degradation indicators, resistance indicators, and soil quality indicators. Preparation of maps and databases for analyzes of individual soil degradation processes based on internationally recognized methodologies and databases. Attention is paid to the application of certain soil degradation classification systems. Students present their results through seminar papers and final projects.			
Literature Adriano, D.C. (2001): Trace Elements in the Terrestrial Environment, Biogeochemistry, Bioavailability and Risk of Metals, second edition Springer, New – York, Inc. 867 p. ISBN 0-387-98678-2. Kabata-Pendias A., Pendias H. (2000): Trace Elements in Soils and Plants. CRC Press, Boca Raton, 413p. Lal, R. (1997): Degradation and resilience of soils, Phil. Trans.R.Soc.Lond.B 352, p. 997–1010 Lal, R., Socbecki, T.M., Iivari, T., Kimble, J (2004) Soil degradation in the United States, Extent, Severity and Trends, Lewis Publisher, A CRC Press Company, 221 p., ISBN 1-56670-534-7 Lal, R., Safriel, U., Boer, B. Zero Net Land Degradation (2012): A New Sustainable Development Goal for Rio+ 20, A report prepared for the Secretariat of the United Nations Convention to combat Desertification, May Tóth, G., Stolbovoy, V. and Montanarella, L. 2007. Soil Quality and Sustainability Evaluation - An integrated approach to support soil-related policies of the European Union. EUR 22721 EN. 40 pp. EC, Luxembourg, ISBN 978-92-79-05250-7 World Meteorological Organization. Climate and Land Degradation, WMO-No. 989, 2005			
Hourse of active teaching		<i>Lectures:</i> 30	<i>Practical:</i> 30
Methods of teaching Lectures, practical teaching, students presentations			
Mark (max. Of poens 100)			
in-course assessment	point	Exam	point
Activity in learning	60	<i>test</i>	<i>40</i>
- <i>Presentations</i> seminar papers			
- <i>Report</i> /final projects			