

05.79.03

Restoration Ecology

SECOND SPRING SEMESTER 2017, 6 ECTS / 8 ECTS

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DID YOU KNOW THAT...

- ... Restoration Ecology is one of the fastest growing sub-disciplines of Ecology
- ... restoration of degraded ecosystems can reduce the impact of many natural hazards?
- ... communication and policy are effective restoration tools?

COURSE DESCRIPTION

The main objective of this course is to deepen students' understanding of the conceptual framework for ecological restoration, and how it relates to practical aspects of restoration projects. Main subjects include

- drivers of ecological restoration;
- restoration ecology as a scientific discipline;
- the importance of landscape in ecological restoration;
- restoration of populations and communities;
- successional models and assembly rules in ecological restoration;
- the genetics of ecological restoration;
- socio-economic context of ecological restoration;
- values, ethics and ecological restoration;
- working with people, communication and stakeholder participation;
- wetland restoration;
- river restoration;
- restoration of arctic and alpine areas;

LEARNING OUTCOMES

At the end of the course, students should:

- have a general understanding of the theories, criteria, concepts and methods of the discipline of restoration ecology;
- understand the processes and trajectories of ecological restoration and be able to prescribe their manipulation to facilitate restoration of different ecosys-



- forest restoration
- invasive species
- role of NGO's in ecological restoration.
- restoration research and dissemination

tem types (woodland, wetlands, rivers, etc.) under different conditions;

- have insight into restoration ecology research and be able to interpret and present their results;
- comprehend the sociological and economic context of ecological restoration (locally and globally);
- be aware of the importance of stakeholder participation in ecological restoration and ways to facilitate participation.

TEACHERS

Supervisory teacher:

Prof. Ása L. Aradóttir (ÁLA), Restoration Ecology, AUI (Agricultural University of Iceland)
Phone 843 5330; e-mail: asa@lbhi.is;
Website: www.aradottir.weebly.com
My office is at the Reykjavík campus (Keldnaholt, Árleyni 22, Reykjavík). Please call or send an e-mail if you need to reach me.

Other lecturers:

- Brita Berglund (BB), Environmental communication, AUI
- Hlynur Óskarsson (HÓ), Ecology, wetlands, AUI
- Guðmundur Ingi Guðbrandsson (GIG), Environmental Science, CEO of Landvernd, the Icelandic Environmental Association
- Kristín Svavarsdóttir (KS), Plant Ecology/Restoration Ecology, Soil Conservation Service of Iceland

CREDITS AND PREREQUISITES

05.79.03 *Restoration Ecology* is a 6 ECTS mandatory course for all students in the Forest Science, Restoration Ecology and Management (FS-REM) Program, but an elective course for other students at AUI. It is also possible to take it as an 8 ECTS master-level course, pending additional work.

Prerequisites for taking the course are completion of 03.53.03 *Land reclamation and restoration* and a general ecology courses. Students can in some cases be exempted from the 03.53.03 requirement if they attend background lectures in the basic principles of ecological restoration that may be offered at the beginning of the course.



TEACHING ARRANGEMENT

The course is to a large extent based on the independent work of students, who get access to recorded lectures and selected overheads. **Students are expected to keep up with the lectures and reading assignments—papers, book chapters and other assigned materials—and should have finished all assigned material before each obligatory attendance.**

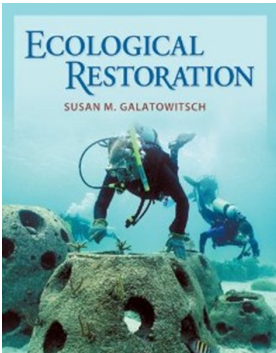
Lectures from subjects 1-15 will be recorded and posted on Uglá; other lectures and discussions will not be recorded. Please note that some subjects will be divided into several

lectures (2A, 2B etc.) to make the viewing easier. Key overheads and additional readings will be posted on Moodle.

The course language is English, and students are expected to turn in assignments in that language, unless they make a special arrangement with the supervisory teacher. **Short discussion sessions in Icelandic** about the course material are planned for 28 March and 26 April (see program on page 4). Attendance of these sessions is optional.

	Expected student hours	
	6 ECTS	8 ECTS
Lectures	24	24
Discussion sessions and seminars	13 (17*40 mín)	13
Field trip	8+	8+
Independent studies and project work	130-140	190-200
Total	~ 180	~ 240

TEACHING AND READING MATERIALS



- Selected chapters from the book **Ecological Restoration** by Susan Galatowitsch, Sinauer Associates Inc. (2012); this is the same book as used for the course 03.53.03 Land Reclamation and Restoration
- Papers and other book chapters assigned by teachers
- Recorded lectures and guest lectures (not all recorded)
- Projects and seminars

A preliminary list of assigned and optional reading materials will be made available on Moodle at the beginning of the semester; this will be updated as needed during the course.

