

# Biodiversity and Conservation

Title	Biodiversity and Conservation
Semester	F2024
Master programme in	Miljø biologi / Miljørisiko / Environmental Science
Type of activity	Course
Teaching language	English
Study regulation	Read about the Master Programme and find the Study Regulations at <a href="https://ruc.dk">ruc.dk</a> Læs mere om uddannelsen og find din studieordning på <a href="https://ruc.dk">ruc.dk</a>

## REGISTRATION AND STUDY ADMINISTRATIVE

	Sign up for study activities at <a href="https://stads.selvbetjening">stads selvbetjening</a> within the announced registration period, as you can see on the <a href="#">Studyadministration homepage</a> .
	When signing up for study activities, please be aware of potential conflicts between study activities or exam dates.
Registration	The planning of activities at Roskilde University is based on the recommended study programs which do not overlap. However, if you choose optional courses and/or study plans that goes beyond the recommended study programs, an overlap of lectures or exam dates may occur depending on which courses you choose.
Number of participants	The Master Programme/Institute reserves the right to cancel the course if fewer than 8 studentes are registered for the course.
ECTS	5
Responsible for the activity	Morten Foldager Pedersen ( <a href="mailto:mfp@ruc.dk">mfp@ruc.dk</a> )
Head of study	Per Meyer Jepsen ( <a href="mailto:pmjepsen@ruc.dk">pmjepsen@ruc.dk</a> )
Teachers	
Study administration	INM Registration & Exams ( <a href="mailto:inm-exams@ruc.dk">inm-exams@ruc.dk</a> )

Exam code(s) U60101

## ACADEMIC CONTENT

**Overall objective** The course is a theoretical and practical course (containing lectures, class-room discussions, computer exercises and student presentations) that will provide knowledge of the quantitative and qualitative assessments of biological communities with a special focus on biodiversity and conservation issues. The course focusses on the factors controlling local, regional and global patterns in diversity, the statistical methods used to analyse temporal and spatial changes in community structure and diversity, threats to biodiversity (including genetic issues), conservation strategies and restoration biology as well as the ecological theories that constitutes the basis for modern conservation strategies and management.

**Detailed description of content** The course is a theoretical and practical course containing lectures, class-room discussions, computer exercises and student presentations. Students will learn about the quantitative and qualitative assessments of biological communities with a special focus on biodiversity and conservation issues.

The course focusses on the factors that control local, regional and global patterns in biodiversity, the statistical methods used to analyse temporal and spatial changes in community structure and diversity, threats to biodiversity (including genetic issues), conservation strategies and restoration biology as well as the ecological theories that constitutes the basis for modern conservation strategies and management.

There is no formal text-books in this course. The curriculum consists of:

- Course material and Reading list**
- Power Point presentations from the lectures,
  - Selected chapters from various text books,
  - Selected scientific papers,
  - Texts authored by the teacher(s) including guides for the exercises.

All material will be freely available from the course Moodle folder.

**Overall plan and expected work effort** The course consists of ca. 20 lectures/exercises, each 2 hours (=2\*45 minutes).

The course is a 5 ETCS credit course, corresponding to an expected student work-load of ca. 135 hours divided between;

- lectures including class-room exercises and student presentations: ca. 40 hours.
- preparation: ca: 60 hours
- exam including exam preparation: ca. 35 hours.

#### Format

The course includes formative evaluation based on dialogue between the students and the teacher(s).

Evaluation and feedback Students are expected to provide constructive critique, feedback and viewpoints during the course if it is needed for the course to have better quality. Every other year at the end of the course, there will also be an evaluation through a questionnaire in SurveyXact. The Study Board will handle all evaluations along with any comments from the course responsible teacher.

Furthermore, students can, in accordance with RUCs 'feel free to state your views' strategy through their representatives at the study board, send evaluations, comments or insights from the course to the study board during or after the course.

The program consists of ca. 20 lectures (each 2 hours). The exact program may change slightly from year to year depending on needs.

