IMSOGLO
Assessing Soil Erosion Risk
COURSE DESCRIPTION (2019)

Course information I	
Course name	Assessing Soil Erosion Risk
Point(s) (ECTS)	5 ECTS (Study time 140 h, Contact hours 40 h)
Institute	Agroecology
Primary programme	EMJMD in International Master of Science in Soils and Global Change
Forms of instruction	Self-study – 20%; lecture/class room instruction – 30% Seminars/Practical – 30%; guidance (coached exercises) – 20%
Qualification description	*Course Objectives* Soil erosion causes globally serious soil degradation on agricultural land, off-site infrastructure damage, and negative impacts on the aquatic environment. Population growth, climate change, and intensification of farming are drivers that exacerbate erosion risk. The course introduces students to the main forms and processes of soil erosion. Students learn to apply simple modelling tools for erosion risk assessment and targeted mitigation planning in a catchment context. *Learning Outcomes/Final Competencies* At the end of the course the student should be able to: (i) Explain basic processes leading to different types of soil erosion (ii) Explain impacts of soil redistribution on crop production and the environment (iii) Conduct a GIS-based erosion risk assessment (iv) Develop targeted soil erosion mitigating plans
Comments on teaching	The course combines theoretical lectures, laboratory/field exercises, data analyses and modeling exercises, and project report writing.
Prerequisites	We expect participants have some knowledge of soil science as well as basic experience with GIS
Course information II	
Semester (s)	Autumn
Language of teaching	English
Hours – weeks – semester (s)	Three hours lectures or exercises per week. Two full days of field exercises at AU Research Center Foulum
Course content	The course comprises three integrated parts. Initially, key processes driving water, wind and tillage erosion in different agro-environments are presented. This is followed by an introduction to different modelling concepts for assessing erosion risk. The quality of necessary input data and uncertainties associated with modelling are addressed. With the help of a simple empirical, GIS-based soil erosion modelling tool students will conduct their own erosion risk scenario analyses for a selected study site from northern Europe. Soil redistribution is

	investigated hands-on in the field by means of tracer studies, and the resulting data will form part of the modelling exercise. Finally, different measures for reducing erosion risk are discussed in landscape and socio-economic contexts. This will enable students to develop and assess targeted mitigation plans for their study catchments. As part of the modelling exercise and for report writing students will form small groups.
Teacher	The teaching will be conducted by experts in the individual areas: Goswin Heckrath – Responsible Mogens Greve Bo Vangsø Iversen Lars Munkholm
Literature	1. Morgan, R.P.C. (2008) Soil Erosion and Conservation. 3rd ed. Blackwell Publishing, Oxford, UK. 2. Van Oost, K., Govers, G., Desmet, P.J.J. (2000) Evaluating the effects of changes in landscape structure on soil erosion by water and tillage. Landscape Ecology, 15, 577-589. 3. Govers, G., Vandaele, K., Desmet, P., Poesen, J., Bunte, K. (1994) The role of tillage in soil redistribution on hillslopes. European Journal of Soil Science, 45, 469-478. *Other material like book chapters and articles will be made available to students.*
Maximum enrolment	25
Location	Campus Aarhus & AU Foulum

Assessment (form of examination)	
Grading	Internal co-examination
Assessment	7-point grading scale
Notes	Examination will be based on the submitted reports and the entire curriculum
Prerequisites for examination participation	Approved participation in practical exercises and submitted project report
Exam	
Examination type	Oral
Name	Set oral examination
Exam time	20 min
Preparation time	None
Aid	Own reports