EVALUATION

In-class projects and take-home exams should be prepared in accordance to guidelines. Failure to adhere to guidelines and late submissions of reports and projects will reduce course work mark.

Grades are given on scale 0-10. **To pass the course a minimal course work mark of 5.0 and a minimum final exam mark of 5.0 is required. Late submissions of reports and projects will reduce course work mark.**

Grade is based on	6 ECTS	8 ECTS
Group project	7	5
Take-home exam	20	15
Seminar (abstract, presentation, participation in discussions)	18	12
Essay (literature review)		25
Participation in discussions	5	3
Written final exam	50	40

IMPORTANT DATES

- 27 March Discussion session and group project at Hvanneyri campus; obligatory attendance
- 3-7 April Take-home exam will be assigned this week; exact dates decided later
- 6 April Group-project due
- 7 April Students should have selected a paper to present at a seminar 26 April
- 21 April Deadline for turning in abstracts for a seminar
- 24 April Guest lectures at Reykjavik campus (Keldnaholt) obligatory attendance
- 25 April Field trip (joint field trip with 04.49.03 *Techniques for restoration and afforestation of severely degraded land*); obligatory attendance
- 26 April Seminar (Hvanneyri); obligatory attendance



SCHEDULE 2017 (subject to revision)

Date / time	Subject no.	Subject (expected no. of lectures ¹)	Teacher
15 March 13:00-15:55	Back-ground material	Restoration of Degraded Land: Background and Main Principles (4) Obligatory attendance for students that have not taken 03.53.03 Land Reclamation and Restoration , other students are welcome to attend Please note that these lectures will be held at the Reykjavík campus of AUI (Keldnaholt), Árleyni 22, 112 Reykjavík (will not be recorded)	ÁLA
16 March recordings	1-4	Introduction of the course and in-class projects 1 Drivers of ecological restoration; restoration locally and globally (2) 2 Restoration Ecology; the science of ecological restoration (1) 3 The importance of landscape in ecological restoration (2) 4 Restoration of populations and communities (2-3)	ÁLA
23 March, recordings	5-8	5 Successional models and assembly rules in ecological restoration (2-3) 6 The genetics of ecological restoration (2-3) 7 Socio-economical context of ecological restoration (2-3) 8 Values, ethics and ecological restoration (1-2) 9 Working with people, communication and stakeholder participation (2-4)	ÁLA BB
27 March 9:00-12:00 13:00-14:25 14:30-16:40		Discussion session, obligatory attendance. Location AUI main campus at Hvanneyri (will not be recorded) Students should have finished watching lectures and reading appropriate materials for subjects 1-9 prior to attending this session Case study presentations and discussion Communication and stakeholder participation, discussion and exercises Group project, introduction and start of work.	ÁLA BB ÁLA
28 March 13:00-14:30		Extra discussion session about subjects 1-8 in Icelandic. Attendance optional Location: Hvanneyri (will not be recorded)	
30 March recordings	10-12	10 Presentation of results from restoration studies (scientific papers, lectures, posters, etc.) Reading scientific papers (2) Introduction to seminar on 26 April (1)	ÁLA
3-7 April		Take-home exam (exact dates to be decided) 11 Restoration of arctic and alpine areas (1-2) 12 Forest restoration (2)	ÁLA ÁLA
21 April, recordings	13-15	13 Wetland restoration (2-3) 14 River restoration (1-2) 15 Restoration research (3)	HÓ ÁLA ÁLA
24 April 9:40-12:00 13:00-15:10 15:15-15:55	16-17	Guest lectures and discussions, obligatory attendance Reykjavík campus (Keldnaholt), Árleyni 22, 112 Reykjavík (will not be recorded) 16 Ecological restoration, nature conservation and NGO's (3) 17 Invasive species (3) Wetland restoration, discussion	GIG KS HÓ
25 April 9:00-?		Field trip, Rangárvellir-Hekluškógar (joint field trip with 04.49.03 Techniques for afforestation and restoration of severely degraded land) Obligatory attendance; start from Keldnaholt	ÚÓ & ÁLA
26 April 9:00-16 16-17:25		Seminar and discussion about restoration research; obligatory attendance. Location AUI main campus at Hvanneyri. (will not be recorded) Wrap-up and general discussion (will not be recorded) Extra discussion session about subjects 9-18 in Icelandic. Attendance optional (not recorded)	ÁLA