The major topics are:

- Programme
- An Introduction to Biodiversity & Conservation Biology and measures of Biodiversity (4 hours)
  - Multivariate comparisons of diversity and community structure (10 hours).
  - Global and regional patterns in biodiversity including Island Biogeography (4 hours).

- Processes shaping community structure - competition, predation and physical disturbance (2 hours).
- Biological Succession - temporal changes in diversity community structure (4 hours).
- Trophic diversity - food webs and food web analysis (2 hours).
- Genetic Diversity (4 hours).
- Conservation - Diversity, what is it good for? Stability and resilience (2 hours).
- Conservation - Threats to Biodiversity and who are we going to save? (4 hours).

Conservation - Approaches to conservation attempts (4 hours).

## ASSESSMENT

Having completed the course, students will be able to:

Overall  
learning  
outcomes

- evaluate knowledge about and critically relate to theories concerning biodiversity, island biogeography, and community structure and ecosystem stability, resistance, and resilience
- demonstrate knowledge of ways to quantify biodiversity (both species and genetic diversity) and to select among different quantitatively analyses of spatial and temporal changes in biodiversity and community structure
- evaluate environmental factors and biological processes that determine biodiversity and community structure at various spatial scales
- quantitatively analyse temporal and spatial changes in biodiversity using relevant statistical methods and to critically evaluate and communicate the results to third parties in an academically competent manner
- evaluate whether wild populations are at risk of local, regional or global extinction.

- apply the above-mentioned theories from community ecology to suggest appropriate designs and strategies for the preservation and restoration of biodiversity in a broad sense (i.e., in a conservation context)
- initiate, plan and conduct investigations of potentially threatened populations or communities and be able to suggest and plan strategies for preservation and restoration of such populations and/or biodiversity in a broader context.

Individual oral exam with time for preparation.

Time for preparation including time to pick a question by drawing lots: 30 minutes.

Form of examination

Time allowed for exam including time used for assessment: 30 minutes.

Permitted support and preparation materials: All.

Assessment: 7-point grading scale.

Moderation: Internal co-assessor.

Form of Re-examination

Samme som ordinær eksamen / same form as ordinary exam

Type of examination in special cases

Time for preparation including time to pick a question: 30 minutes. Time allowed for exam including time used for assessment: 30 minutes.

### **Evaluation criteria:**

Examination and assessment criteria

Students will be assessed by their ability to:

- Critically select appropriate ways to quantify biodiversity and community structure, know how to analyse changes in biodiversity using relevant statistical methods and, critically evaluate and communicate the results of such assessments in an academically competent manner.
- Demonstrate knowledge of, and critically relate to, ecological theories concerning biodiversity, island biogeography, and

community structure and ecosystem stability, resistance, and resilience, and be able to evaluate environmental factors and biological processes that affect biodiversity and community structure.

- Evaluate whether wild populations are at risk of local, regional or global extinction, and apply theories from community ecology to suggest appropriate designs and strategies for the preservation and/or restoration of biodiversity in a broad sense (i.e. in a conservation context).

Exam code(s) Exam code(s) : U60101

## **Course days:**

**Hold: 1**

### **Biodiversity and Conservation (ES)**

time 12-02-2024 08:15 til  
12-02-2024 10:00

location 12.1-073 - teorilokale i 12.1 (30)

Teacher Morten Foldager Pedersen ( mfp@ruc.dk )

### **Biodiversity and Conservation (ES)**

time 16-02-2024 10:15 til  
16-02-2024 12:00

location 12.1-073 - teorilokale i 12.1 (30)

Teacher Morten Foldager Pedersen ( mfp@ruc.dk )

### **Biodiversity and Conservation (ES)**

time 19-02-2024 08:15 til  
19-02-2024 10:00

location 12.1-073 - teorilokale i 12.1 (30)

Teacher Morten Foldager Pedersen ( mfp@ruc.dk )

## **Biodiversity and Conservation (ES)**

time 23-02-2024 10:15 til  
23-02-2024 12:00  
location 12.2-079 - teori 12.2 (15)  
Teacher Morten Foldager Pedersen ( mfp@ruc.dk )

