

Agricultural catchments in a changing world

Post graduate PhD course, 3 ECTS

Date and location

21st September-2nd October 2020,

Distant based learning (Zoom and Canvas)



Course content

Agricultural catchments are one of the landscapes mostly affected by the environmental change as they have inherent low buffering capacity for external and internal stressors. Climate change, increasing demand for clean water and food for growing populations, are expected to further impact agricultural catchments: intensify water circulation and pollution, eutrophication, soil erosion, emission of greenhouse gasses and biodiversity loss. As a result, ecosystem services provided by agricultural catchments are likely to diminish in changing future conditions unless appropriate mitigation options are implemented. This course recognises the importance of agricultural catchments and their sensitivity to global change and provides a comprehensive synthesis of dominant processes shaping agricultural landscapes: hydrological, biogeochemical, ecological, economic and societal. The course comprises theoretical lectures and practical assignments focused on environmental assessment and management, all adapted to maximise the potential of distant based learning.

Time	Monday	Tuesday	Wednesday	Thursday	Friday
Topic	Hydrology	Biogeochemistry	Ecology	Economy	Society
Week 39					
9:00-10:30	Literature discussion	Literature discussion	Literature discussion	Literature discussion	Literature discussion
Week 40					
9:00-10:15	Agricultural water cycle and its components (Bieroza)	Soil diversity and its impact on pollutant losses (Herrmann)	Soil microbes and their ecosystem services (Hallin)	The hidden costs of agricultural production (Collentine)	Adapting to climate change (Erik Kjellström)
10:15-10:30	Fika	Fika	Fika	Fika	Fika
10:30-12:00	Water residence time and flow pathways (Bishop)	Soil erosion and mapping the pathways (Djordjic)	Multiple stressors and their impact (Kelly-Quinn)	Cost-effectiveness of agri mitigation measures (Kronvang)	Citizen science and farmers engagement (Mellander)
12:00-13:00	Lunch	Lunch	Lunch	Lunch	Lunch
13:00-14:15	Drainage and irrigation under current and future climate (Barron)	Nutrient losses and their fate in land-water continuum (Bieroza)	Ecological perspective on mitigation measures (Stutter)	Food production and the circular economy (Futter)	Sustainable agricultural catchments (Haygarth)
14:15-14:30	Fika	Fika	Fika	Fika	Fika
14:30-15:30	Challenges and mitigation (all teachers that day)	Challenges and mitigation (all teachers that day)	Challenges and mitigation (all teachers that day)	Challenges and mitigation (all teachers that day)	Challenges and mitigation (all teachers that day)