

The sheep micro-MOOC: a pilot project for developing a Massive Open Online Course (MOOC) at the University of Iceland

Final project report

Short summary of the project

Sheep in the Land of Fire and Ice is a short Massive Open Online Course (MOOC) about sheep grazing in Iceland. The aim of this course is to raise awareness of the environmental risks associated with inadequate management of natural resources. Grazing management is a common problem in many regions of the world, and this course uses Iceland as a case study because here traditional sheep grazing has been associated with extensive environmental degradation. The course examines the sustainability of sheep grazing in Iceland and explores how history, socioeconomic factors and environmental conditions have influenced the management of grazing resources. For more information about this project, visit <http://sheepfireice.org>.

Background of the project

Massive Open Online Courses (MOOCs) are an innovative educational tool that have the potential to reach out to many students. With the support of Kennsumálasjóður we have developed a short MOOC about sheep grazing in Iceland. The topic of the course is highly relevant to Iceland, as sheep grazing is a main economic activity and one with important environmental consequences. This short MOOC provides an overview of the socio-economic context for sheep grazing in Iceland and an ecological understanding of the impacts of this extensive land use. Better knowledge about the consequences of these practices and how their impacts vary under different environmental conditions will improve decisions that will increase the sustainability of management practices in the face of ongoing environmental changes.

The course is designed for students in agriculture, and natural and environmental sciences at the graduate and undergraduate level but is accessible to anyone with an interest in sustainable management of natural resources.

More information about the course can be found in the course website (<http://sheepfireice.org>). The course will be launched in **January 2019**.

Course goals and learning outcomes

Land use without adequate management can drive environmental degradation. Development of sustainable management practices needs to take into account ecological, as well as economic and social aspects. Sheep grazing is a main land use in many regions worldwide but in many cases the sustainability of these practices has been questioned. The aim of this short course is to give an overview of the history, ecology and management of sheep grazing in Iceland, as a case study where sheep grazing has been associated to extensive environmental degradation. This course will briefly cover ecological, historical and cultural aspects of sheep grazing, as well as notions on applied management of grazing resources.

After completing this course, students will understand:

- The cultural, historical and economic relevance of sheep grazing in Iceland
- Basic ecological principles that drive sheep grazing systems, their complexity and dynamics
- Current issues, initiatives and approaches to sheep grazing management in Iceland

Course content and activities

The course consists of five parts, subdivided into twelve sections (**Table 1**). Each section contains a short video (3-8 minutes, as recommended by EdX), introductory text and “periodic formative feedbacks” in the form of short knowledge checks. There is a final quiz at the end of the course to test students’ understanding. To maximise accessibility, and following the guidelines in the EdX platforms, all videos will include transcripts in English (and possibly in Icelandic). The time estimated for completing the course is 2 hours (60 min of videos, 30 min reading materials and 30 min assignments).

Table 1. Course structure

Parts	Sections	Assignments
1. Course Introduction	1.1 Course introduction	Discussion: introduce yourself Knowledge check 1
2. Sheep grazing in the North	2.1 Sheep grazing in the North 2.2 Sheep grazing in Iceland 2.3 Sheep grazing can lead to soil erosion	Knowledge checks 2, 3, 4
3. Historical perspective of sheep grazing in Iceland	3.1 Iceland before sheep 3.2 Modelling the ecosystem 3.3 Then sheep arrived 3.4 Efforts to mitigate environmental degradation	Knowledge checks 5, 6, 7, 8
4. The present and the future of sheep grazing in Iceland	4.1 Sheep in Iceland today 4.2 Current efforts in ecological research 4.3 Sustainable sheep grazing?	Discussion: sustainable sheep grazing? Knowledge checks 9, 10, 11
5. Summary and conclusions	5.1 Summary and conclusions	Knowledge check 12 Final quiz Feedback

Use and dissemination

Sheep in the Land of Fire and Ice will be made available through the internal EdgeX platform of the University of Iceland (**Figure 1**) and will be launched in January 2019. Through the course website (<http://sheepfireice.org>) students will be able to access an URL link to the EdgeX platform and the course contents. The course will be available in January 2019.

The sheep micro-MOOC will be freely available online to students worldwide. In addition, given its multi-disciplinary approach, the course will be available as teaching material that could be incorporated into several of the courses offered at the Faculty of Life and Environmental Sciences at Háskóli Íslands in the undergraduate program (e.g. LÍF516M Environmental Issues, LÍF311G Ecology) or within the graduate program in Environment and Natural Resources (e.g. LÍF505M Ecology B, UAU101F Sustainable Development, Environmental Policy and Resource Management, UAU102F Introduction to Environment and Natural Resources). As well it will be available to students at the Agricultural University of Iceland (e.g. Rangeland Ecology and Management) and the fellows of the United University Land Restoration six-month training programme.

Introduction video

icbarrio

Unit Location

LOCATION ID
86572b3f016f408fa1a946baddb28fdf

To create a link to this unit from an HTML component in this course, enter
"/jump_to_id/<location ID>" as the URL value.

LOCATION IN COURSE OUTLINE

Part 1. Course introduction

Section 1.1 Sheep in the Land of Fire and Ice

Welcome to Sheep in the Land of Fire and Ice!

Getting around

Introduce yourself

Knowledge check #1

Figure 1. Image from the EdgeX platform where students will be able to access the course. The course consists of a series of short videos, explanatory text and short knowledge checks after the video to assess their understanding of the main concepts.

The team behind the course

The course has been developed by Isabel C Barrio (HÍ and Agricultural University of Iceland) and David Hik (Simon Fraser University, Canada), with the technical assistance of Nanna Höjgaard Grettirsdóttir and Grettir Sigurjónsson (Centre of Teaching and Learning, HÍ). The course features experts from Iceland, representing a range of backgrounds, career stages and gender balance: Ingibjörg Svala Jónsdóttir (Professor at HÍ), Ólafur Arnalds (Professor at the Agricultural University of Iceland), Egill Erlendsson (Professor at HÍ), Þórunn Pétursdóttir (Soil Conservation Service of Iceland), Jóhann Þórsson (Soil Conservation Service of Iceland), Björn Helgi Barkarson (Ministry of Environment and Natural Resources), Bryndís Marteinsdóttir (Soil Conservation Service of Iceland), Tara Mulloy (MSc student at Simon Fraser University and Agricultural University of Iceland), Unnsteinn Snorrason (Sheep Farmers' Association of Iceland) and Anja Mager (student at the Agricultural University of Iceland and sheep farmer). Rúnar Sigurðsson is assisting in setting up the course in the EdgeX platform. Dr Guðrún Geirsdóttir (head of the Centre of Teaching and Learning) and Sigdís Ágústsdóttir (Project Manager at the Student Services at SENS) helped initially to ensure the educational value of the project, and Ármann Gunnarsson (Division of Operations and Resources) assisted with the initial stages.