## **Biodiversity and Conservation (ES)**

time 26-02-2024 08:15 til  
26-02-2024 10:00  
location 12.1-073 - teorilokale i 12.1 (30)  
Teacher Morten Foldager Pedersen ( mfp@ruc.dk )

## **Biodiversity and Conservation (ES)**

time 01-03-2024 10:15 til  
01-03-2024 12:00  
location 12.1-073 - teorilokale i 12.1 (30)  
Teacher Morten Foldager Pedersen ( mfp@ruc.dk )

## **Biodiversity and Conservation (ES)**

time 04-03-2024 08:15 til  
04-03-2024 10:00  
location 12.1-073 - teorilokale i 12.1 (30)  
Teacher Morten Foldager Pedersen ( mfp@ruc.dk )

## **Biodiversity and Conservation (ES)**

time 08-03-2024 10:15 til  
08-03-2024 12:00  
location 12.1-073 - teorilokale i 12.1 (30)  
Teacher Morten Foldager Pedersen ( mfp@ruc.dk )

## **Biodiversity and Conservation (ES)**

time 15-03-2024 10:15 til  
15-03-2024 12:00  
location 12.1-073 - teorilokale i 12.1 (30)  
Teacher Morten Foldager Pedersen ( mfp@ruc.dk )

## **Biodiversity and Conservation (ES)**

time 18-03-2024 08:15 til  
18-03-2024 10:00  
location 12.1-073 - teorilokale i 12.1 (30)  
Teacher Morten Foldager Pedersen ( mfp@ruc.dk )

## **Biodiversity and Conservation (ES)**

time 22-03-2024 10:15 til  
22-03-2024 12:00  
location 12.1-073 - teorilokale i 12.1 (30)  
Teacher Morten Foldager Pedersen ( mfp@ruc.dk )

## **Biodiversity and Conservation (ES)**

time 05-04-2024 10:15 til  
05-04-2024 12:00  
location 12.1-073 - teorilokale i 12.1 (30)  
Teacher Morten Foldager Pedersen ( mfp@ruc.dk )

## **Biodiversity and Conservation (ES)**

time 08-04-2024 08:15 til  
08-04-2024 10:00  
location 12.1-073 - teorilokale i 12.1 (30)  
Teacher Morten Foldager Pedersen ( mfp@ruc.dk )

## **Biodiversity and Conservation (ES)**

time 12-04-2024 10:15 til  
12-04-2024 12:00  
location 12.1-073 - teorilokale i 12.1 (30)  
Teacher Morten Foldager Pedersen ( mfp@ruc.dk )

## **Biodiversity and Conservation (ES)**

time 15-04-2024 08:15 til  
15-04-2024 10:00  
location 12.1-073 - teorilokale i 12.1 (30)  
Teacher Morten Foldager Pedersen ( mfp@ruc.dk )



## **Biodiversity and Conservation (ES)**

time 19-04-2024 10:15 til  
19-04-2024 12:00  
location 12.1-073 - teorilokale i 12.1 (30)  
Teacher Morten Foldager Pedersen ( mfp@ruc.dk )

## **Biodiversity and Conservation (ES)**

time 22-04-2024 08:15 til  
22-04-2024 10:00  
location 12.1-073 - teorilokale i 12.1 (30)  
Teacher Morten Foldager Pedersen ( mfp@ruc.dk )

## **Biodiversity and Conservation (ES)**

time 29-04-2024 08:15 til  
29-04-2024 10:00  
location 12.1-073 - teorilokale i 12.1 (30)  
Teacher Morten Foldager Pedersen ( mfp@ruc.dk )

## **Biodiversity and Conservation - Exam (ES)**

time 14-06-2024 08:15 til  
14-06-2024 16:00  
Teacher Morten Foldager Pedersen ( mfp@ruc.dk )

## **Biodiversity and Conservation - Reexam (ES)**

time 12-08-2024 08:15 til  
12-08-2024 16:00  
Teacher Morten Foldager Pedersen ( mfp@ruc.dk )